Sunday, October 29

1500h.....Writing an Effective Cover Letter and Resume Workshop, *Universal 22, 1st Floor, Expo Center*

1600h.....Job Interviewing Tips Workshop, *Universal 22, 1st Floor, Expo Center*

1830h.....Polymer Electrolyte Fuel Cells …"For the Rest of Us," *Universal 12-16, 1st Floor, conference center, Sunrise*

1930h.....Sunday Evening Get-Together, *Moon Light Terrace, Sunrise; or Galactic Ballroom in the event of rain*

B6 Proton Exchange Membrane Fuel Cells 6

Energy Technology / Physical and Analytical Electrochemistry / Battery / Industrial Electrolysis and Electrochemical Engineering

Galactic 8, Conference Center, Sunrise

Membranes
Co-Chairs: S. Lvov and K.Tasaki

14:00 **411** Fullerene Composite Membranes for H2FC and DMFC - K. Tasaki, J. Gasa, H. Wang and R. DeSousa (MC Research & Innovation Center)

14:20 **412** Recent Progress in Preparation and Characterization of PBI Membranes for PEMFC - Q. Li (Technical University of Denmark), P. Noye (DT'U), J. Jensen, C. Pan and N. Bjerrum (DTU)

14:40 **413** Preparation of Self-Standing Composite Electrolyte Membrane by Use of Three-Dimensionally Ordered Macroporous Silica Matrix - K. Sasajima, H. Munakata and K. Kanamura (Tokyo Metropolitan University)

15:00 **414** Ionic Liquid Composite Polymer Electrolyte Membranes for the Unhumidified Intermediate Temperature Fuel Cell - J. Lee, T. Nohira and R. Hagiwara (Kyoto University)

15:20 **415** Optimized DMFC Performance Comparison for Modified and Unmodified Nafion Membranes - P. N. Pintauro, J. Lin, A. Trivisonno and R. Wycisk (Case Western Reserve University)

15:40 **416** Nafion/TiO_2 Composite Membranes for PEM Fuel Cells Operating at Elevated Temperature and Reduced Relative Humidity - S. Lvov, E. Chalkova, G. Rybka, M. Fedkin (The Pennsylvania State University), D. Wesolowski (Oak Ridge National Laboratory) and M. Roelofs (DuPont)

16:00 **417** Proton Conductive Composite Materials with Co-Continuous Phases Using Functionalized and Crosslinkable TFE/VDF Fluoropolymers - S. Lvov, M. Chung, S. Komarneni and E. Chalkova (The Pennsylvania State University)

16:20 **418** Experimental Elucidation of Proton Conducting Mechanism in a Polymer Electrolyte Membrane of Fuel Cell by Nuclei Labeling MRI - S. Tsushima, K. Teranishi and S. Hirai (Tokyo Institute of Technology)

16:40 **419** Performance Enhancement of PVA/PAMPS Conducting Composites using High Molecular Weight PVA - J. Qiao (National Institute of Advanced Industrial Science and Technology), H. Ono (The Nippon Synthetic Chemical Industry Co., Ltd), T. Oishi (Nippon Synthetic Chemical Industry Co., Ltd) and T. Okada (National Institute of Advanced Industrial Science and Technology)

17:00 **420** Ionic Conductivity and Fuel Crossover of Multilayer Thin Films for Fuel Cell Application - J. N. Ashcraft and P. Hammond (Massachusetts Institute of Technology)

B6 Proton Exchange Membrane Fuel Cells 6

Energy Technology / Physical and Analytical Electrochemistry / Battery / Industrial Electrolysis and Electrochemical Engineering

Galactic 4, Conference Center, Sunrise

Low Temperature and Water Dynamics
Co-Chairs: V. Ramani and R. Kunz

14:00 **421** Behavior of Water below the Freezing Point in PEFCs - Y. Ishikawa (Nippon Soken, Inc.), T. Morita (Toyota Motor Corporation) and M. Shiozawa (Nippon Soken, Inc.)

14:20 **422** Study of Physical Damage during Freeze/Thaw of PEFCs - M. Mench and S. He (Penn State University)

14:40 **423** Temperature-Driven Water Transport in Polymer Electrolyte Fuel Cells - R. Zaffou, H. Kunz (University of Connecticut) and J. Fenton (University of Central Florida)

15:00 **424** Dynamics of Water Transport in Polymer Electrolyte Fuel Cells during Start-up in Under-Humidified Conditions - U. Pasaogullari and R. S. Fu (University of Connecticut)

15:20 **425** Dynamics of PFSA Polymer Hydration Measured in Situ by SAXS - A. M. Herring (Colorado School of Mines), M. Yandrasits (3M), N. Aieta, R. J. Stanis (Colorado School of Mines), S. Hamrock (3M) and D. Cookson (APS)

15:40 **426** Fuel Cell Evaluation for Dynamic Applications - R. Moore (University of Hawaii), K. Hauer (Xcellvision, Inc.), G. Randolf and M. Virji (University of Hawaii, HNEI/SOEST)

16:00 **427** Parameter Changes During Gradual Flooding of a PEM Fuel Cell through EIS Studies - U. Cano (Institute of Electrical Research), A. Ortiz (Centro de Investigacion y Desarrollo Tecnologico en Electroquimica S.C), L. G. Arriaga (Institute of Electrical Research) and G. Orozco (Centro de Investigacion y Desarrollo Tecnologico en Electroquimica S.C.

16:20 **428** Detection of Critical Operating Conditions for Fuel Cell Applications via Distortion Analysis - T. Schaffer,(Graz University of Technology, CD-Laboratory of Fuel Cell Systems), W. R. Baumgartner (CD-Laboratory for Fuel Cell Systems), E. Wallnofer (Graz University of Technology), V. Hacker (Institute for Chemistry and Technology of Inorganic Materials), E. Ramschak, V. Peinecke and P. Prenninger (AVL List GmbH)

16:40 **429** Water Management at the Cathode of a Planar Air-Breathing Fuel Cell with an Electroosmotic Pump - T. Fabian (Stanford University), R. O'Hayre (Colorado School of Mines), S. Litster, F. B. Prinz and J. G. Santiago (Stanford University)

C3 Nanoparticles, Electrons, and Photons

Organic and Biological Electrochemistry / Physical and Analytical Electrochemistry

Universal 4, 1st Floor, Expo Center

Co-Chairs: R. Murray and D. Waldeck

09:00 **710** Size and Ligand Dependencies of Metal Nanoparticle Properties - R. W. Murray (University of North Carolina)

09:20 **711** Sensitized NIR Luminescence in Dyes Covered Gold Nanoparticles - M. Montalti, N. Zaccheroni and L. Prodi (University of Bologna)

09:40 **712** Isolation and Electrochemical Studies of Au55:SR Clusters - N. K. Chaki (Institute for Molecular Science), H. Tsunoyama, Y. Negishi (Research Center for Molecular Science, Institute for Molecular Science) and T. Tsukuda (Research Center for Molecular Science, Institute for Molecular Science, Japan Science and Technology Agency)

10:00 **713** Redox Properties of Monolayer Protected Au38 Nanoclusters - F. Maran, S. Antonello and A. Holm (University of Padova)

10:20 Intermission (20 Minutes)

10:40 **714** Build-up and Characterization of Polyelectrolyte/Gold Nanoparticle Multilayers: Electrochemical Sensor Application - M. Chirea, C. Pereira and A. Silva (University of Porto)

11:00 **715** Synthesis and Optical Properties of Fluorinated Gold Thiolate Nanoparticles - A. Antonysamy, A. Dass, R. Guo and M. Royce (University of North Carolina)

11:20 **716** Carbon Nanotube-Based Strategies for Ultrasensitive Detection of Cancer Biomarker Proteins - J. Rusling (University of Connecticut), X. Yu (Tufts University), B. Munge (Salve Regina University), V. Patel (Institute of Dental and Craniofacial Research, National Institutes of Health), G. Jensen, A. Bhirde, J. Gong, S. Kim (University of Connecticut), S. Gutkind (Institute of Dental and Craniofacial Research, National Institutes of Health) and F. Papadimitrakopoulos (University of Connecticut)

11:40 **717** Manipulating the Electron Transfer between Electrodes and Cytochrome C to Reveal New Behavior with Implications for Apoptosis. - D. H. Waldeck, H. Yue and L. Wang (university of Pittsburgh)

Co-Chairs: H. Girault and J. Rusling

14:00 **718** Spectroelectrochemical Studies of CdSe Sensitized Thin Aqueous Layers - H. H. Girault (EPFL), M. Hojeij and B. Su (EPFL ISIC LEPA)

14:20 **719** Quantum Dot Encapsulated Hydrogels as a Novel FRET Marker - B. W. Garner, A. Neogi, S. Ghosh, J. Li, T. Cai and Z. Hu (University of North Texas)

14:40 **720** Multifuntional GdIII-Functionalized Quantum Dots for Bioimaging - D. Bera (University of Florida), H. Yang (Hongik University), S. Santra (Nanoscience Technology Center), G. Walter and P. Holloway (University of Florida)

15:00 **721** Formation of Gold Nanoplates on Indium Tin Oxide Surfaces and the Electrochemical Applications - M. Oyama and A. Ali Umar (Kyoto University)

15:20 **722** Spectroscopic Studies on Active Oxygen Species in TiO_2 Photocatalytic System - Y. Nosaka, T. Daimon, K. Endo and Y. Murakami (Nagaoka University of Technology)

15:40 Intermission (20 Minutes)

16:00 **723** Nanoparticle-Metallopolymer Assemblies: Luminescent Properties - L. Dennany and R. Forster (Dublin City University)

16:20 **724** Single Molecule Detection Surface-Enhanced Raman Scattering Substrates by Electroless Synthesis of Ag Nanoparticles on Nanostructured Silicon Films - A. K. Kalkan and S. J. Fonash (Penn State University)

16:40 **725** Electrochemical Synthesis of Nanoparticle-Based Film of Polypyrrole - A. Abbaspourrad and A. Eftekhari (Materials and Energy Research Center)

17:00 **726** Effect of Silica Nanoparticles on Electropolymerization of Aniline - P. Jafarkhani and A. Eftekhari (Materials and Energy Research Center)

I3 Electrochemical Surface Science: Recent Advances in the Study of the Electrode-Electrolyte Interface

Physical and Analytical Electrochemistry

Universal 18, 1st Floor, Expo Center

Theory
Chair: N. Batina

08:00 Introductory Remarks (10 Minutes)

08:10 **1891** Electrochemical Nanowires - W. Schmickler (University of Ulm)

08:40 **1892** Theoretical Studies on the Role of Electrolyte Ions for Surface Reconstruction of Au(100) - T. Jacob (Fritz-Haber Institut der MPG)

09:10 **1893** First-Principles Calculation of Hydrogen Adsorption on Pt(111): Electric Field Effect - M. Yamamoto (Kyoto University)

09:40 **1894** Recent Results on Density Functional Theory Calculations of Halogen Adsorption on the Pt(111) Surface - A. Tkatchenko (Universidad Autonoma Metropolitana), M. Galvan and N. Batina (Universidad Autonoma Metropolitana Iztapalapa)

10:00 Intermission (20 Minutes)

10:20 **1895** A Theoretical Quantum Study About the Deposition of Cobalt onto Gold Substrate. Analysis of Some Electronic Properties Involved During the Deposition Process L. H. Mendoza Huizar (Universidad Autonoma del Estado de Hidalgo), C. Rios-Reyes, M. Romero-Romo (Universidad Autonoma Metropoltana. Unidad Azcapotzalco), M. Rivera (Universidad Nacional Autonoma de Mexico. Insituto de Fisica) and M. Palomar-Pardave (Universidad Autónoma Metropolitana)

10:40 **1896** d-Band Catalysis in Electrochemistry - E. Santos (Universidad Nacional de Cordoba)

11:10 **1897** Quantum Simulation Complemented with a Kinetic Monte Carlo Method for Solid Oxide Fuel Cell - R. Pornprasertsuk and F. B. Prinz (Stanford University)

11:30 **1898** Unequal-Sphere Packing Model for the Structural Arrangement of Well-Ordered Adsorbate-Substrate System - N. Batina (Universidad Autonoma Metropolitana Iztapalapa) and A. Tkatchenko (Universidad Autonoma Metropolitana)

Interfacial Structure and Reactivity
Chair: E. Borguet

14:00 **1899** Identifying Reaction Sites for the Hydrogen Evolution Reaction - D. M. Kolb, L. Kibler and A. Pediaditakis (University of Ulm)

14:30 **1900** New In Situ Surface Probes of Platinum Two-Dimensional Domains - J. M. Feliu, P. Rodriguez, J. Solla, E. Herrero and A. Aldaz (Universidad de Alicante)

15:00 **1901** From Reactions at Steps to Reactions at Monoatomic Rows: Adsorption, Hydrogenation and Hydrogen Evolution - H. Baltruschat, F. Hernandez and R. Bussar (University of Bonn)

15:30 Intermission (10 Minutes)

15:40 **1902** Impedance Representation of an Electrode Reaction at Electrode-Electrolyte Interfaces: an Integrated Description of the Interface Physics - S. Park (Pohang University of Science and Technology), B. Chang and J. Yoo (POSTECH)

16:00 **1903** Charge Carrier Tunneling Across the Passive Film on Platinum - D. D. Macdonald and J. Bao (Pennsylvania State University)

16:30 **1904** Probing Redox Dynamics at the Single Molecule Level at Electrochemical Interfaces - E. Borguet and Y. He (Temple University)

Monday, October 30

0745h.....Continental Breakfast, *Universal Ballroom, 2nd Floor, Expo Center*
0830h.....Plenary and Honors and Awards Session, *Universal Ballroom, 2nd Floor, Expo Center*
0930h.....Coffee Break, *Universal Ballroom, 2nd Floor, Expo Center*
1100h.....Writing an Effective Cover Letter and Resume Workshop, *Universal 22, 1st Floor, Expo Center*
1200h.....Job Interviewing Tips Workshop, *Universal 22, 1st Floor, Expo Center*
1215h.....ECS Battery Division Luncheon & Business Meeting, *Star 1/2, Conference Center, Sunrise*
1215h.....ECS High Temperature Materials Division Luncheon & Business Meeting, *Star 7, Conference Center, Sunrise*
1430h.....Resume Roundtable Workshop, *Universal 22, 1st Floor, Expo Center*
1800h.....Monday Evening Mixer, Student Poster Session, and Technical Exhibit Opening, *Universal Ballroom, 2nd Floor, Expo Center*

A1 General Society Student Poster Session

All Divisions

Universal Ballroom, 2nd Floor, Expo Center

Monday Evening Student Poster Session
Co-Chairs: G. Botte, V. Desai and V. Subramanian

- **1** Oxidation Resistant Indium Tin Oxide Catalyst Support for Proton Exchange Membrane Fuel Cells - H. K. Chhina, S. Campbell (Ballard Power Systems, Inc.) and O. Kesler (UBC)
- **2** Electrochromic Properties of Mixed Metal Oxide Thin-Film and Its Application to Anion Sensor - T. Takeyasu, S. Takase and Y. Shimizu (Kyushu Institute of Technology)
- **3** Synthesis of Well-Crystallized Pd_{20}/Te_7 Alloy Nanoparticles in the Aqueous Solution - N. Konishi, N. Konishi (IMRAM), H. Takahashi (Graduate School of Environmental Studies), H. Ohno, K. Takahashi (MCC) and A. Muramatsu (IMRAM)
- **4** Liquidus Temperature of Molten Cryolite-Based Aluminum Electrolyte - H. Kan, Z. Qiu and Y. Ban (Northeastern University)
- **5** X-Ray Absorption Spectroscopic Studies on Electronic and Local Structures of $La_{1-x}Sr_xMnO_3$-H. Aoki, M. Rai, N. Kitamura, K. Amezawa, Y. Uchimoto, Y. Tomii (Kyoto University), T. Kawada and J. Mizusaki (Tohoku University)
- **6** Characteristics of Carbon Nanofiber Grown Using Electroplated Ni Catalyst - H. Yoo, S. Yoon, W. Sung, Y. Kim and S. Joo (Seoul National University)
- **7** Preparation and Characterization of Nafion/ Cyclodextrin Composite Membranes Coated with Microporous Titanosilicate for Direct Methanol Fuel Cells - J. Jeon, S. Yu and S. Kwak (Seoul National University)
- **8** Improvement of an Aluminum Interference Coloring Process Using $SnSO_4$ - D. L. Gonzalez, V. Alcaraz, N. Casillas, D. Camacho and E. Rodriguez (Universidad de Guadalajara)

- **9** An Investigation of Mass Transport in PEMFC by Using MEMS Based Ti-GDL - T. Miura (Tokyo Institute of Technology), D. Takahashi, H. Shiozaki, K. Fushinobu and K. Okazaki (Tokyo Tech.)
- **10** Catalytic Reduction of Oxygen by Metalloporphyrins in Fuel Cell Electrodes - L. Elbaz, A. Bettelheim and E. Korin (Ben-Gurion University)
- **11** Synthesis of Ordered Mesoporous Zirconium Phosphate Films and Their Proton Conductivity - Y. Nishiyama (Osaka University), S. Tanaka (Kansai University), N. Nishiyama, Y. Egashira and K. Ueyama (Osaka University)
- **12** Electronic and Local Structures of $La_{1-x}Sr_xCoO_3$ Studied by X-Ray Absorption Spectroscopy - M. Rai, K. Amezawa, Y. Uchimoto, Y. Tomii (Kyoto University), T. Kawada and J. Mizusaki (Tohoku University)
- **13** Dependence of Properties, Crystal Structure and Electrode Characteristics on Li Content for $Li_x(Ni,Co)O_2$ as a Cathode Active Material for Li Secondary Batteries - Y. Takanashi, Y. Idemoto and N. Koura (Tokyo University of Science)
- **14** High Temperature Protonic Conduction in Aragonite-Type $LnBO_3$ (Ln=La, Pr, Nd) A. Yanagihara, J. Yamada, K. Amezawa and Y. Uchimoto (Kyoto University)
- **16** Reduction of Ni Content in the Metal-Induced Lateral Crystallization Process - N. Song (Seoul National Universtiy), M. Kim (Seoul National University), Y. Kim (Seoul National Universtiy), S. Han and S. Joo (Seoul National University)
- **17** Effects of Structure Variations for Heteropolyacids Added to PEMFC Anodes for Increased Performance Under CO Poisoned Conditions - R. J. Stanis, A. M. Herring, M. Kuo (Colorado School of Mines) and J. Turner (National Renewable Energy Laboratory)
- **18** SAXS Measurements of Hydration Processes in Nafion and Nafion-Like Membranes - N. Aieta (Colorado School of Mines), M. Yandrasits, S. Hamrock (3M), R. J. Stanis (Colorado School of Mines), D. Cooksen (University of Chicago) and A. M. Herring (Colorado School of Mines)
- **19** Pt/C Powders Synthesized by Plasma Chemical Method and their use as Fuel Cell Electrode Catalyst - J. Shim, I. Koo, K. Joung and W. Lee (Ajou University)
- **20** Plasma-Chemical Reduction Method Applied to Preparation of Thin Platinum Film Coated on Polymer Membrane Surface - J. Lee, I. Koo and W. Lee (Ajou University)
- **21** Determination of Copper Traces in Tequila by Anodic Stripping Voltammetry (ASV) - J. G. Ibanez (Universidad Iberoamericana), N. Casillas (Universidad de Guadalajara), A. Carreon (Universidad Iberoamericana), F. Hernandez-Ramirez, M. Barcena-Soto (Universidad de Guadalajara) and R. Prado-Ramirez (CIATEJ)
- **22** Trivalent Yttrium Ion Conducting Solid Electrolytes - S. Yamamoto, S. Tamura and N. Imanaka (Osaka University)
- **23** Electrochemical Detection of Glucose Using Enzymatic Prussian Blue Deposition - J. Park, J. Kwak and S. Hwang (Korea Advanced Institute of Science and Technology)
- **24** Potential Cycle Effect on Pt and Pt-Based Alloy Catalysts of PEFC - J. Murai (Tokyo Institute of Technology), N. Miki, K. Fushinobu and K. Okazaki (Tokyo Tech.)
- **25** Corrosion Performance of Stainless Steel and Inconel in Simulated Fuel-Cell Media - S. V. Rivas (Centro de Investigacion y Desarrollo Tecnologico en Electroquimica S.C.), E. Cuara, F. Manriquez, I. Terol and G. Orozco (Centro de Investigacion y Desarrollo Tecnologico en Electroquimica S. C.)
- **26** Stability of Partially Immersed Nafion Coated Pt/C Electrode Under Oxygen Atmosphere - Y. Matsuo (University of Shiga Prefecture), T. Kinumoto, Y. Iriyama, T. Abe, Y. Uchimoto (Kyoto University), K. Kikuchi (The University of Shiga Prefecture) and Z. Ogumi (Kyoto University)
- **27** Mechanism of Black Patina Formation after the Processing of Copper Electrical Conductors - M. Ascencio, A. Correa-Borroel (Universidad de Guadalajara), J. G. Ibanez (Universidad Iberoamericana), J. Rodriguez-Sainz (Condumex, SA.), M. Barcena-Soto and N. Casillas (Universidad de Guadalajara)
- **28** Mechanism of the DC Bias Stressing in Metal Induced Laterally Crystallized P-Channel Polycrystalline Silicon Thin Film Transistor - S. Han, I. Kang (Seoul National University), N. Song (Seoul National Universtiy), M. Kim and S. Joo (Seoul National University)
- **29** Effect of the Morphology of CdS Thin Film for the Photocatalytic Decomposition of Hydrogen Sulfide - A. Takahashi, A. Takahashi, T. Ishiyama, H. Takahashi (Graduate School of Environmental Studies), Y. Sato (Graduate School of Enviromental Studies,Tohoku University), J. Balachandran (Graduate School of Environmental Studies) and K. Tohji (Tohoku University)
- **30** Dependence of Coupling Ratio of High Capacitive-Coupling Ratio Surrounding Gate Transistor (HiCR-SGT) Flash Memory Cell on Structural Parameters - T. Ohba, H. Nakamura and F. Masuoka (Tohoku university)
- **31** Effect of Crystalline Structure of Precursor Compounds for Synthesis of the Stratified CdS Photocatalyst - S. Yokoyama, S. Yokoyama, H. Takahashi (Graduate School of Environmental Studies), Y. Sato (Graduate School of Enviromental Studies,Tohoku University), J. Balachandran and T. Kazuyuki (Graduate School of Environmental Studies)
- **32** Relationship Between Ferroelectric Properties and Crystal Structure of $Bi_4Si_3O_{12}$ Added (Bi, Sm)$_4Ti_3O_{12-d}$ - T. Ito, Y. Idemoto and N. Koura (Tokyo University of Science)
- **33** Experimental and Theoretical Characterization of the Ordered Intermetallic Phases PtSb and PtSn. - L. M. Pinto (Universidade Estadual Paulista - UNESP), G. Nobrega, J. Sambrano (Grupo de Modelagem e Simulacao Molecular.) and A. Angelo (Laboratorio de Eletrocatalise e Reacoes Superficiais.)
- **34** Electrocatalytic Activity of Polyaniline for Oxygen Reduction and Methanol Oxidation - M. Dzul Alcazar and M. A. Smit (CICY)

- **35** Role of Experimentally Observed Defect Energy Levels in Carrier Transport and Charge Trapping in Metal Gate/Hf-Silicate Based Gate Stacks - N. Rahim (New jersey institute of Technology), N. A. Chowdhury and D. Misra (New Jersey Institute of Technology)
- **36** Heteropolyacids as Anode Electrocatalysts in a Direct Methanol Fuel Cell - J. Ferrell and A. M. Herring (Colorado School of Mines)
- **37** Synthesis of Magnetite Particles for Hyperthermia by using Modified Oxidation Process - T. Hosono, B. Jeyadevan (Tohoku university), Y. Sato (Graduate School of Enviromental Studies,Tohoku University) and K. Tohji (Tohoku University)
- **38** Facile Synthesis and Characterization of Conducting Polymer-Acid Treated CNT Composite Films Prepared by Electrochemical Methods - S. Cho (Postech) and S. Park (Pohang University of Science and Technology)
- **39** Synthesis of Fe-Ni Nano-Particles by Modified Polyol Process - Y. Konno (Tohoku University), K. Shinoda (Institute of Multidisciplinary Research for Advanced Materials,Tohoku University), H. Takahashi (Graduate School of Environmental Studies), Y. Sato (Graduate School of Enviromental Studies,Tohoku University), B. Jeyadevan and K. Tohji (Tohoku University)
- **40** A Sealed Honeycomb SOFC with Oxidant-Preheating Paths - Z. Wang (Tokyo Institute of Technology), A. Toriyama (Thinktank Phoenix Co.Ltd.) and Y. Yamazaki (Tokyo Institute of Technology)
- **41** Preparation and Physicochemical Evaluation of Modified MWCNTs Scaffolds - N. Tsuchiya (Tohoku University), Y. Sato (Tohoku University), N. Aoki (Hokkaido University), B. Jeyadevan (Tohoku University), A. Yokoyama, F. Watari (Hokkaido University) and K. Tohji (Tohoku University)
- **42** The High Zr^{4+} Ion Conducting $Zr_{1-x/4}TaP_{3-x}W_xO_{12}$ Solids - T. Itano (Faculty of Engineering, Osaka University), S. Tamura and N. Imanaka (Osaka University)
- **43** Electrochemical Studies in Pure Molten Lead Chloride - L. Owe and G. Haarberg (Norwegian University of Science and Technology)
- **44** A Miniature Electrochemical Methanol Concentration Sensor for Direct Methanol Fuel Cell Systems - M. Lee, I. Koo and W. Lee (Ajou University)
- **45** Effects of Electroless Deposited Co-P Catalysts on the Hydrogen Generation Properties from Hydrolysis of Alkaline NaBH4 Solution - K. Eom, K. Cho and H. Kwon (Korea Advanced Institute of Science and Technology)
- **46** Electrocatalytic and Catalytic Hydrogenation of Some Ketones as a Comparative Study - C. M. Cirtiu, A. Brisach-Wittmeyer and H. Menard (Universite de Sherbrooke)
- **47** Evaluation of Each Design Parameter Weightage for Optimizing Attenuator Coating on APBN Support Rods for a High Gain, Helix TWT Amplifier - V. Kumar (Kurukshetra University), A. Vohra (Kueukshetra University, Kurukshetra) and V. Srivastava (CEERI, Pilani)
- **48** Degradation of Paraquat In Natural Waters From Antioquia Region. A Polarographic Study - D. A. Vasco (University of Antioquia), M. Vazquez, J. Smith (Universidad de Antioquia) and J. Echeverri (Cornare)
- **49** Influence of Physicochemical Parameters on Internal Stress in Electroformed Nickel Produced with Sulfamate Plating Baths - J. C. Olvera, L. Montoya (Centro de Investigacion y Desarrollo Tecnologico en Electroquimica, S. C.) and Y. Meas (Centro de Investigacion y Desarrollo Tecnologico en electroquimica)
- **50** Pure and $Nb_{0.1}Ti_{0.9}O_2$-Supported $Mn_xCu_{1-x}Co_2O_4$ Studied as Oxygen Bifunctional Electrocatalyst - S. Poirier (Universite du Quebec a Montreal), M. De Koninck and B. Marsan (UQAM)
- **51** Electrochemical Performance and Microstructure of the LNF-SDC Composite Cathode for SOFC - P. Sornthummalee, K. Sato (Nagaoka University of Technology), H. Orui, R. Chiba and M. Arakawa (NTT Energy and Environment Systems Laboratories)
- **52** Measuring Hepatotoxicity More Effectively Utilizing a Multianalyte Microphysiometer - J. R. Chambers and D. Cliffel (Vanderbilt University)
- **53** AC Impecance Spectroscopy of Solid State PANI-Based Supercapacitors - L. Garcia Burgos, T. Toledano and M. A. Smit (CICY)
- **54** Electrochemical Growth of CdSe Thin Film on Gold from Acid and Alkaline Medium. Caracterizacion of the Films - K. D. Saavedra, K. D. Saavedra (Universidad Simon Bolivar) and R. Ortiz (ULA)
- **55** Electrocatalysis of O_2 on PtCo and PtV Catalysts for Fuel Cell Applications - P. Inkaew and C. Korzeniewski (Texas Tech University)
- **56** Alkaline Fuel Cell Saturated by CO_2 - E. Maya Visuet (Facultad de Quimica, UNAM)
- **57** Characterization of Pitted Ti Surfaces using AC-SECM - A. Estrada, J. Avalos, M. Barcena-Soto (Universidad de Guadalajara), I. Gonzalez-Martinez (Universidad Autonoma Metropolitana) and R. Antano (CIDETEQ)
- **58** A Derivative Method for the Estimation of the Electrochemical Production Rate of Ozone in Sulfuric Acid - G. Limon, H. Gutierrez-Murillo (ITESO) and J. G. Ibanez (Universidad Iberoamericana)
- **59** Temperature Dependent Work-Function Characteristics of Pt-Ru Schottky Diode - R. M. Todi, M. Erickson, K. B. Sundaram and K. Coffey (University of Centeral Florida)
- **60** Synthesis and Performance Optimization of Sol-Gel Prepared Ni-YSZ Cermet SOFC Anodes - S. K. Kung (University of Calgary), P. Keech (University of Western Ontario) and V. Birss (University of Calgary)
- **61** High Temperature Annealing Characterization of Reactively Sputtered SiCBN Thin Films - A. Vijayakumar (University of Central Florida), R. M. Todi, M. Erickson, K. B. Sundaram and K. Coffey (University of Centeral Florida)
- **62** Selective Chemical Etching of Si Substrate using Colloidal Crystal as Mask - K. Uchibori (Kogakuin University), S. Ono (Kogakuin University, Faculty of Engineering) and H. Asoh (Kogakuin University)
- **63** Effect of Electrolyte pH and Anions on Dielectric Property of Anodic Oxide Films Formed on Niobium - H. Itaya (Kogakuin University), S. Ono (Kogakuin University, Faculty of Engineering) and H. Asoh (Kogakuin University)

- **64** Cr(VI) Reduction using Polyaniline Coating on RVC Electrodes - P. Herrasti (Universidad Autonoma de Madrid), A. Porras, S. Gutierrez, F. Vilches and A. Alatorre (Universidad de Guanajuato)
- **65** Supercapacitor Evaluation with Bylayered Electrodes Based on Nanocarbons and PEDOT-PSS - A. Cuentas-Gallegos (Centro de Investigacion en Energia-UNAM), M. Gonzalez Toledo and M. Rincon (Centro de Investigacion en Energia)
- **66** Fabrication of Metal Hexacyanoferrate (MHCF)-Modified Electrodes from Nanoparticle Precursors - P. M. Frias-Urena, J. Arellano-Ceja, N. Casillas and M. Barcena-Soto (Universidad de Guadalajara)
- **67** Electrooxidation of the Basic Dye Yellow 28 using a Composite Co-Polyvinylchloride Electrode - R. Tovar, O. Omar, D. Martin and E. Maria De La Paz (Universidad Autonoma de Puebla)
- **68** Surface Study of p-type MBE Gallium Nitride Growth over CdSe Quantum Dots - C. C. Burkhart (University of North Carolina at Charlotte), K. N. Patel, J. Pagan (University of North Carolina-Charlotte), P. Barletta (UNC Charlotte) and E. B. Stokes (University of North Carolina at Charlotte)
- **69** Chromate-Free Corrosion Inhibition of Aluminum Alloys: Tailored Anionic Exchange Clays for Inhibitor Delivery - K. D. Ralston (The Ohio State University) and R. G. Buchheit (Fontana Corrosion Center)
- **70** Formation of Ionic Liquid Eutectic Mixtures as a Tool for Melting Point Depression - M. Smiglak (University of Alabama), M. Dilip (The University of Alabama), N. Bridges (University of Alabama) and R. D. Rogers (The University of Alabama)
- **71** Characterization of Soil Samples Polluted with Lead Residues using Modified CPE - G. Beristain (Instituto Tecnologico de Tijuana), E. Sumbarda, R. Felix and M. Oropeza (Centro de Graduados del ITT)
- **72** Oxidation of MTBE in Aqueous Solution by Electrogenerated Persulphate - P. Inda (Instituto Tecnologico de Tijuana), R. Felix (Centro de Graduados ITT), A. Diaz (San Jose State University), S. Lin Ho and M. Oropeza (Centro de Graduados del ITT)
- **73** Electrochemical Oxidation of Arsenites, by an Anode of Reticulated Glassy Carbon as Previous Step for Removal - S. Perez (Universidad Tecnologica de Tijuana), S. Lin Ho and R. Felix (Centro de Graduados ITT)
- **74** Dopamine Detection using an Electrode Modified with Carbon Nanotubes - G. Alarcon-Angeles (Universidad Autonoma Metropolitana), S. Corona-Avendano (Universidad Autonoma Metropolitana), B. Perez-Lopez (Universitat Autonoma de Barcelona), A. Rojas-Hernandez (Universidad Autonoma Metropolitana), M. Ramirez-Silva, M. Palomar-Pardave (Universidad Autonoma Metropolitana), M. Romero-Romo (Universidad Autonoma Metropoltana. Unidad Azcapotzalco), S. Alegret and A. Merkoçi (Universitat Autonoma de Barcelona)
- **75** Comparative Design and Study of FIA Cells for the Study of Amperometric Sensors of Waste Waters - S. A. Lopez (Universdad de Guanajuato), A. Alatorre and S. Gutierrez (Universidad de Guanajuato)
- **76** Virtual Instrument in Real-Time to Spctroelectrochemistry - L. A. Garcia and A. Alatorre (Universidad de Guanajuato)
- **77** Electrochemical Formation of A Novel Conducting Poylmer Membrane on CPE from Aqueous Solution Containing Pb(II) Acetate - M. Avila-Jimenez (UAM Azcapotzalco), M. Ramirez-Silva (Universidad Autonoma Metropolitana), G. Rosquete Pina (Universidad Autonoma Metropolitana (Azcapotzalco), M. Palomar-Pardave (Universidad Autonoma Metropolitana) and M. Romero Romo (Universidad Autonoma Metropolitana (Azcapotzalco)
- **78** Electrochemical and Spectrophotometric Detection of the Chromo-Diphenylcarbazide Complex using FIA - V. Garcia-Davila (Universidad Autonoma Metropolitana), V. Garcia Davila (Universidad Autonoma Metropolitana), G. Alarcon-Angeles (Universidad Autonoma Metropolitana), A. Rojas-Hernandez (Universidad Autonoma Metropolitana), M. Ramirez-Silva, M. Palomar-Pardave (Universidad Autonoma Metropolitana) and M. Romero-Romo (Universidad Autonoma Metropoltana Unidad Azcapotzalco)
- **79** Influence of the Cetyltrimethylammonium Bromide, CTAB, on the Response of Dopamine - L. Hernandez Martinez (UAM Azcapotzalco), M. Ramirez-Silva (Universidad Autonoma Metropolitana), G. Rosquete Pina (Universidad Autonoma Metropolitana (Azcapotzalco), M. Palomar-Pardave (Universidad Autonoma Metropolitana) and M. Romero Romo (Universidad Autonoma Metropolitana (Azcapotzalco)
- **80** Silver and Silver Chloride Electrodeposits, an Alternative in the Construction of Ag/AgCl Solid Electrodes - G. Valdes, G. Alvarez Romero (Universidad Autonoma Metropolitana), M. Ramirez-Silva (Universidad Autonoma Metropolitana), C. Galan-Vidal (Universidad Autonoma del Estado de Hidalgo), M. Romero-Romo (Universidad Autonoma Metropoltana. Unidad Azcapotzalco) and M. Palomar-Pardave (Universidad Autonoma Metropolitana)
- **81** Decolorization of Aqueous Dye Solutions of Reactive Black 5 by Chemical and Electrochemical Processes - A. Mendez, M. M. Davila (Universidad Autonoma de Puebla) and M. Elizalde (Universidad Autonoma de Puebla)
- **82** A Simulink-Based Graphical User Interface for Electrochemical Simulation of Power Sources - S. Santhanagopalan, Q. Zhang and R. White (University of South Carolina)
- **83** Development of Liquid Membranes for NO_x Gas Detection and Storage Utilizing Calix[4]Arenes in Ionic Liquids - J. H. Poplin (The University of Alabama), D. Rudkevich (University of Texas at Arlington), R. Swatloski and R. D. Rogers (The University of Alabama)
- **84** N-Type Extended Drain Silicon Controlled Rectifier with Counter Pocket Source (CPS) for High Latchup Immunity of High Voltage Operating I/O Application - Y. Seo, S. Park (Daebul University) and K. Kim (MagnaChip Semiconductor)

A2 Nanotechnology General Session

Nanotechnology/Sensor

Universal 11, 1st Floor, Expo Center

Nanostructures
Co-Chairs: W. van Schalkwijk and S. Mukherjee

10:00 **85** Bisthiol-Crosslinked Gold Nanoparticles Network: Self-Assembly and Characterization - T. Ohsaka, A. Abdelrahman, C. Raj, A. Mohammad and T. Okajima (Tokyo Institute of Technology)

10:20 **86** Synthesis and Electrochemical Characterization of Platinum and Ruthenium Nanoparticles Encapsulated in PAMAM-G_4OH Dendrimer for Oxygen Reduction in the Presence of Methanol. - I. L. Escalante Garcia, J. Ledesma García (CIDETEQ), F. Rodriguez (Centro de Investigacion y Desarrollo Tecnologico en Electroquimica, CIDETEQ), T. W. Chapman (CIDETEQ) and L. Godinez (Centro de Investigación y Desarrollo Tecnologico en Electroquimica (CIDETEQ))

10:40 **87** Sub-100 nm Cu Films Deposited by Electroless on SAMs - E. Glickman, N. Fishelson, A. Inberg and Y. Shaham-Diamand (Tel Aviv University)

11:00 **88** Photoactive Metal- Silicon Nanocomposite by Electrochemical Self-Organization - K. Skorupska (Hahn-Meitner-Institut), M. Aggour (Ibn Tofail University), M. Kanis, M. Lublow, T. Stemp el-Pereira, H. Jungblut and H. Lewerenz (Hahn-Meitner-Institut, Berlin)

11:20 **89** Synthesis and Surface Characterization of Nano-Sized Pt Group Catalysts - C. Bock (NRC), E. Baranova, D. Ilin and B. MacDougall (National Research Council of Canada)

11:40 **90** Synthesis of Uniform and Well-Crystallized $Pd_{20}Te_7$ Alloy Nanoparticles in the Aqueous Solution - H. Takahashi, H. Takahashi (Graduate School of Environmental Studies), N. Konishi (IMRAM), H. Ohno, K. Takahashi (MCC) and A. Muramatsu (IMRAM)

12:00 **91** Electrochemical Kinetics and X-Ray Absorption Spectroscopy Studies of a Rhodium Sulfide Electrocatalyst for ORR Applications - J. M. Ziegelbauer (Northeastern University), D. Gatewood (The George Washington University), A. F. Gulla (PEMEAS USA), D. Ramaker (The George Washington University) and S. Mukerjee (Northeastern University)

14:00 **92** Nanotechnologies for Fabrication of Photocatalysts, Composites and Electronic Devices - T. Khoperia (Institute of Physics) and T. Zedginidze (Institute of Phisycs)

Metal and Semiconductror Nanostructures
Co-Chairs: M. Lopez Teijelo and W. van Schalkwijk

14:00 **92** Nanotechnologies for Fabrication of Photocatalysts, Composites and Electronic Devices - T. Khoperia (Institute of Physics) and T. Zedginidze (Institute of Phisycs)

14:20 **93** Nanostructured TiO_2-Based Mixed Metal Oxides Prepared Using Microemulsions for Carbon Monoxide Detection - T. Anukunprasert (Chulalongkorn University), E. Bartolomeo (University of Rome Tor Vergata), E. Traversa (University of Rome Tor Vergata,) and C. Saiwan (Chulalongkorn University)

14:40 **94** Influence of Ordering in Porous TiO_2 Layers on the Electron Diffusion Rate - A. Zaban, A. Zaban, S. Tirosh, A. Ofir, L. Grinis (Bar-Ilan University) and T. Dittrich (HMI, Berlin, Germany)

15:00 **95** Flower-Like Bundles of Zno Nanosheets as an Intermediate Between Hollow Nanosphere and Nanoparticles - H. Arami and A. Eftekhari (Materials and Energy Research Center)

15:20 **96** Electrodeposition of Single-Crystalline PbTe Nanowires - F. Xiao (University of California-Riverside), B. Yoo (University of California at Riverside), K. Lee (Korea Institute of Machinery &; Materials) and N. V. Myung (University of California-Riverside)

15:40 **97** High Quality Single Crystal Al-catalyzed Si Nanowire - S. Lee, S. Whang and L. Sungjoo (National University of Singapore)

16:00 **98** Self-Assembled Formation of Uniform Arrays of InP Nanopores and Nanowires by Eelectrochemical Process - T. Sato, T. Fujino and T. Hashizume (Hokkaido University)

16:20 **99** Electrocatalysis at Nanometer and Sub-Nanometer Scales: Hydrogen Evolution on Supported MoS_2 and Mo_3S_4 Clusters - T. F. Jaramillo, K. Jorgensen, S. Saadi, J. Bonde, J. Zhang, B. Ooi, J. Nielsen, S. Horch, J. Ulstrup, J. Norskov and I. Chorkendorff (Technical University of Denmark)

16:40 **100** Raman Analysis of Highly Conductive Polypyrrole on Multiwalled Carbon Nanotube Nanoelectrode Array - B. Chen (NASA Ames), J. Li and L. Delzeit (NASA Ames Research Center)

B1 Electrochemical Capacitors and High Power Batteries

Battery / Energy Technology / Physical and Analytical Electrochemistry

Universal 8, 1st Floor, Expo Center

Metal Oxide Electrodes
Co-Chairs: R. Brodd and K. Naoi

10:00 Introductory Remarks (5 Minutes)

10:05 **124** Electrophoretic Deposition of Hydrous Ruthenium Oxide Nanoparticles and Electrochemical Capacitors - K. Naoi and J. Jang (Tokyo University of Agriculture and Technology)

10:35 **125** Electrochemical and Thermal Performance of Activated Carbon/MnO_2 Asymmetric Aqueous Supercapacitor - T. Brousse (Laboratoire Genie des Materiaux et Procedes Associes), P. Taberna (Universite Paul Sabatier), O. Crosnier, R. Dugas, P. Guillemet, Y. Scudeller (LGMPA, Polytech, Universite de Nantes), F. Favier, Y. Zhou (LAMMI, Université Montpellier II), P. Simon (Universite Paul Sabatier) and D. Belanger (UQAM Montreal)

11:05 **126** Evaluation of Carbon Paste Electrodes Modified with Ruthenium Oxides for their Application in Electrochemical Capacitors - O. Martinez Alvarez (research center of energy CIE-UNAM) and M. Miranda Hernandez (CIE-UNAM)

11:35 **127** Nanostructured Metal Oxides for Electrochemical Capacitor Application - K. Kim, K. Nam, K. Kim and S. Ma (Yonsei University)

Metal Oxide Electrodes - 2
Co-Chairs: M. Morita and P. Simon

14:00 **128** Laser Modification of Hydrous Ruthenium Oxide During Direct-Write Deposition of Ultracapacitor Electrodes - C. B. Arnold, N. Kattamis and G. Wei (Princeton University)

14:30 **129** Anodic Deposition of Hydrous Ruthenium Oxide for Supercapacitors - C. Hu, M. Liu and K. Chang (National Chung Cheng University)

15:00 **130** Synthesis of Mesoporous Metal Oxide/ Carbon Nanotube Composite Electrode using Hard Template Method for Supercapacitors - K. Kim, K. Kim and K. Kim (Yonsei University)

15:30 Intermission (15 Minutes)

15:45 **131** Cathodic Electrodeposition of Manganese Oxides for Electrochemical Supercapacitors - I. Zhitomirsky, N. Nagarajan, M. Cheong and J. Wei (McMaster University)

16:15 **132** Investigation on Cycling Stability of Mn-Containing Oxide Supercapacitors - N. Wu and K. S. L. (National Taiwan University)

16:45 **133** Room Temperature Synthesis of Nanostructured MnO_2 and Their Electrochemical Properties as Supercapacitor Electrode Materials - B. Wei, S. Venkatachalam and H. Zhu (Louisiana State University)

17:15 **134** Manganese Oxide Supercapacitor: The Role of Carbon Nanotubes - F. Molaei and A. Eftekhari (Materials and Energy Research Center)

B2 Intercalation Compounds for Batteries and Hybrid Supercapacitors

Energy Technology / Battery

Universal 2, 1st Floor, Expo Center

Electrodes for Li-Ion
Co-Chairs: K. Zaghib and C. M. Julien

10:00 **170** Lithium Batteries Towards Sustainability - M. Armand and J. Tarascon (Universite de Universite de Picardie Jules Verne)

10:40 **171** Temperature Effect on $LiFePO_4$ Cathode Performance - A. Guerfi (Hydro-Quebec), N. Ravet (University of Montreal), P. Charest, M. Dontigny, M. Petitclerc and K. Zaghib (Hydro-Quebec)

11:00 **172** Thermal Investigations of Intercalation Electrodes in Li-Ion HEV Batteries - J. Prakash, H. Yang, H. Bang, H. Joachin and S. Amiruddin (Illinois Institute of Technology)

11:20 **173** Tin, Titanium Pyrophosphate for Lithium Ion Negative Electrodes - J. Irvine (St Andrews University), P. S. Attidekou and P. Connor (University of St Andrews)

11:40 **174** $LiFePO_4$-WSB Cathode for Low-Cost Li-Ion Polymer Batteries - K. Zaghib, P. Charest, A. Guerfi, M. Dontigny and M. Petitclerc (Hydro-Quebec)

Cathodes and Modeling I
Co-Chairs: M. Armand and J. Prakash

14:00 **175** Dynamical Studies of Conductivity in Disordered $LiFePO_4$ - B. Fultz, J. L. Dodd (California Institute of Technology), R. Stevens, I. Halevy (Caltech), R. Yazami (CNRS-CALTECH), B. Ellis and L. Nazar (Univ. Waterloo)

14:20 **176** $LiFePO_4$ as a Promising Cathode Material for Power Tools - H. Akita, K. Hasumi, H. Kitao, Y. Kida and S. Fujitani (Sanyo Electric Co.,Ltd.)

14:40 **177** TEM Studies of Carbon Coated $LiFePO_4$ After Charge Discharge Cycling - H. Gabrisch (University of New Orleans), M. M. Doeff and J. Wilcox (Lawrence Berkeley National Laboratory)

15:00 **178** Li_2RuO_3 and $LiFePO_4$: A Low-Impedance Composite Cathode - A. M. Stux, J. Sutsko and K. Swider-Lyons (Naval Research Laboratory)

15:20 **179** Entropy of Lithiation in Li_xFePO_4 - J. L. Dodd (California Institute of Technology), S. Nishimura (Tokyo Institute of Technology), R. Yazami (CNRS-CALTECH), A. Yamada (Tokyo Institute of Technology) and B. Fultz (California Institute of Technology)

15:40 **180** Mathematical Modeling of Li/CF_x-SVO Batteries - P. Gomadam, D. Merritt, E. Scott, C. Schmidt, P. Skarstad (Medtronic Inc.) and J. Weidner (University of South Carolina)

Cathodes and Modeling II
Co-Chairs: B. Fultz and H. Gabrish

16:20 **181** Amorphous and Nanocrystalline Intercalation Hosts: Promising Properties, Intriguing Mechanisms and Contrast with Microcrystalline Counterparts - J. J. Xu, G. Jain (Rutgers, the State University of New Jersey), M. Balasubramanian (Argonne National Laboratory) and J. Yang (Rutgers, the State University of New Jersey)

16:40 **182** Amorphous or Nanocrystalline Manganese Oxides for Lithium Battery Cathodes - P. Strobel (CNRS), A. Ibarra-Palos (Instituto de Investigaciones en Materiales, UNAM, Mexico), A. Diaz, C. Darie (Lab. Cristallographie CNRS, Grenoble, France) and J. Soupart (Erachem Europe)

17:00 **183** Electrochemical Properties of Nano-Sized Electrode Materials Prepared by Spray Pyrolysis Deposition - T. Doi, S. Okada, J. Yamaki (Kyushu University), Y. Iriyama, T. Abe and Z. Ogumi (Kyoto University)

17:20 **184** A Study on Manganese Dioxide Discharge Using Electrochemical Impedance Spectroscopy - S. Donne, J. Arnott and G. Browning (University of Newcastle)

17:40 **185** $LiNi_{0.5}Mn_{0.5}O_2$ with High Power and High Capacity for Li Rechargeable Batteries - K. Kang (Massachusetts Institute of Technology), Y. Meng (MIT), J. Breger (SUNY at Stony Brook), C. Grey (SUNY Stony Brook) and G. Ceder (MIT)

B3 Lithium-Ion Batteries

Battery / Energy Technology

Galactic 2, Conference Center, Sunrise

Anodes
Co-Chairs: G. G. Amatucci and J. Dahn

10:30 **240** Studies of Tin Transition Metal Alloys for Li Ion Battery Negative Electrodes - J. Dahn (Dalhousie University), A. Todd (Dalhousie) and R. Mar (Dalhousie University)

11:00 **241** Determination of the Diffusion Coefficient of Lithium in Silicon - T. Takamura (Harbin Institute of Technology), K. Yoshimura (Rokkyo University), J. Suzuki and K. Sekine (Rikkyo University)

11:20 **242** The Specific Elucidation on the Electrochemical Degradation Mechanism of Si Based Materials - Y. Kang, S. Lee, S. Kim, M. Sung, G. Jeong, W. Choi and S. Kim (Samsung SDI Co., LTD.)

11:40 **243** Structure Effect of Si-Based Powder on Cycle Performance of Lithium Ion Battery - M. Yang (Industrial Technology Research Institute), D. Shieh (ITRI Taiwan), B. Hsieh and S. Tsao (Industrial Technology Research Ins)

Battery Division Research Award: Prof. Tsutomu Ohzuku
Chair: K. M. Abraham

14:00 **244** Materials Strategy for "Green" Lithium–Ion Batteries: An Application of Lithium-Ion Technology to Lead-Free Accumulators – T. Ohzuku (Osaka City University)

Electrolytes
Co-Chairs: K. M. Abraham and S. Zheng

14:40 **245** On the Thermal Behavior of LiBOB, $LiPF_6$ and their Solutions, a Comparative Study - D. Aurbach, D. Aurbach, E. Zinigrad, L. Larush-Asraf (Bar-Ilan University), J. Gnanaraj (Worcester Polytechnic Institute), G. Salitra and M. Sprecher (Bar-Ilan University)

15:10 **246** Analysis of the Electrolyte Composition After Applied High Voltage to Rechargeable Lithium Battery System - S. Roh (Samsung SDI, CTO), I. Moon, S. Do (Samsung SDI CTO) and E. Song (Samsung SDI CRD center)

15:30 **247** Detrimental Surface Films on Electrode Materials: Investigation and Inhibition - B. L. Lucht, W. Li and A. Xiao (University of Rhode Island)

15:50 **248** PC for PCs? Chances and Limitations of Propylene Carbonate Based Lithium Ion Cells - M. Winter, C. Korepp, K. Moller (TU Graz), J. Besenhard (Institute for Chemsitry and Technology of Inorganic Materials), M. Yang (Industrial Technology Research Institute), D. Shieh (ITRI Taiwan) and M. Winter (TU Graz)

16:20 Intermission (20 Minutes)

16:40 **249** Investigation of Phase Diagram of Plastic Crystal Electrolytes Based on Succinonitrile and $Li[CF_3SO_2]_2N$ - I. Davidson, A. Abouimrane and P. Whitfield (National Research Council Canada)

17:10 **250** All Solid Polymer Electrolyte Plasticized with PEG-Aluminate Ester for Lithium Ion Battery - M. Wakihara, Y. Masuda, F. Kaneko and M. Nakayama (Tokyo Institute of Technology)

17:30 **251** LiBOB as Additive and Mixed Salt in Electrolytes for Rechargeable Lithium Ion Batteries - W. Xu, Z. Deng, X. Zhou and P. Bolomey (Ferro Corporation)

17:50 **252** Nano-Composite Polymer Electrolyte formed by Zirconia Based Super-Acid Filler - F. Croce, L. Settimi, S. Sacchetti and B. Scrosati (University 'La Sapienza' - Roma - Italy)

B6 Proton Exchange Membrane Fuel Cells 6

Energy Technology / Physical and Analytical Electrochemistry / Battery / Industrial Electrolysis and Electrochemical Engineering

Galactic 8, Conference Center, Sunrise

PEM VI Plenary Session
Co-Chairs: T. Fuller and H. Gasteiger

10:00 **430** Toward the Realization of Sustainable Mobility - Grand Design for an Advanced Transportation Society - H. Watanabe (Toyota Motor Corporation)

10:40 **431** Highly Durable MEA for PEMFC Under High Temperature and Low Humidity Conditions - E. Endoh (Asahi Glass Co., Ltd.)

11:20 **432** Exploring the Limits of Sulfonic Acid Based Proton Conducting Membranes - K. Kreuer (Max-Planck-Institut FKF)

12:00 Intermission (60 Minutes)

13:00 Intermission (60 Minutes)

14:00 **433** Catalyst Development Needs and Pathways for Automotive PEM Fuel Cells - F. T. Wagner (General Motors), H. A. Gasteiger, R. Makharia and S. Yan (General Motors Fuel Cell Activities)

14:40 **434** Theoretical Description of Simple Electrode Processes - J. Norskov (Technical University of Denmark)

15:20 **435** Platinum Monolayer Fuel Cell Electrocatalysts: Design, Activity and Long-term Performance Stability - R. R. Adzic, J. Zhang (BrookhavenNational Laboratory), M. Shao (Brookhaven National Laboratory), K. Sasaki, M. Vukmirovic (BrookhavenNational Laboratory) and F. Uribe (Los Alamos National Laboratory)

16:00 **436** Simulating Nonuniform Properties in Polymer-Electrolyte Fuel Cells - A. Z. Weber (Lawrence Berkeley National Laboratory) and J. Newman (University of California, Berkeley)

16:40 **437** Neutron Radiography and Tomography Facilities and Experiments to Analyze In-Situ PEM Fuel Cell Performance - D. Jacobson, D. Hussey and M. Arif (National Institute of Standards and Technology)

B7 Solid-State and Solid-Electrolyte Batteries

Battery / Energy Technology

Universal 15, 1st Floor, Expo Center

14:00 **649** Fabrication of Micro-Array of Lithium-Ion Batteries Using a Sol-Gel Method Combined with a Micro-Injection Technique - H. Nakano, K. Dokko, J. Sugaya (Tokyo Metropolitan University), T. Yasukawa, T. Matsue (Tohoku University) and K. Kanamura (Tokyo Metropolitan University)

14:25 **650** Lithium Thin-Film Battery with A New Structural Configuration - S. Lee, E. Tracy and R. Pitts (National Renewable Energy Lab)

14:50 **651** Concentration Profile Near Electrodeposited Li Dendrite - Y. Fukunaka, K. Nishikawa, S. Kawai, T. Sakka, Y. Ogata (Kyoto University) and J. Selman (Illinois Institute of Technology)

15:15 **652** Ion Transport in Single Ion Conductors - O. Borodin (University of Utah) and G. Smith (Univeristy of Utah)

15:40 **653** Ionic Conductivity and its Correlation to Segmental Motions in Solid Polymer Electrolytes - N. K. Karan, B. Natesan and R. Katiyar (University of Puerto Rico)

16:05 **654** Electrochemical and 19F NMR Studies of Ionic Associations in Low Molecular Weight Analogs of PEO-Based Polymeric Electrolytes - M. Siekierski, M. Kalita, A. Plewa and A. Solgala (Warsaw University of Technology)

16:30 **655** Lithium Ion Conducting Anionic Polymer Electrolytes with High Mechanical and Temperature Stability - D. L. Elder, L. Robeson, M. Kurian, S. Miller, J. Chelius and J. Kirner (Air Products and Chemicals, Inc.)

C2 Molecular Electrochemistry

Organic and Biological Electrochemistry / Physical and Analytical Electrochemistry

Universal 10, 1st Floor, Expo Center

Session 1

10:00 **686** Electrochemistry of Conducting Polymers Old Hypotheses, New Facts - J. Heinze, H. John and A. Rasche (University of Freiburg)

10:40 **687** Electrochemical Polymerization of 3, 4-(Ortho-Xylen)-Dioxythiophene and Electrochemical Behavior of the Conducting Polymer Obtained - B. A. Frontana-Uribe (Instituto de Quimica-UNAM) and J. Heinze (University of Freiburg)

11:00 **688** Electropolymerization in the Presence of Graphite Oxide: Morphological Effects - E. Nejati and A. Eftekhari (Materials and Energy Research Center)

11:20 **689** Structure-Function Relationships in Redox Polymer-Enzyme Films for Biofuel Cell Applications - J. W. Gallaway and S. Calabrese Barton (Columbia University)

11:40 **690** Potential Dependence of Electrochemical and Photochemical Properties of Poly (2-Methoxyaniline-5-Sulfonic Acid) - E. J. O'Reilly, L. Dennany, R. Forster (Dublin City University), G. Wallace, P. Innis and F. Masdarolomoor (IPRI, University of Wollongong)

12:00 **691** Affecting the Electropolymerization and Morphology of Polyaniline with the Aid of a Soft Template - P. Jafarkhani and A. Eftekhari (Materials and Energy Research Center)

Session 2

14:00 **692** Reductive Cyclisations using Environmentally Friendly Electrochemical Methodologies - E. Dunach (CNRS), M. Medeiros (Universida do Minho, Portugal) and S. Olivero (University Nice, France)

14:20 **693** Electrochemical Oxidation of 1,2-Diols and its Application to Asymmetric Synthesis - Y. Matsumura, Y. Matsumura, H. Arimoto, Y. Demizu and O. Onomura (Nagasaki University)

14:40 **694** Synthesis and Properties of New Triarylamine Electrocatalysts - A. J. Fry, X. Wu and M. Dube (Wesleyan University)

15:00 **695** Reassessing the Roles of Hydrogen Bonding and Proton Transfer in the Aqueous Electrochemistry of Quinones. CV Studies of 2-Anthraquinonesulfonate and 3-Phenan threnequinonesulfonate in Unbuffered and Buffered Aqueous Solution - D. K. Smith, J. Woods and M. Quan (San Diego State University)

15:20 **696** Cadmium Stannate-Coated Silicon Electrodes Used to Determine Redox Potentials of Metalloproteins - B. H. Smith and D. Peters (Indiana University)

15:40 **697** Electronic Properties of Cobalt Porphyrins Monitored by in situ XANES Spectroscopy - I. Bae (Gillette Technology Center)

16:00 Intermission (20 Minutes)

16:20 **698** Equilibrium Uptake Model for Weak Electrolytes in Ion-Exchange Membranes - P. N. Pintauro and D. Rear (Case Western Reserve University)

16:40 **699** Breath-Based Electrochemical Sensors: Simultaneous Determination of Ethanol and Smoking By-Products - J. Leddy and L. Haverhals (University of Iowa)

17:00 **700** Electrochemical Study of Dinuclear Copper (II) Complexes in Relation to their Catecholase Activity - I. Membrillo, V. Ugalde and L. Gasque (Facultad de Quimica, UNAM)

17:20 **701** Electrochemical Behavior of FAD Immobilized on Bare and Dodecanethiol Modified Gold Electrodes - M. Daza Millone, M. Fonticelli, M. Vela and R. C. Salvarezza (INIFTA)

17:40 **702** Characterization of the Antioxidant Capacity of Edible Oregano Films - J. P. J. M. Peralta-Hernandez (Cideteq), E. Pruneda, S. Mendoza (UAQ), K. Esquivel, T. W. Chapman (CIDETEQ) and L. Godinez (Centro de Investigacion y Desarrollo Tecnologico en Electroquimica (CIDETEQ))

D3 Corrosion of Infrastructure

Corrosion

Universal 4, 1st Floor, Expo Center

Cementitious Systems - Service Life
Co-Chairs: A. Torres-Acosta and P. Castro-Borges

10:00 **812** Critical Review about Service Life Concepts of Reinforced Concrete Structures - J. Mendoza-Rangel and P. Castro-Borges (Cinvestav del IPN Unidad Merida)

10:20 **813** Service Life of Reinforced Concrete Structures. New Approach - P. Castro-Borges (Cinvestav del IPN Unidad Merida) and P. Helene (University of Sao Paulo)

10:40 **814** Evaluation of Deterioration Concrete Slabs Exposed in Tropical Marine Environment - J. A. Gonzalez-Sanchez, T. Perez, M. Sosa and L. Dzib-Perez (Universidad Autonoma de Campeche)

11:00 **815** Structural Assesment of Corroded Beams - M. Prieto (Instituto de ciencias de la Construccion Eduardo Torroja), A. Munoz Noval (IETcc) and M. Andrade Perdrix (Instituto de Ciencias de la Construccion Eduardo Torroja)

11:20 **816** Aproximately Relation between Crack Width and Diameter of Rebar Loss Due to Corrosion of Reinforced Concrete Members - A. Munoz Noval, C. Andrade (IETcc), A. Torres (IMT) and J. Rodriguez (Geocisa)

11:40 **817** Electrochemical Measurements on Previously Conditioned in Concrete Reinforcing Steel in Cement Extract Solutions - D. Koleva, K. van Breugel, J. de Wit (Delft University of Technology, The Netherlands) and V. Bachvarov (Bulgarian Academy of Sciences)

Cementitious Systems - Corrosion Resistant Reinforcement; Cathodic Protection
Co-Chairs: A. Sagues and A. Torres-Acosta

14:00 **818** Mechanism and Kinetics of the Cathodic Oxygen Reduction Reaction on Stainless Steel in Synthetic Concrete Pore Solution - J. T. Perez-Quiroz (Mexican Institute of Transportation) and J. Genesca (Universidad Nacional Autonoma Mexico, UNAM)

14:20 **819** Corrosion Propagation Behavior of New Metallic Rebar Materials in Simulated Concrete Environments - M. F. Hurley (Univeristy of Virginia) and J. Scully (University of Virginia)

14:40 **820** Stress Corrosion Cracking Susceptibility of Type 304 Stainless Steel in Chloride Environment Using Compact Tension Specimens - J. Teran-Guillen (Instituto Mexicano del Transporte)

15:00 **821** Stainless Steel Corrosion in Mortar Contaminated with Chloride using Electrochemical Noise - V. Millano, M. Sanchez, A. Cardozo, M. Fernandez, D. Linares, and O. De Rincon (Universidad del Zulia)

15:20 **822** The Galvanic Effect of the Anodic/Cathodic area Ratio of the Reinforced Concrete with 304 Stainless Steel - M. Cordova (UADY) and P. Castro-Borges (Cinvestav del IPN Unidad Merida)

15:40 Intermission (20 Minutes)

16:00 **823** Monitoring the Corrosion Behavior of Coated Reinforcement for Concrete - H. G. Wheat and G. Liu (University of Texas at Austin)

16:20 **824** Coating Condition Evaluation of Epoxy Coated Rebar - K. Lau and A. A. Sagues (University of South Florida)

16:40 **825** Cathodic Protection in Reinforced Concrete Elements, using Carbon Fibers Base Composites - F. Lee (Universidad Autonoma de Queretaro/Instituto Mexicano del Transporte), A. Torres Acosta and M. Martinez Madrid (Instituto Mexicano del Transporte)

17:00 **826** Modeling the Polarization Behavior of a Galvanic Point Anode - Reinforcing Steel in Concrete System - M. J. Dugarte, A. A. Sagues (University of South Florida) and R. Powers (Florida Department of Transportation)

D4 Critical Factors in Localized Corrosion 5, a Symposium in Honor of Hugh S. Isaacs

Corrosion

Universal 1, 1st Floor, Expo Center

In-Situ Studies of Localized Corrosion and Oxidation
Co-Chairs: N. Missert and S. Virtanen

10:00 Introductory Remarks (10 Minutes)

10:10 **849** In Situ Corrosion Studies: Tracing Interconnecting Threads - H. Isaacs (Brookhaven National Laboratory)

10:40 **850** A Study on Thermal Formation and Electrochemical Reduction of Copper Oxide using Difference Viewer Imaging Technique - R. Huang, C. Lin (Xiamen University), R. Lillard (Los Alamos National Lab) and H. Isaacs (Brookhaven National Laboratory)

11:00 **851** pH Mapping of Localized Corrosion in Confined Electrolyte by Fluorescence Microscopy - R. Oltra (CNRS), F. Loete (CNRS - Universite de Bourgogne) and B. Vuillemin (CNRS Universite de Bourgogne)

11:20 **852** Electrochemical Characterization of Submicrometer Structures - T. Suter and O. von Trzebiatowski (EMPA)

11:40 **853** In Situ Investigation of the Passive Films Formed on Chromium in Aqueous (pH8.4) Borate Buffer and Aqueous Chloride Solutions - T. M. Devine (University of California) and F. Wang (University of California, Berkeley)

Chair: M. Ryan

14:00 **854** Initial Stages of the Formation of Anodic Oxide on Co(0001) and its Reduction in Alkaline Solution Studied by XPS and STM - H. Strehblow (Heinrich-Heine Universitaet) and A. Foelske (Heinrich-Heine-Universitaet)

14:20 **855** The Influence of Impurities in Alpha-Uranium on Hydrogen Reaction Kinetics Using in Situ EC-STM - R. Lillard (Los Alamos National Lab), M. Paffett and M. Hawley (Los Alamos National Laboratory)

14:40 **856** The Role of Chloride in Al Oxide Surface Transformations and Pitting -An AFM Study - N. Vasiljevic, R. Copeland and N. Missert (Sandia National Laboratories)

15:00 Intermission (20 Minutes)

Pitting Mechanisms in Stainless Steels - Nucleation, Prediction and Microstructural Effects
Chair: A. Davenport

15:20 **857** Passivity Breakdown and the Evolution of Localized Corrosion Damage on Type 316L Stainless Steel - D. D. Macdonald and S. Yang (Pennsylvania State University)

15:40 **858** Effect of the Metallurgical Parameters on the Relevant Electrochemical Criterion for Localized Corrosion Resistance of Stainless Steels - B. Baroux (Institut National Polytechnique de Grenoble) and B. Malki (LTPCM/GEDAI/ENSEEG)

16:00 **859** Influence of Cold Working on the Pitting Corrosion Resistance of Stainless Steels - L. Peguet (UGINE &;ALZ Research Center (Arcelor)), B. Malki (LTPCM/GEDAI/ ENSEEG) and B. Baroux (Institut National Polytechnique de Grenoble)

16:20 **860** Local Mechanical-Electrochemical Behavior of Duplex Stainless Steels: a Novel Approach for Mapping Precursor Sites for Pitting Corrosion - V. Vignal (CNRS-Universite de Bourgogne), O. Delrue (Universite de Bourgogne), R. Oltra (CNRS) and J. Peultier (Arcelor)

16:40 **861** Coupled Multi-Electrode Investigation of Crevice Corrosion of 316 Stainless Steel and NiCrMo Alloy 625 - F. Bocher, F. J. Presuel-Moreno and J. Scully (University of Virginia)

D5 High Temperature Corrosion and Materials Chemistry 6

High Temperature Materials / Corrosion

Universal 5, 1st Floor, Expo Center

Oxidation and Phase Equilibria of Alumina-Forming Alloys
Co-Chairs: D. Young and J. Fergus

10:00 **936** Stress Generation and Relief during Alumina Scale Growth - P. Y. Hou (Lawrence Berkeley National Laboratory), P. Paulikas and B. Veal (Argonne National Laboratory)

10:40 **937** Oxidation-Associated Surface-Rumpling in NiAl - A. Akhtar (University of British Columbia)

11:00 **938** Thermodynamics of the Ni-Al-Pt System - Z. Liu (The Pennsylvania State University), E. Copland (NASA Glenn) and B. Gleeson (Iowa State University)

11:40 **939** Melting Behavior of Gamma Prime-Ni3Al in the Ni-Al-O System - E. Copland (NASA Glenn)

Oxidation and Phase Equilibria of Alumina-Forming Alloys, 2
Co-Chairs: P. Hou and D. Shifler

14:00 **940** Thermodynamic Properties of B_2-AlFeNi Alloys Experimental Investigation by Knudsen Effusion Mass Spectrometry and Modelling of the B_2AlFe and B_2AlNi Phases - T. Markus (Forschungszentrum Julich)

14:20 **941** Nano Al_2O_3 Rod Array Structure Produced by Using Internal Oxidation of Dilute Ni(Al) Alloys - M. Nanko, K. Uemura and K. Takeda (Nagaoka University of Technology)

14:40 **942** Effect of Copper Additions on the Isothermal Oxidation Behavior of Gamma Titanium Aluminide Alloys - J. Fergus, C. Long, C. Callender and W. Gale (Auburn University)

15:00 Intermission (20 Minutes)

High Temperature Corrosion in Complex Environments
Co-Chairs: D. Shifler and P. Hou

15:20 **943** Metal Dusting of Nickel and its Alloys - D. J. Young and J. Zhang (University of New South Wales)

16:00 **944** Metal Dusting Corrosion of Nickel-Based Alloys - C. Chun (ExxonMobil Research and Engineering Company), G. Bhargava and T. Ramanarayanan (Department of Chemistry, Princeton University)

16:20 **945** Oxidation of Nb Based Alloys Between 700 and 1400C - S. K. Varma (The University of Texas at El Paso), P. Kakarlapudi, A. Bhuiya (The University of Texas at El Paso,) and K. Natesan (Argonne National Laboratory)

16:40 **946** Thermodynamic Approach to the Development of Diffusion Coatings for Aggressive High Temperature Environments - T. S. Weber and M. Schuetze (DECHEMA e.V.)

17:00 **947** Initial Stages of the HCl-Induced High Temperature Corrosion of Alloy 310 - N. Folkeson, L. Johansson and J. Svensson (Chalmers University of Technology)

17:20 **948** Corrosion of MA956 by Flowing Coal-Biomass Slags - J. P. Hurley (University of North Dakota) and N. Kadrmas (University of North Dakota Energy &; Environmental Research Center)

E2 Advanced Gate Stack, Source/Drain, and Channel Engineering for Si-Based CMOS 2: New Materials, Processes, and Equipment

Electronics and Photonics / Dielectric Science and Technology / High Temperature Materials

Universal 3, 1st Floor, Expo Center

Ultra-Shallow Source/Drain Junctions
Co-Chairs: W. Lerch and F. Roozeboom

10:00 **997** Suppressing Layout-Induced Threshold Variations by Halo Engineering - V. Moroz and L. Smith (Synopsys, Inc.)

10:20 **998** Sheet Resistance Increase of Shallow Doped Silicon during Native Oxidation in Air - B. Kalkofen and E. Burte (Otto-von-Guericke-University Magdeburg)

10:40 **999** Low-Leakage Ultra-Scaled Junctions in MOS Devices; from Fundamentals to Improved Device Performance - R. Duffy, A. Heringa (Philips Research Leuven), J. Loo, E. Augendre and S. Severi (IMEC)

11:10 **1000** CVD Delta-Doped Boron Surface Layers for Ultra-Shallow Junction Formation - F. Sarubbi, L. Nanver and T. Scholtes (Delft University of Technology)

11:30 **1001** Novel Methods For Ultrashallow Low Resistance Junction Formation - S. H. Jain (IBM Corporation), P. Griffin and J. Plummer (Stanford University)

Co-Chairs: P. Timans and S. Jain

14:00 **1002** Leakage Current Characteristics of Ultra-Shallow Junctions formed by B_2H_6 Plasma Doping - H. Sauddin (Tokyo Institute of Technology), Y. Sasaki, H. Ito, B. Mizuno (Ultimate Junction Technologies, Inc.), P. Ahmet, K. Kakushima, N. Sugii, K. Tsutsui (Tokyo Institute of Technology) and H. Iwai (FCRC, Tokyo Institute of Technology)

14:20 **1003** Understanding Ion Implantation Defects in Germanium - A. R. Peaker (University of Manchester), V. Markevich (University of Manchester, UK) and I. Kovacevic (Rudjer Boskovic Institute, Zagreb, Croatia)

14:40 **1004** Crystal Damage Removal by Flash Annealing - W. Lerch, S. Paul, J. Niess (Mattson Thermal Products GmbH), S. McCoy, J. Gelpey (Mattson Technology Canada), F. Cristiano (LAAS-CNRS) and R. Duffy (Philips Research Leuven)

15:00 **1005** 3D Pattern Effects in RTA Radiative vs Conductive Heating - E. H. Granneman (ASM Europe BV), H. Terhorst (ASM Europe), A. Falepin, E. Rosseel (IMEC), K. Verheyden, K. Vanormelingen (ASM Belgium), H. Bourdon and A. Halimaoui (STMicroelectronics)

15:20 **1006** Material-Inversion Solid-Phase Epitaxy of p^+ Si for Elevated Junctions - Y. Civale, L. Nanver and H. Schellevis (Delft University of Technology)

15:40 **1007** Ultra-Shallow Junctions Formed by Co-Implantation and Sub-Melt Laser Annealing - S. B. Felch (Applied Materials), A. Falepin, S. Severi, E. Augendre (IMEC), T. Noda (Matsushita Electric Industrial Co.), V. Parihar (Applied Materials), F. Nouri (Applied Materials Inc), T. Hoffmann (IMEC), B. Pawlak (Philips Research Europe), P. Eyben, W. Vandervorst (IMEC), S. Thirupapuliyur (Applied Materials) and R. Schreutelkamp (Applied Materials Inc)

Contacts to Ultra-Shallow Junctions
Co-Chairs: S. Felch and M. C. Ozturk

16:20 **1008** Iridium Silicide: a Promising Electrode for Metallic Source/Drain in Decananometer MOSFETs - G. Larrieu, E. Dubois, X. Wallart (IEMN) and J. Katcki (Institute of Electron Technology)

16:40 **1009** Tuning the Schottky Barrier Height for Future CMOS - Z. Zhang and S. Zhang (Royal Institute of Technology)

17:00 **1010** Influence of Alloying Elements on the Formation and Stability of NiSi - C. Detavernier, D. Deduytsche (Ghent University), J. Jordan-Sweet and C. Lavoie (IBM Research)

17:20 **1011** Study of Ni-Silicide Contacts to Si:C Source/Drain - S. Mertens (Imec), Y. Cho (Applied Materials), F. Nouri, R. Schreutelkamp (Applied Materials Inc), Y. Kim (Applied Materials), P. Verheyen, J. Steenbergen, C. Vrancken, H. Bender, O. Richard, B. Van Daele, W. Vandervorst, P. Absil, S. Kubicek, C. Demeurisse, Z. Tokei and A. Lauwers (IMEC)

17:40 **1012** Texture in Nickel-Silicide Films on Silicon - P. Alippi (CNR) and A. Alberti (CNR-IMM)

E3 Atomic Layer Deposition Applications 2

Dielectric Science and Technology

Universal 12, 1st Floor, Expo Center

Emerging ALD Applications I
Co-Chairs: A. Londergan and O. van der Straten

10:00 Introductory Remarks (10 Minutes)

10:10 **1047** Atomic Layer Deposition for Nano-Fabrication of 3D Optoelectronic Devices - C. J. Summers and E. Graugnard (Georgia Institute of Technology)

10:40 **1048** Atomic Layer Deposited Films for Micro- and Nano-Scale Electro-Mechanical Systems - V. M. Bright and S. George (University of Colorado)

11:10 **1049** Applications and Opportunities for Plasma-Assisted Atomic Layer Deposition - E. Kessels (TU Eindhoven)

Dielectrics Processing
Co-Chairs: S. B. Kang and S. Haukka

14:00 **1050** HfO_2 Thin Film Deposited by Remote Plasma Atomic Layer Deposition Method - H. Jeon (Hanyang University)

14:30 **1051** Electrical Properties and Thermal Stabilities of $HfZrO_x$ by Atomic Layer Deposition Technique for ULSI Application - Y. Jung (IPS Ltd.), S. Lee (Integrated Process System Ltd.) and S. Lim (IPS Ltd.)

14:50 **1052** ALD Modeling for Thickness and Composition Control of Multi-Component Thin Films - H. Chung and S. Kang (Korea Advanced Institute of Science and Technology)

15:10 **1053** Extra Low-Temperature SiO_2 Deposition Using Aminosilanes - C. Dussarrat, I. Suzuki and K. Yanagita (Air Liquide Laboratories)

Interconnect ALD Applications
Co-Chairs: O. van der Straten and S. Mathad

15:50 **1054** Barrier Deposition for Advanced Interconnects - M. Schaekers, Z. Tokei, Y. Li and L. Carbonel (IMEC)

16:20 **1055** Comparison of Electromigration in Cu Interconnects with ALD or PVD TaN Liners - C. Hu, L. Gignac, E. Liniger, S. Grunow, A. Simon (IBM) and S. Liew (Chartered Semiconductor Manufacturing)

16:40 **1056** Effects of NH_3 Pulse Plasma on Atomic Layer Deposition of Tungsten Nitride Diffusion Barrier - Y. Kim (Korea Institute of Science and Technology) and C. Lee (Kookmin Univ.)

17:00 **1057** Barrier Characteristics of HfN Films Deposited by Using the Remote Plasma-Enhanced Atomic Layer Deposition Method - W. Jeong, K. Lee, K. Kim, Y. Kim and H. Jeon (Hanyang University)

17:20 **1058** "Seedless" Copper Electrochemical Deposition on Air Exposed TaN Barrier Layers with Pd and Ru Adhesion Promoters - D. J. Duquette (Rensselaer Polytechnic Institute) and N. Lay (RPI)

17:40 **1059** New Precursors for Copper ALD - J. A. Norman and M. Perez (Air Products)

E4 High Dielectric Constant Gate Stacks 4

Dielectric Science and Technology / Electronics and Photonics

Universal 9, 1st Floor, Expo Center

Electrical Characterization
Co-Chairs: S. Kar and P. K. Hurley

10:00 Introductory Remarks (10 Minutes)

10:10 **1084** Present Status and Recent Advancements in Corona-Voltage Non-contact Electrical Metrology of Dielectrics for IC-manufacturing - M. Wilson, D. Marinskiy, A. Byelyayev, J. D'Amico, A. Findlay, L. Jastrzebski and J. Lagowski (SDI)

10:40 **1085** Work Function Characterization of TaSiN and TaCN Electrodes Using CV, IV, IPE and SKPM - H. Xiong (National Institute of Standards and Technology), N. Nguyen, J. Suehl and E. Vogel (NIST)

11:00 **1086** Influence of Process Parameters on Leakage Current of $HfSiO_x$ Dielectrics - A. Avellan, M. Patz, E. Erben, A. Ivanov and S. Kudelka (Qimonda Dresden GmbH & Co. OHG)

11:20 **1087** Significance of Nitrogen and Aluminum Depth Profile Control in HfAlON Gate Insulators - H. Ota (MIRAI-AIST), A. Ogawa (MIRAI-ASET), M. Kadoshima (Selete), K. Iwamoto, K. Okada (MIRAI-ASET), H. Satake (Toshiba Corp.), T. Nabatame (MIRAI-ASET) and A. Toriumi (MIRAI-AIST, Univ. of Tokyo)

11:40 **1088** Experimental Study of the Impact of SO Phonon Scattering in High-k Gate Dielectric MOSFETs - S. Atarah, M. M. De Souza and S. Atarah (De Montfort University)

12:00 Session Concluding Remarks (20 Minutes)

Substrates
Chair: M. Houssa

14:00 **1089** Integration of ALD High-k Dielectrics on III-V Compound Semiconductors - P. Ye (Purdue University)

14:30 **1090** Impact of Dielectric Material Selection on Electrical Characteristics of High-k/Ge Devices - K. Kita, H. Nomura, T. Nishimura (The University of Tokyo) and A. Toriumi (MIRAI-AIST, Univ. of Tokyo)

14:50 Session Concluding Remarks (10 Minutes)

Interfaces and Defects
Co-Chairs: S. De Gendt and M. Wilson

15:20 **1091** Interface States in Hf-Based Stacks and their Impact on the Reliability of these Alternative Oxides - X. Garros, G. Reimbold and F. Martin (CEA-Leti)

15:50 **1092** Electrically Active Interface Defects in the (100) $Si/SiO_x/HfO_2/TiN$ System: Origin and Passivation – P.K. Hurley (University College Cork), K. Cherkaoui (University College Cork, Tyndall National Institute) and A. Groenland (University of Twente)

16:20 **1093** Correlation between High-k Properties and Interfacial Chemical Structure of ALD HfO_2 Thin Films on Si, $Si_{1-x}Ge_x$ and Ge Substrates - T. Park, C. Hwang, J. Kim, J. Jang and M. Seo (Seoul National University)

16:50 **1094** Thermal Stability of Stack Structures of AlN and La_2O_3 Thin Films - D. Eom, C. Hwang and H. Kim (Seoul National University)

17:10 **1095** Physics of Metal/High-k I nterfaces - T. Nakayama (Chiba University), K. Shiraishi (University of Tsukuba), S. Miyazaki (Hiroshima University), Y. Akasaka (Selete), K. Torii (Hitachi Corporation), P. Ahmet (Tokyo Institute of Technology), K. Ohmori, N. Umezawa (National Institute for Materials Science), H. Watanabe (Osaka University), T. Chikyow (NIMS (Japan)), Y. Nara (Semiconductor Leading Edge Technologies Inc.), H. Iwai (FCRC, Tokyo Institute of Technology) and K. Yamada (Waseda University)

17:40 Session Concluding Remarks (30 Minutes)

E5 Chemical Mechanical Polishing 8

Dielectric Science and Technology

Universal 20, 1st Floor, Expo Center

CMP Session 1
Co-Chairs: S. Seal and S. Sundaram

10:00 **1135** Thermodynamics of Copper Electropolishing in Phosphoric Acid - D. J. Duquette (Rensselaer Polytechnic Institute) and A. Mansson (Intel)

10:40 **1136** Anion Effects on Cu-BTA Film Formation: Implications for CMP - A. A. Gewirth, K. Stewart (University of Illinois), J. Zhang, S. Li and P. Carter (Cabot Microelectronics Corporation)

11:00 **1137** Electrochemical Corrosion and Chemical Mechanical Polishing Performance of W and Ti Film - Y. Seo and S. Park (Daebul University)

11:20 **1138** Understanding Slurry Interaction and Optimizing Multiple Step Cu-CMP Process for 65 nm Technology - X. Wang, F. Chen and B. Lin (Chartered Semiconductor Mfg)

11:40 **1139** Novel Methods for Polishing Copper/Low K Dielectrics - R. K. Singh (University of Florida), D. Singh, M. Dufourg (Sinmat Inc.) and P. Kumar (University of Florida)

CMP Session 2
Co-Chairs: A. Chandra and S. Beaudoin

14:00 **1140** Revealing Copper Electrochemistry in Basic Solutions: Another Step toward a "Traditional" CMP - Y. Ein-Eli (Technion-Israel Institute of Technology)

14:40 **1141** Reduction of Defects after Poly Si CMP with Oxide Slurry - S. Yun, S. Han (Process Development Team, Semiconductor R & D Center, Samsung Electronics Co., LTD.), J. Lee (Samsung Electronics Co., LTD.), Y. Hong, J. Park (Hanyang University), B. Yun (Samsung Electronics Co., LTD.), C. Hong (Semiconductor R & D Center, Samsung Electronics Co., LTD.), H. Cho and J. Moon (Samsung Electronics Co., LTD.)

15:00 **1142** Chemical-Mechanical Planarization Compatible for Both Copper/Low k Level in a 90 nm Technology and Thick Copper Level in an RF Technology - C. Perrot, Y. Loquet and P. Bouillon (ST Microelectronics)

15:20 **1143** Novel Core-Shell Type Abrasive Particles for Oxide CMP Applications - S. R. Mudhivarthi, C. Coutinho, A. Kumar and V. Gupta (University of South Florida)

CMP Session 3
Co-Chairs: D. Tamboli and Y. Obeng

16:00 **1144** On Chemical-Mechanical Synergy in Copper CMP - A. Chandra, W. Che and A. Bastawros (Iowa State University)

16:40 **1145** In-Situ Determination of Electrolyte Composition and Voltage Modulation Effect on Electro-Chemical Mechanical Planarization of Copper (E-CMP) - S. Seal, S. Deshpande and A. Vincent (University of Central Florida)

17:00 **1146** Effect of Poly Silicon Wettability on Organic Type Defects in Poly CMP - Y. Hong, Y. Kang, J. Park (Hanyang University), S. Han, S. Yun, B. Yoon and C. Hong (Semiconductor R & D Center, Samsung Electronics Co., LTD.)

17:20 **1147** Effects of CMP Slurry Chemistry on Agglomeration of Alumina and Copper Surface Hardness - R. V. Ihnfeldt and J. Talbot (University of California, San Diego)

E6 Bioelectronics, Biointerfaces, and Biomedical Applications 2

Dielectric Science and Technology / Sensor

Universal 21, 1st Floor, Expo Center

Nanowires and Nanotubes
Co-Chairs: D. Landheer and M. Hersam

10:10 Introductory Remarks (5 Minutes)

10:15 **1166** Performance Limits and Design Considerations of Nanobio Sensors - M. A. Alam and N. Pradeep (Purdue University)

10:50 **1167** Synthesizing Metal Nanowires that Detect Molecules - R. M. Penner, G. Weiss, L. Yang and P. Tam (UC Irvine)

11:25 **1168** Growth of Carbon, Boron Nitride, and ZnO Nanotubes for Biological Applications - Y. Yap (Michigan Tech University)

Fabrication of Functional Stuctures
Co-Chairs: M. Madou and M. Grinstaff

14:00 **1169** Hybrid Organic Inorganic Assemblies for Various Device Applications - M. Ozkan (University of California, Riverside)

14:40 **1170** Proteins, Nanocrystals and Hybrid Systems for Nanobiosensing Applications - R. Rinaldi (National Nanotechnology Laboratory of CNR INFM)

15:20 **1171** Novel Microfabrication Methods and Materials for Hierarchically Structured Tissue Engineering Scaffolds - C. Henderson and B. Comeau (Georgia Institute of Technology)

15:40 Intermission (20 Minutes)

16:00 **1172** DNA Nanowires; Molecular Imaging, Transport Properties and Device Application - T. Kawai (ISIR-Sanken)

16:40 **1173** Fabrication of Chitosan-Hydroxyapatite Coatings for Biomedical Applications - I. Zhitomirsky and X. Pang (McMaster University)

17:00 **1174** Initiated Chemical Vapor Deposition (iCVD) for Biopassive Dielectrics and Functionalized Surfaces. - K. K. Gleason, S. O'Shaughnessy, S. Murthy and B. Olsen (MIT)

E7 High Purity Silicon 9

Electronics and Photonics

Universal 13, 1st Floor, Expo Center

Crystal Growth and Wafer Processing
Co-Chairs: P. Stallhofer and V. Voronkov

10:00 **1205** Some Remarks On CZ Silicon Growth and Dream of "Ideal Growth" - O. Anttila (Okmetic Oyj)

10:40 **1206** Elimination of Dislocations in the Neck Growth - H. Sreedharamurthy (MEMC Electronics Materials Inc) and V. Nithianathan (MEMC Electronics Materials Inc.)

11:00 **1207** High Pulling-Rate Defect-Free Crystals with Radial Asymmetric Characteristics Due to Controlled Melt Convection - H. Cho (Korea Advanced Institute of Science and Technology), B. Lee (LG Siltron) and J. Lee (Korea Advanced Institute of Science and Technology)

11:20 **1208** Melt Dynamics in Czochralski Crystal Growth of Silicon - P. R. Gunjal (Washington University), M. S. Kulkarni (MEMC Electronic Materials) and P. Ramachandran (Department of Chemical Engineering, Washington University St. Louis, MO 63130 USA)

11:40 **1209** Doping of Silicon Crystals with Bi and other Volatile Elements by the Pedestal Growth Technique - H. Riemann, N. Abrosimov and N. Noetzel (Institute for Crystal Growth)

Crystal Growth and Wafer Processing (continued)
Co-Chairs: P. Stallhofer and V. Voronkov

14:00 **1210** Rotationless Growth of Floating Zone Silicon - A. Luedge, H. Riemann, B. Hallmann-Seiffert (Institute for Crystal growth), A. Muiznieks (University of Latvia) and F. Schulze (PV Silicon AG)

Oxygen, Nitrogen and Hydrogen in Silicon I
Co-Chairs: N. Inoue and J. Vanhellemont

14:20 **1211** Oxygen Precipitation in Lightly and Heavily Doped Czochralski Silicon - K. Sueoka (Okayama Prefectural Univ.)

15:00 **1212** Oxygen Precipitation of Nitrogen-Doped Czochralski Silicon Subjected to Multi-Step Thermal Process - D. Yang, Q. Ma, X. Ma and D. Duan (State Key Lab of Silicon Materials)

15:20 **1213** Oxide Precipitate Nucleation via Coherent "Seed"-Oxide Phases - G. Kissinger and J. Dabrowski (IHP)

15:40 Intermission (20 Minutes)

16:00 **1214** Nitrogen Diffusion in Silicon: a Multi-Species Process - V. V. Voronkov and R. Falster (MEMC Electronic Materials)

16:40 **1215** Identification of Nitrogen-Oxygen Defects in Silicon - N. Fujita, R. Jones (University of Exeter), S. Oberg (Lulea University of Technology) and P. Briddon (University of Newcastle upon Tyne)

E8 Integrated Optoelectronics 3

Electronics and Photonics / Dielectric Science and Technology

Universal 16, 1st Floor, Expo Center

Photodetectors and Optical Receivers
Co-Chairs: M. J. Deen and P. Chang

10:00 **1247** Ge on Si Photodiodes for Si CMOS Monolithic Optical Receivers - J. C. Campbell (University of Virginia) and Z. Huang (University of Texas)

10:30 **1248** Ultra-High Speed Photodetectors for 80 to 160 Gbit/s Applications - H. Bach (Fraunhofer-Institute for Telecommunications HHI)

11:00 **1249** Photodetective Characteristics of Grid Gate Metal-Oxide-Semiconductor Tunneling Structures with Different Oxide Thicknesses - R. Yamada, H. Hashimoto, K. Arima, J. Uchikoshi and M. Morita (Osaka University)

11:30 **1250** A MSM Thin Film High Speed Photo-Detector Based on a-SiGe:H,F - A. Torres Jacome, A. Munguia and R. Ramos (INAOE)

Novel Applications of Optical Detectors
Co-Chairs: J. Campbell and H. Bach

14:00 **1251** High-Sensitivity Photodetector Systems for Fluorescence Imaging - M. J. Deen, N. Faramarzpour (McMaster University), F. Campos (State Univ. of Campinas - Unicamp), S. Shirani, Q. Fang, L. Liu (McMaster University) and J. W. Swart (UNICAMP)

14:30 **1252** Quantitative Evaluation of Concentration of Double Stranded DNA Using by Filter Less Fluorescence Detection Sensor - Y. Maruyama, K. Sawada, H. Takao and M. Ishida (Toyohashi University of Technology)

15:00 **1253** Time- and Spectra-Resolved MOEMS Device for Sensing and Imaging in Clinical Diagnosis - Q. Fang, M. J. Deen (McMaster University) and J. Lo (University of Southern California)

15:30 **1254** Amorphous Silicon Pixel-Level Voltage Controlled Oscillator for Digital Imaging Applications - K. S. Karim, G. Sanaie and F. Taghibakhsh (Simon Fraser University)

Quantum Dots
Co-Chairs: A. Torres and Q. Fang

16:30 **1255** Quantum Dots for Optoelectronic Device Applications - Q. Gao, K. Sears, S. Mokkapati, P. Lever, L. Fu, M. Buda, H. Tan and C. Jagadish (The Australian National University)

17:00 **1256** Theoretical Modelling of Quantum Dot Infrared Photodetectors - P. Harrison, N. Vukmirovic, Z. Ikonic, I. Savic and D. Indjin (University of Leeds)

E13 SiGe: and Germanium Materials, Processing, and Devices

Electronics and Photonics

Galactic 1, Conference Center, Sunrise

Plenary
Chair: D. Harame

10:00 Introductory Remarks (10 Minutes)

10:10 **1393** Channel Material Innovations for Continuing the Historical MOSFET Performance Increase with Scaling - D. A. Antoniadis, A. Khakifirooz, I. Aberg, C. Ni Chleirigh, O. Nayfeh and J. Hoyt (MIT)

11:00 **1394** CMOS Photonics™ For High Speed Interconnects - C. Gunn (Luxtera, Inc.)

Transport in Strained FET Channel
Co-Chairs: K. DeMeyer and H. Shang

13:05 **1395** Carrier Transport and Stress Engineering in Ultrathin-body SOI MOSFETs - K. Uchida (Toshiba Corp)

13 :35 **1396** Electron Transport in Engineered Substrates: Strain and Orientation Effects - M. Fischetti, S. Narayanan, T. O'Regan and C. Sachs (University of Massachusetts, Amherst)

14:05 **1397** Low-Field Electron Mobility in Stressed UTB SOI MOSFETs for Different Substrate Orientations - E. Ungersboeck (Institute for Microelectronics), V. Sverdlov (Institute for Microelectronics, TU Wien), H. Kosina (Technische Universitat Wien) and S. Selberherr (TU Wien)

14:25 **1398** First Self-Consistent Full-Band - 2D Monte Carlo - 2D Poisson Device Solver for Modeling SiGe p-Channel Devices - D. Vasileska (ASU), S. Krishnan (Arizona State University) and M. Fischetti (University of Massachussets, Amherst)

14:45 **1399** Noise and Mobility Characteristics of Bulk and Fully Depleted SOI pMOSFETs using Si and SiGe channels - M. Ostling, J. Hallstedt, M. von Haartman, P. Hellstrom and H. Radamson (Royal Institute of Technology (KTH))

Photodetectors and Resonators
Co-Chairs: D.-X. Xu and N. Usami

15:20 **1400** Performance and Reliability of SiGe Photodetectors - O. I. Dosunmu, M. Morse, Y. Chetrit and G. Sarid (Intel Corporation)

15:50 **1401** Fast Ge-on-Si Photodetectors for the Near Infrared - L. Colace, G. Masini, G. Assanto (University of Roma Tre), H. Luan and L. Kimerling (Massachusetts Institute of Technology)

16:20 **1402** Ge-on-Insulator Photodetectors for High-Speed Optical Interconnects - S. Koester, L. Schares, C. Schow, J. Schaub (IBM), G. Dehlinger (Infineon) and J. Chu (IBM)

16:50 **1403** Design of Spontaneous Emission Enhancement Based on Si Ring Resonators - Y. Miki (The University of Tokyo), K. Yamada, T. Watanabe, T. Tsuchizawa, H. Fukuda, S. Itabashi (NTT), H. Ozaki, S. Hirano and K. Wada (The University of Tokyo)

17:10 **1404** The Process and Aptoelectronic Characterization of Ge-on-Insulator - C. Lin, C. Yu, M. Liao, C. Huang, C. Lee, C. Lee and C. Liu (National Taiwan University)

NOTE:
The following presentations (1405-1438) will also be displayed on Tuesday, October 31, 2006 in the evening Poster Session.

Short Presentations
Chair: J. Cressler

19:15 **1405** Investigation of Fabrication Process for n+/p Junction for Germanium n-channel MOSFETs - M. Koike, Y. Kamata, T. Ino, D. Hagishima, M. Koyama and A. Nishiyama (Toshiba Corporation)

19:18 **1406** Deposition and Characterization of Strained SiGe Layer as an Etch Stop Layer in Ultrathin SOI Integration - S. Suder, H. Gamble, B. Armstrong, S. Bhattacharyya, R. Hurley, P. T. Baine and D. McNeill (Queen's University of Belfast)

19:21 **1407** Interlayer-Assisted Stability of Germanosilicide for Heavily-Doped n+-Si0.83Ge0.17 Grown by Reduced Pressure Chemical Vapor Deposition - K. Shim (Chonbuk National University), A. Choi, S. Choi, H. Yang (CNU), S. Kim and S. Lee (ETRI)

19:24 **1408** Vacancy - Assisted Redistribution of Ge in SiGe/Si Multilayer Structures Irradiated with High Energy Ions - I. V. Antonova (Institute of Semiconductor Physics), J. Back-Misiuk, P. Romanowski (Institute of Physics PAN, Warsaw, Poland) and V. Skuratov (Joint Institute for Nuclear Research, Dubna, Russia)

19:27 **1409** Carbon Incorporation in SiGe Epi Films to Block Boron Diffusion - F. Deleglise, D. Dutartre and A. Talbot (STMicroelectronics)

19:30 **1410** Isolated Carbon Confinement Methodology for Ultrathin Boron Profiles with Enhanced Conductivity in Sub-50 NM Strained Layers of Silicon Germanium - D. Enicks (ATMEL Corp.) and G. Oleszek (University of Colorado at Colorado Springs)

19:33 **1411** How Trace Analytical Techniques Contribute to the Research and Development of Ge and III/V Semiconductor Devices - D. Hellin (IMEC and KU Leuven), J. Rip, R. Bonzom (IMEC), D. Nelis (IMEC and Hasselt Univ.), S. Sioncke, M. R. Caymax, M. M. Meuris (IMEC), S. De Gendt (IMEC and KU Leuven) and C. Vinckier (KU Leuven)

19:36 **1412** Self-Assembling of Ge Islands on Blank, Patterned and Ion Implanted Si(001) - A. Terrasi (University of Catania)

19:39 **1413** Developmet of New Germanium Compounds for Use in SiGe - E. Woelk, D. Shenai, R. DiCarlo, M. Power and A. Amamchyan (Rohm and Haas Electronic Materials)

19:42 **1414** Tensile Strained Selective Silicon Carbon Alloys for Recessed Source Drain Areas of Devices - M. Bauer (ASM America Inc.), D. Weeks, Y. Zhang (ASM America) and V. Machkauotsan (ASM Belgium)

19:45 **1415** Investigation of Silicon-Germanium Films Deposited by Plasma-Enhanced Chemical Vapor Deposition Using Laser Assistance - C. Lee (Microelectronics of National Cheng Kung University), J. Cheng, Y. Chen and T. Tsai (Microelectronics)

19:48 **1416** Ge Selective Epitaxial Growth with Ultra Thin SiGe Buffer Layer - J. Nakatsuru, H. Date (Canon ANELVA), S. Mashiro (Canon Anelva Corporation) and M. Ikemoto (Canon ANELVA)

19:51 **1417** Ge Epitaxy on (100) Ge: High Growth Rates at Low Temperature from GeH4 using N2 as a Carrier Gas - F. Leys, R. Bonzom, R. Loo (IMEC), A. Theuwis (Umicore), W. Vandervorst and M. R. Caymax (Imec)

19:54 **1418** Influence of Temperature on Boron Concentration in SiGe-B Epitaxy - Y. Zhou (Intel Corp.)

19:57 **1419** Improvement of Dopant Concentration Control with Acoustic Control System for B-SiGe Epitaxy Deposition - T. Woods (Intel Corporation)

20:00 **1420** Very High Temperature Growth of SiGe Virtual Substrates (15% < [Ge] < 45%) - J. Hartmann (CEA-LETI)

20:03 **1421** Precise Analysis of Si/Graded-$Si_{1-x}Ge_x$/$Si_{1-x}Ge_x$ Heterostructure Films Grown by Reduced Pressure Chemical Vapor Deposition Using Spectroscopic Ellipsometry - K. shim (Chonbuk National University), J. Seo, S. Choi, H. Yang, J. Kim, J. Yang (CNU), T. Han and D. Cho (Tachyonics)

20:06 **1422** Unique Temperature Dependence on the Morphological Evolution of Ge on Si(100) - A. C. Alguno (Tohoku University)

20:09 **1423** Effective of Si Seed for Selective SiGe Epitaxial Deposition in Recessed Source and Drain for Locally Strained pMOS Application - P. Cheng, C. Liao, H. Wu, Y. Chen, C. Chien, C. Yang, S. Tzou (United Microelectronics Corp.), J. Tang, Y. Cho, E. Sanchez, V. Chang and T. Fu (Applied Materials)

20:12 **1424** On the Power Gain Characteristics of RF MOSFETs - Z. Ma (Univ of Wisconsin), N. Jiang and H. Yuan (University of Wisconsin-Madison)

20:15 **1425** Study of Charged states of Si Quantum Dots with Ge Core - K. Makihara, M. Ikeda, S. Higashi and S. Miyazaki (Hiroshima University)

20:18 **1426** Development of Textured High-Quality Si and SiGe Multicrystal Ingots with Same Grain Orientation and Large Grain Sizes by the New Dendritic Casting Method - K. Nakajima, K. Fujiwara, M. Tokairin, W. Pan, Y. Nose and N. Usami (Tohoku University)

20:21 **1427** Control of Carbon Incorporation in Selectively Grown Epitaxial SiGe:C Layers Dedicated to HBTs - B. Vandelle, F. Brossard, B. Barbalat, P. Chevalier, F. Saguin and D. Dutartre (STMicroelectronics)

20:24 **1428** Bias Dependence of SiGe HBT Linearity Under CE and CB Configurations - G. Qin, G. Wang (University of Wisconsin-Madison) and Z. Ma (Univ of Wisconsin)

20:27 **1429** Electrical Properties and Bonding Structures of Germanium Nitride/Ge(100) Structures Formed by Radical Nitridation - H. Kondo, I. Yanagi, M. Sakashita, A. Sakai, M. Ogawa and S. Zaima (Nagoya University)

20:30 **1430** Modeling of Lossy MOS Capacitors on Ge-Rich $Si_{0.15}Ge_{0.85}$ Substrates - M. K. Bera (Indian Institute of Technology), R. Das, S. Chakraborty (Indian Institute of Technology), S. Saha (Vidyasagar University) and C. Maiti (Indian Institute of Technology)

20:33 **1431** Suppression of Structural Imperfection in Strained Si Thin Film by Utilizing SiGe Bulk Substrate - N. Usami, Y. Nose, K. Fujiwara and K. Nakajima (Tohoku University)

20:36 **1432** Thermal Oxidation of MBE SiGe Films: Ge Segregation and Defects Injection - A. Terrasi (University of Catania)

20:39 **1433** Silicon-Germanium Heterostructure-on-Insulator Formed by Ge^+ Ion Implantation and Hydrogen Transfer - V. P. Popov, I. Tyschenko, A. Cherkov (Institute of Semiconductor Physics) and M. Voelskow (Institut fur Ionenstrahlphysik and Materialforschung)

20:42 **1434** Structural Properties of Tensile-Strained Si Layers Grown on $Si_{0.6}Ge_{0.4}$ and $Si_{0.5}Ge_{0.5}$ Virtual Susbtrates - J. Hartmann (CEA-LETI)

20:45 **1435** Strained Silicon Two-Dimensional Electron Gases on x = 0.2 $Si_{1-x}Ge_x$ Relaxed Graded Buffers - K. Yao, J. Sturm (Princeton University) and A. Lochtefeld (AmberWave Systems Corp.)

20:48 **1436** Comparison of SiGe Virtual Substrates for the Fabrication of Strained Silicon-on-Insulator (sSOI) Using Wafer Bonding and Layer Transfer - M. Reiche (Max-Planck-Institut fur Mikrostrukturphysik), I. Radu, C. Himcinschi, R. Singh, S. Christiansen and U. Goesele (Max Planck Institute of Microstructure Physics)

20:51 **1437** Defect and Strain Characterization of Selective-Area-Growth Ge Mesa Structures on Si Substrate - J. Lu, G. Rozgonyi (NC State University), J. Liu (MIT), L. Kimerling (Massachusetts Institute of Technology) and J. Michel (MIT)

20:54 **1438** Local Strain Measurement with Convergent Beam Electron Diffraction and Finite Element Simulation - W. Zhao (North Carolina State University), G. Duscher (North Carolina State University and Oak Ridge National Lab) and M. Zikry (North Carolina State University)

E14 State-of-the-Art Program on Compound Semiconductors 45 (SOTAPOCS 45)

Electronics and Photonics

Universal 17, 1st Floor, Expo Center

SOTAPOCS Section 1
Co-Chairs: A. Baca and J. LaRoche

10:05 **1526** Efficient and Photostable ZnS-Passivated CdS:Mn Quantum Dots - D. Bera (University of Florida), H. Yang (Hongik University) and P. Holloway (University of Florida)

10:35 **1527** Defects Limiting Carrier Lifetime in 4H-SiC Epilayers - P. B. Klein, B. Shanabrook (Naval Research Laboratory), S. Huh, A. Polyakov (Carnegie Mellon University), M. Skowronski (Carnegie-Mellon University), J. Sumakeris and M. O'Loughlin (CREE Research)

11:05 **1528** SiC Via Fabrication and Integration fro Wide Bandgap HEMT/MMIC Devices - R. Shul, M. Overberg, A. G. Baca, C. Sanchez, J. Stevens (Sandia National Laboratories), L. Voss, K. Ip, S. J. Pearton (University of Florida), M. Martinez, M. Armendariz and G. Wouters (Sandia National Laboratories)

11:35 **1529** Growth of Self-Assembled Quantum Dots, Quantum Rings, and Lateral Bi-Quantum-Dot Molecules by Gas-Source Molecular Beam Epitaxy - C. W. Tu, S. Suraprapapich, Y. Shen, Y. Fainman (University of California San Diego) and S. Panyakeow (Chulalongkorn University)

SOTAPOCS Section II
Co-Chairs: J. Wang and P. Chang

14:00 **1530** Fabrication and Optimization of Al Doped Ta_2O_5 Thin Films to Enable Temperature Stable Phase Shifters - M. W. Cole, W. Nothwang, S. Hirsch, C. Hubbard and E. Ngo (US Army Research Laboratory)

14:30 **1531** Ohmic Contacts to Antimonide Compound Semic onductors and Indium Arsenide - S. E. Mohney, E. Lysczek (Penn State University), J. Robinson (NRL) and S. Wang (Intel)

15:00 **1532** Dense Intra-Cavity Interconnection Technology for Hermetically Packaged MMICs - P. Chang-Chien, P. Chang-Chien (Northrop Grumman) and K. Tornquist (Northrop Grumman Space Technology)

15:20 **1533** Visible Light Active Carbon Modified (CM)-n-TiO_2 Nanotube Arrays for Efficient Photoelectrochemical Splitting of Water - S. U. Khan, C. Xu and Y. Shaban (Duquesne University)

15:40 Intermission (20 Minutes)

16:00 **1534** Current Status of Field Aided Lateral Crystallization - D. Choi, H. Kim, T. Han (Hanyang University) and Y. Kim (North Carolina State University)

16:30 **1535** Carbon Modified (CM)- n-Fe_2O_3 Thin Films for Efficient Photoelectrochemical Splitting of Water - S. U. Khan and Y. Shaban (Duquesne University)

16:50 **1536** Formation of HgCdTe by Electrochemical Atomic Layer Epitaxy (EC-ALE) - V. Venkatasamy (University of Georgia)

E15 Thin Film Transistors 8 (TFT8)

Electronics and Photonics

Universal 19, 1st Floor, Expo Center

TFT Systems
Co-Chairs: Y. Kuo and M. Shur

10:00 Introductory Remarks (5 Minutes)

10:05 **1555** Panel-Sized LCD Drivers Using SOG Technology - H. Hayama (NEC Electronics Corporation)

10:35 **1556** Technology Trend of AMLCDs for Mobile Application - Y. Yamamoto (Sharp Corporation)

11:05 **1557** Optical Feedback for AMOLED Pixel Circuits - S. Deane, D. Fish, N. Young, A. Steer, D. George, A. Giraldo, H. Lifka and W. Oepts (Philips Research)

11:35 **1558** High Reliability and Performance Poly-Si TFTs for System in Displays - M. Hatano, M. Matsumura, Y. Toyota, M. Tai, H. Hamamura (Hitachi, Ltd., Central Research Laboratory), T. Miyazawa and M. Ohkura (Hitachi Displays, Ltd.)

Devices and Reliability
Co-Chairs: O. Bonnaud and M. Hatano

14:00 **1559** Design of Ultra-High Performance Si TFTs - G. Kawachi (ALTEDEC)

14:30 **1560** Front and Back Channel Properties of Asymmetrical Double-Gate Polysilicon TFTs - F. V. Farmakis, D. Kouvatsos (NCSR Demokritos), A. Voutsas (Sharp Laboratories of America Camas, WA), D. Moschou, G. Kontogiannopoulos (NCSR Demokritos) and G. J. Papaioannou (University of Athens)

14:50 **1561** Instability of Threshold Voltage of Single-Crystalline Si Thin-Film Transistors on Flexible Substrate - H. Yuan (Univ. of Wisconsin-Madison), M. Lagally (University of Wisconsin-Madison) and Z. Ma (Univ of Wisconsin)

15:10 **1562** Stable Bottom-Gate Nanocrystalline/ Amorphous Silicon TFTs for OLED Displays - M. Esmaeili Rad, A. Sazonov, D. Striakhilev and A. Nathan (University of Waterloo)

15:30 **1563** Universal TFT Compact Model - B. Iniguez (Universitat Rovira i Virgili), M. Shur, V. Turin, D. Veksler (Rensselaer Polytechnic Institute, Troy, NY, US), T. Ytterdal (Norwegian University of Science and Technology, Trondheim, Norway) and W. Jackson (Hewlett-Packard Laboratories, Palo Alto, California, US)

15:50 Intermission (20 Minutes)

Deposition Processes
Chair: M. K. Han

16:10 **1564** Development of ALD/PECVD Reactor for High Quality LTPS-TFTs Insulator - K. Murata, N. Miyatake, Y. Mori, H. Tachibana (Mitsui Engineering & Shipbuilding Co., Ltd.), Y. Uraoka and T. Fuyuki (Nara Institute of Science and Technology)

16:40 **1565** Room-Temperature Sputter-Deposited Gate SiO_2 Films for High Quality Poly-Si TFTs - T. Serikawa (Osaka University), T. Miyashita (NAIST), H. Ueno, Y. Sugawara, Y. Uraoka and T. Fuyuki (Nara Institute of Science and Technology)

I1 Physical and Analytical Electrochemistry General Session

Physical and Analytical Electrochemistry

Universal 7, 1st Floor, Expo Center

Monday Morning
Chair: S. Minteer

10:00 **1828** Determination of Amino Acid Based on Its Proton Accepting Effect on the Voltammetric Behavior of Trolox - K. Takamura, A. Kotani and F. Kusu (Tokyo University of Pharmacy and Life Science)

10:20 **1829** The Effect of Adsorption of Thiourea on the Particle Size of Supported Platinum Nanocatalysts Synthesized by Chemical Reduction - E. R. Gonzalez, E. Carbonio, F. Colmati and E. Ciapina (Instituto de Quimica de Sao Carlos-USP)

10:40 **1830** The Effect of Phthalate/Sulphonic Acid Ester Plasticisers on the TiO_2 Photocatalyzed Degradation of PVC - G. P. Martin (Swansea University), A. Robinson (Materials Research Center, University of Wales Swansea.) and D. A. Worsley (Swansea University)

11:00 **1831** Graphite Oxide as an Electroactive Substrate for Electropolymerization - B. Yazdani and A. Eftekhari (Materials and Energy Research Center)

11:20 **1832** Galvanodynamic Synthesis of Conductive Polymers - P. Jafarkhani and A. Eftekhari (Materials and Energy Research Center)

11:40 **1833** Application of Combined Stripping Voltammetry Techniques and SECM to Electro-Deposition and Generation Studies - M. A. Alpuche Aviles and D. Wipf (Mississippi State University)

Monday Afternoon I
Chair: H. De Long

14:00 **1834** Preparation of Hydrogen Fuel Cell Electrodes Via In Ditu Electrochemical Deposition of Pt Nanoparticles Using Nafion Membrane as a Template to Achieve Efficient Utilization of the Electrocatalyst - A. D. Ranasinghe (University of California, Santa Barbara), J. Chou (Southeastern Louisiana University), S. Jayaraman (Corning Incorporated), E. Mcfarland, S. Buratto and H. Metiu (University of California, Santa Barbara)

14:20 **1835** Electrocatalysis of Fuel Cell Anode Reactions on Ordered intermetallic PtSb and PtSn – A. Angelo (Laboratorio de Eletrocatalise e Reacoes Superficials.), A. Innocente, B. Antoniassi (Laboratorio de Electrocatalise e Reacoes Superficiais), L. M. Pinto (Universidade Estadual Paulista – UNESP) and A. deNicolai (Laboratorio de Electrocatalise e Reacoes Superficiais)

14:40 **1836** Methanol Oxidation on PtRu/C Electrocatalysts Prepared by a Microemulsion Method - H. M. Villullas (Instituto de Quimica -UNESP), D. Godoi and J. Perez (Instituto de Quimica-UNESP)

15:00 **1837** An Improved Borohydride-H_2O_2 Laboratory Fuel Cell - M. W. Franco (OMNIDEA, Lda.) and C. Sequeira (IST)

15:20 **1838** Oxygen Reduction Characteristics on Ag, Pt, and Ag-Pt Alloys in Low-Temperature SOFCs - H. Huang, T. P. Holme and F. B. Prinz (Stanford University)

15:40 **1839** Normalized Differential Reflectance Spectroscopy at Polycrystalline Platinum Electrodes in Aqueous Electrolites: Quantitative Aspects. - I. Fromondi, S. Ping and D. Scherson (Case Western Reserve University)

Monday Afternoon II
Chair: H. De Long

16:20 **1840** An Electrochemical Quartz Crystal Microbalance Study into the Electrodeposition of Manganese Dioxide - S. Donne, M. Owen and G. Lawrance (University of Newcastle)

16:40 **1841** An EQCM Study of Influence of Molecular Weight of the Polyethyleneglycol on Pt Surface Phenomena in Function of Applied Potential - J. C. Ballesteros (Centro de Investigacion y Desarrollo Tecnologico en Electroquimica) and G. Trejo (Centro de Investigacion y Desarrollo Tecnologico en Electroquimica)

17:00 **1842** Electro-oxidation of Biginelli Dihydropyrimidones - J. M. Aceves-Hernandez (Facultad de Estudios Superiores Cuautitlan-UNAM), R. Miranda (Fac. de Est. Sup. Cuautitlan-UNAM) and O. Kappe (University of Graz, Austria)

17:20 **1843** The Intensive Research Method. I - A. Shekhtman (KVANT)

17:40 **1844** The Intensive Research Method. II. - A. Shekhtman (KVANT)

I3 Electrochemical Surface Science: Recent Advances in the Study of the Electrode-Electrolyte Interface

Physical and Analytical Electrochemistry

Universal 18, 1st Floor, Expo Center

Nanotechnology
Chair: G. Swain

10:00 **1905** Lithographically Patterned Nanowire Electrodeposition - R. M. Penner, E. Menke, M. Thompson and C. Xiang (UC Irvine)

10:30 **1906** Electron Transfer across Ultrathin Self-Assembled Films Mediated by Metal Nanoparticles and Q-dots - D. J. Fermin, J. Zhao, G. Kissling and C. Bradbury (University of Berne)

11:00 **1907** Smart Dust: Synthesis and Application of Encoded Photonic Crystals by Programmed Electrochemical Corrosion - M. J. Sailor, J. Park, S. Meade, E. Segal, M. Schwartz, S. Alvarez, M. Orosco, E. Anglin, A. Derfus, B. Migliori, L. Chao (UCSD) and S. Bhatia (MIT)

11:30 **1908** Nanometric Building Blocks and Devices - H. D. Abruna (Cornell University)

12:00 **1909** Probing the Structural, Electrical and Electrochemical Properties of Boron-Doped Nanocrystalline Diamond Films Deposited from Argon-Rich and Hydrogen-Rich Source Gas Mixtures - G. M. Swain and S. Wang (Michigan State University)

Spectroscopic Techniques
Chair: T. Yamada

14:00 **1910** Transient Structure of Molecules at Electrode/Electrolyte Interfaces Studied by Time-Resolved Sum Frequency Generation Spectroscopy - K. Uosaki (Hokkaido University), H. Noguchi, M. Ito and T. Okada (Hokkadio University)

14:30 **1911** Potential Dependent Structure of Water at the Electrified Solid-Liquid Interface - A. A. Gewirth, Z. Schultz and S. Shaw (University of Illinois)

15:00 **1912** Sum-Frequency Generation Spectroscopy (SFG) at Platinum and Platinum/Ruthenium Interfaces Containing Chemisorbed CO - A. Wieckowski (University of Illinois at Urbana-Champaign), L. Guo-Qiang, L. Alexei, T. Takeshita and D. Dlott (UIUC)

15:30 **1913** In-Situ SXS/STM Characterization of Temperature Controlled Electrified Solid-Liquid Interfaces - V. Stamenkovic (Argonne National Laboratory), C. Lucas (University of Liverpool), D. Tripkovic, D. Strmcnik and N. Markovic (Argonne National Laboratory)

16:00 Intermission (10 Minutes)

16:10 **1914** In-Situ Electrochemical SPR Measurements for Detecting Reactions of Monolayer Materials - T. Uematsu and S. Kuwabata (Osaka University)

16:30 **1915** Ultra-Fast Potential Jump at the Electrochemical Interface Studied by Picosecond Time-Resolved Surface-Enhanced IR Absorption Spectroscopy - A. Yamakata (Hokkaido University), J. Kubota (Tokyo Institute of Technology) and M. Osawa (Hokkaido University)

16:50 **1916** Novel Applications of the Electrochemical Quartz Crystal Microbalance - A. Bund (TU Dresden)

17:10 **1917** Preparation, Identification, and Application of Organic Monolayers on Si(111) - T. Yamada (RIKEN)

I4 Molten Salts 15, in Memory of Robert Osteryoung

Physical and Analytical Electrochemistry / Electrodeposition / High Temperature Materials / Battery / Energy Technology

Galactic 7, Conference Center, Sunrise

The Impact and Contributions of Robert A. Osteryoung
Co-Chairs: R. Mantz and P. Trulove

10:00 **1963** Electrochemisty in Molten Salts and Ionic Liquids: The Contributions of Robert A. Osteryoung - P. C. Trulove (U.S. Naval Academy) and R. Mantz (Army Research Office)

10:20 **1964** Spectroscopy in Molten Salts and Ionic Liquids: A Survey of the Contributions of Robert A. Osteryoung – R. Mantz (Army Research Office) And P. C. Trulove (U.S. Naval Academy)

10:40 **1965** Room Temperature Ionic Liquids for Photoelectrochemical Applications: Lessons Learnt and Future Prospects - K. Rajeshwar (The University of Texas at Arlington)

11:00 **1966** The Dynamics of Highly Flexible Molecules in Ionic Liquids - F. V. Bright (University at Buffalo, The State University of New York), T. McCarty, P. Page, M. Dabney (UB, SUNY) and G. Baker (ORNL)

11:20 **1967** Characterization of Chloroaluminate Molten Salts by Pulsed-Gradient Spin-Echo NMR - T. A. Zawodzinski (Case Western Reserve University), R. Mantz (Army Research Office) and P. C. Trulove (U.S. Naval Academy)

11:40 **1968** Non-Equilibrium Concepts Lead to an Explanation of the Formation of Meteorites - M. Blander (Quest Research), A. Pelton and I. Jung (Ecole Polytechnique)

Novel Appllications of Molten Salts and Ionic Liquids
Co-Chairs: R. Sw atlowski, D. Fox and S. Mitsushima

14:00 **1969** The Preparation and Characterization of Bombyx Mori Silk Nanocomposites Using Ionic Liquids - D. Fox (United States Naval Academy), P. Fylstra (US Naval Academy), W. A. Henderson (U.S. Naval Academy), J. Gilman (National Institutes of Standards and Technology), P. C. Trulove and H. De Long (Air Force Office of Scientific Research)

14:20 **1970** A Look at Ionic Liquid Generated Cellulose and Modified Cellulose Fibers - R. Swatloski (The University of Alabama), R. Broughton (Auburn University), N. Sung, M. Maxim, D. Daly, S. Spear and R. D. Rogers (The University of Alabama)

14:40 **1971** Ionic Liquids for Optical and Switching Applications - R. E. Del Sesto, A. Burrell, T. McCleskey (Los Alamos National Laboratory) and J. S. Wilkes (US Air Force Academy)

15:00 **1972** Ionic Liquid Oxidizers - T. E. Sutto (NSWC-DD) and K. McGrady (NSWCDD)

15:20 Intermission (20 Minutes)

15:40 **1973** In Situ Electrochemical Electron Microscopy (1) Fabrication of System Using Ionic Liquid - S. Kuwabata, S. Arimoto and D. Oyamatsu (Osaka University)

16:00 **1974** In Situ Electrochemical Electron Microscopy (2) SEM Observation of Redox Reaction at Electrode Surface - S. Arimoto, H. Kishimoto, D. Oyamatsu and S. Kuwabata (Osaka University)

16:20 **1975** Development of Low Melting Ionic Liquids using Eutectic Mixtures of Imidazolium and Pyrazolium Ionic Liquids - T. J. Dunstan and J. Caja (Electrochemical Systems, Inc.)

16:40 **1976** Fulleride Ionic Liquids - R. E. Del Sesto (Los Alamos National Laboratory), J. S. Wilkes, C. Corley (US Air Force Academy), D. Dudis and A. Yeates (Wright Patterson Air Force Research Laboratory)

17:00 **1977** Ionic Liquid Zwitterions - T. E. Sutto (NSWC-DD) and K. McGrady (NSWCDD)

17:20 **1978** Decomposition of 2,4',5-Trichlorobiphenyl by Using Molten Salt - Y. Yokka, M. Kimura and Y. Sato (Tohoku University)

J2 Chemical Sensors 7: Chemical and Biological Sensors and Analytical Systems

Sensor

Universal 14, 1st Floor, Expo Center

Keynote Session / Electrochemical Sensors
Co-Chairs: G. Hunter and Z. Aguilar

10:00 **2100** Sensors Based on Spectroelectrochemistry: Detection of Metal Ions - W. R. Heineman and C. Seliskar (University of Cincinnati)

10:40 **2101** Preparation of Poly(3-methylthiophene) Modified Electrode and Poly(2,2-bithiophene) Modified Electrode for the Detection of Catechol in the Presence of Ascorbic Acid - S. K. Lunsford and J. A. Stinson (Wright State University)

11:00 **2102** Electrochemical Detection of Tricresyl Phosphate. - A. Simonian, G. Vertelov and W. Gale (Auburn University)

11:20 **2103** Ion Spectroscopy Using Microfluidic FlowFETs - M. Tabib-Azar (Case Western Reserve University), Y. Xie (CWRU), S. Mutlu (Bogazici University) and C. Mastrangelo (CWRU)

Biological and Electrochemical Sensors
Chair: A. Simonian

14:00 **2104** Sensing Characteristics of Planar-Type $(Ba_xLa_{1-x})_2In_2O_5$ ($0.4 <= x <= 0.6$) Electrolyte Based Nonequilibrium Potentiometric CO Sensors - X. Li (Institute for Materials Research) and G. Kale (Institute for Materials Research, Leeds Univ.,)

14:20 **2105** Electrochemical pH-Stat for Microliter Fluid Specimens - L. T. Kao, H. Hsu, G. Shetty and M. Gratzl (Case Western Reserve University)

14:40 **2106** Nanoparticle Labels for Signal Amplification in Electrochemical Immunoassays of Biomarkers - Y. Lin (Pacific Northwest National Laboratory), J. Wang and G. Liu (Pacific Northwest National Lab)

Chair: S. Bhansali

15:20 **2107** Manganese Salen Complex Immobilized by Electrostatic Interactions with Nafion and Its Aplication as a Sensor toward Peroxynitrite Anion - J. Sandoval, S. Gutierrez (Universidad de Guanajuato) and F. Bedioui (Ecole National Superieure de Chimie de Paris)

15:40 **2108** Electrochemical Detection of Polyphenolic Compounds Using Carbon Composite Electrodes - M. M. Davila, F. Ahuatl, M. Elizalde (Universidad Autonoma de Puebla), J. Mattusch and R. Wennrich (Centre for Environmental Research)

16:00 **2109** Development of the Electrical DNA Sensor - H. Shiigi, S. Tokonami and T. Nagaoka (Osaka Prefecture University)

16:20 **2110** Screen-Printed Carbon Electrode Modified with Poly-L-Histidine Applied to Voltammetric Determination of Chromium (VI) - M. Boldrin Zanoni (Institute of Chemistry - UNESP), M. F. Bergamini and D. P. dos Santos (UNESP)

Tuesday, October 31

0900h.....Technical Exhibit, *Universal Ballroom, 2nd Floor, Expo Center*
0930h.....Coffee Break, *Universal Ballroom, 2nd Floor, Expo Center*
1215h.....ECS Corrosion Division Luncheon & Business Meeting, *Star 1, Conference Center, Sunrise*
1215h.....ECS Sensor Division Luncheon & Business Meeting, *Star 2, Conference Center, Sunrise*
1900h.....Technical Exhibit and General Poster Session, *Universal Ballroom, 2nd Floor, Expo Center*

A2 Nanotechnology General Session

Nanotechnology / Sensor

Universal 11, 1st Floor, Expo Center

Nanostructures and Devices
Co-Chairs: M. Lopez Teijelo and W. van Schalkwijk

08:30 **101** Self-Assembled Multilayers of Gold Nanoparticles with Redox Polyelectrolytes: Ellipsometric and Optical Characterization - M. Lopez Teijelo, N. Ferreyra, M. Perez, E. Coronado (Facultad de Ciencias Quimicas, Universidad Nacional de Cordoba) and P. Labbe (Laboratoire d'Electrochimie Organique et de Photochimie Redox, UMR CNRS 5630, Institut de Chimie Moléculaire de Grenoble)

08:50 **102** Synthesis and Characterization of Organic-Functionalized Pure-Silica-Zeolite MFI - C. M. Lew, Z. Li, S. Li (University of California, Riverside), S. Hwang (California Institute of Technology), D. Medina, M. Sun (University of California, Riverside), M. Davis (California Institute of Technology) and Y. Yan (University of California, Riverside)

09:10 **103** Nano Composite Conductive Elastomer for Soft MEMS Applications: Materials, Process, & Devices - C. Liu (University of Illinois at Urbana), J. Engel and K. Shaikh (University of Illinois)

09:30 **104** Nanostructured Bi-Functional Electrocatalysts for Degradation Mitigation in PEFCs - V. K. Ramani, P. Trogadas, G. Hou and J. Prakash (Illinois Institute of Technology)

09:50 **105** Nanostructured Organic / Inorganic Composite Membranes for PEFC and DMFC Applications - V. K. Ramani and S. Sambandham (Illinois Institute of Technology)

10:10 **106** Nanoscale Porosity in Lithium Pyrophosphate Materials - P. S. Attidekou, P. Connor (University of St Andrews) and J. Irvine (St Andrews University)

10:30 **107** Layer-by-Layer Fuel Cell MEAs (Membrane Electrode Assemblies) - A. Taylor, M. Michel, R. C. Sekol, J. Kizuka, N. Kotov and L. Thompson (University of Michig an)

10:50 **108** Adhesion of Nano-Scale Particles to Photomasks - S. Beaudoin, G. Kumar, R. Jaiswal and S. Smith (Purdue University)

11:10 **109** Properties of ECD Gold Composite with Nanostructured Carbon-Based Materials - P. Cojocaru, A. Vicenzo and P. Cavallotti (Politecnico di Milano)

11:30 **110** Optical Characterization of Electrochemically Self Assembled ZnO Nanowires - S. Bandyopadhyay, S. Ramanathan, J. Moore, A. Baski (Virginia Commonwealth University), J. Edwards and J. Anderson (US Army Engineer Research and Development Center)

11:50 **111** Oscillatory Electrodeposition of Ni Nanostructures - H. Arami and A. Eftekhari (Materials and Energy Research Center)

12:10 Concluding Remarks (10 Minutes)

A2 Nanotechnology General Session

Nanotechnology / Sensor

Universal Ballroom, 2nd Floor, Expo Center

Tuesday Evening Poster Session, 19:00-21:00
Chair: W. van Schalkwijk

- **112** Ionic Conductivity of Nano-Structured Yttria Stabilized Cubic Zirconia as a Function of Alumina Content - S. Tekeli, A. Kayis and M. Guru (Gazi University)
- **113** Study of the Electrocatalytic Activity of Electroconductive Nanopolymers - D. E. Pacheco Catalan and M. A. Smit (CICY)
- **114** Highly Stable and Dense Colloids of Silica-Coated Gold Nanoparticles as X-Ray Absorbing Media for Medical Applications - Y. Park, M. Takeda, N. Ohuchi, Y. Sato, K. Tohji, A. Dmytruk and A. Kasuya (Tohoku University)
- **115** Electrodeposition of Polyaniline on Nanostructured Nickel Substrates - B. Yazdani and A. Eftekhari (Materials and Energy Research Center)
- **116** The Role of Hexacyanoferrate in the Formation of Nanostructured Polymers - P. Jafarkhani and A. Eftekhari (Materials and Energy Research Center)
- **117** Morphology Control by Chemical Synthesis of Conductive Polymers Under Gravitational Forces - A. Gholami and A. Eftekhari (Materials and Energy Research Center)
- **118** Inspecting the Fractality of Polypyrrole in Nanoscale - F. Molaei and A. Eftekhari (Materials and Energy Research Center)
- **119** Electronic Effects of SAM Binding on Sensing Performance in Metal Oxide Nanostructures - A. R. Morrill, A. J. Monkowski, M. Moskovits and N. MacDonald (University of California Santa Barbara)
- **120** Characterization of Porous Silicon with Various Conditions and Mathematical Approach - B. Kim, S. Lim and Y. Shul (Yonsei University)
- **121** Employ of Both Hemoglobin and Single-Wall Carbon Nanotube for the Preparation of PANI Nanocomposits: Application to Biosensors - A. Bayandori Moghaddam, M. Ganjali and P. Norouzi (Tehran University)
- **122** Nano-Crystalline Nickel as Catalysts for Hydrogen Evolution - M. Metikos-Hukovic, Z. Grubac (University of Split) and R. Babic (University of Zagreb)
- **123** Characterization of $CoPd_2(Me_2Ipz)_4Cl_4$ Molecular Precursors and Development of Nanostructures on HOPG Surface - L. Arroyo-Ramirez, C. Cabrera, R. Raptis and M. Charalampos (University of Puerto Rico, Rio Piedras Campus)

B1 Electrochemical Capacitors and High Power Batteries

Battery / Energy Technology / Physical and Analytical Electrochemistry

Universal 8, 1st Floor, Expo Center

New Capacitor Materials
Co-Chairs: T. Osaka and O. Martenez Alvarez

08:30 **135** The Preparation of Ionic Liquids Based on Alkyl Imidazolium Salts for the Electrolyte of EDLC – J. Yoo, K. Kim, S. Kim and T. Yeu (Chung–Ang University)

09:00 **136** Utilization of Ionic liquid Salts in Electrochemical Capacitor System - M. Morita (Yamaguchi University), I. Murayama (Daihatsu Motor Co., Ltd.), T. Fukutake, N. Yoshimoto, M. Egashira (Yamaguchi University) and M. Ishikawa (Kansai University)

09:30 **137** Protic Ionic Liquid as Electrolyte for Ruthenium Dioxide Electrochemical Supercapacitors - A. Pont, D. Rochefort and S. Sebilo(Universite de Montreal)

10:00 Intermission (20 Minutes)

10:20 **138** Preparation of Manganese Thin Film in Room-Temperature Butylmethylpyrrolidinium Bis(Trifluoro methylsulfony)Imide Ionic Liquid and its Application for Super-Capacitors - J. Chang (National Cheng Kung University), P. Chen (Kaohsiung Medical University), C. Huang, F. Yeh, I. Sun and W. Tsai (National Cheng Kung University)

10:50 **139** High Performance 1,5-Diaminoanthraquinone/Multi-Wall Carbon Nanotube(DAAQ/MWCNT) Composite Materials by Different Synthesis Methods for Supercapacitor - S. Park, H. Kim, J. Shin, H. Kim (Chungbuk National University), J. Park and T. Osaka (Waseda University)

11:20 **140** Synthesis and Characterization of High-Power Electrochemical Double Layer Capacitors Using a Novel Nanoporous Material - K. C. Leonard and M. A. Anderson (University of Wisconsin - Madison)

Characterization Methods and High Power Systems
Co-Chairs: D. Doughty and S.-G. Park

14:00 **141** Numerical Simulation of DMFC-Capacitor Hybrid Power Supply - T. Momma, K. Saigusa, T. Shimizu and T. Osaka (Waseda University)

14:30 **142** Design of Hybrid Materials Based on Nanocarbons and Polyoxometalates, and their Application in Electrochemical Supercapacitors - A. Cuentas-Gallegos (Centro de Investigacion en Energia-UNAM), R. Martinez-Rosales, M. Gonzalez-Toledo (Centro de Investigacion en Energia) and M. Rincon (Centro de Investigacion en Energia)

15:00 Intermission (15 Minutes)

15:15 **143** Electrochemical Characteristic Transition by Heat Treatment of a Nano-Thin Layered Polypyrrole/CNT Composite for Supercapacitor Electrodes - J. Kim, I. Song, Y. Kim (Korea Institute of Energy Research) and C. Liu (Korea Institue of Energy Research)

15:45 **144** Characteristics of Poly(3,4-Ethylenedioxythiophene) Doped with Alkyl Benzenesulfonates - J. Yoo, M. Kim, U. Lee and T. Yeu (Chung-Ang University)

B1 Electrochemical Capacitors and High Power Batteries

Battery / Energy Technology / Physical and Analytical Electrochemistry

Universal Ballroom, 2nd Floor, Expo Center

Tuesday Evening Poster Session, 19:00-21:00
Co-Chairs: M. Ishikawa and B. Wei

- **145** Preparation and Electrochemical Characterization of Polyaniline-Carbon Nanotubes Supercapacitors - I. Alonso (CIMAV), Y. Verde (Instituto Tecnologico de Cancun), T. Toledano (CICY), G. Alonso (Research Center on Advanced Materials, S. C.), G. Gonzalez (CIMAV) and M. A. Smit (CICY)
- **146** A Hybrid Capacitor Based on a $Li[Ni_{1/3}Co_{1/3}Mn_{1/3}]O_2$ as Li-Ion Battery Cathode Synthesized via Carbonate Co-Precipitation and Active Carbon - J. Yoon (Hanyang University), J. Prakash (Illinois Institute of Technology) and Y. Sun (Hanyang University)
- **147** Exfoliated Carbon Fibers with Metal Oxide as an Electrode Material of Electrochemical Capacitor - M. Toyoda, A. Tamura, T. Tsumura (Oita University) and M. Inagaki (Aichi Inst. Tech.)
- **148** The Magnetohydrodynamic Effect in Electrochemical Systems Including Batteries - R. N. Obrien (Univ. of Victoria)
- **149** Encapsulation of Nanodot RuO_2 into Hollow-Structured Carbon for Electrochemical Capacitors - Y. Nakagawa, N. Ogihara, S. Hatta (Tokyo University of Agriculture & Thecnology), S. Ishimoto, K. Tamamitsu (Nippon Chemi-Con Corporation) and K. Naoi (Tokyo University of Agriculture and Technology)
- **150** Use of Novel Branched Hydrofluoroether as Flame-Retardant Electrolyte for Batteries and Capacitors - E. Iwama, N. Ogihara, Y. Nakamura (Tokyo University of Agriculture & Thecnology), H. Segawa, Y. Ino (Sumitomo 3M Limited) and K. Naoi (Tokyo University of Agriculture and Technology)
- **151** Nitrogen-Enriched Carbon Foam for Capacitor Electrode - M. Kodama, J. Yamashita, Y. Soneda, H. Hatori, K. Kamegawa and N. Miyajima (National Instiyute of Advanced Industrial Science and Technology (AIST))
- **152** Cellulose Based Activated Carbon for Electrochemical Double Layer Capacitors - P. Liu, S. Soukiazian (HRL Labs LLC) and M. Verbrugge (GM R&D)
- **153** Substituted Cyclic Indole Trimers for Electrochemical Capacitor Materials - N. Ogihara, K. Machida, Y. Nakagawa (Tokyo University of Agriculture & Thecnology) and K. Naoi (Tokyo University of Agriculture and Technology)

B2 Intercalation Compounds for Batteries and Hybrid Supercapacitors

Energy Technology / Battery

Universal 2, 1st Floor, Expo Center

Intercalation Compunds I
Co-Chairs: Z. Ogumi and J. J. Xu

08:00 **186** Characterization of $LiFePO_4$ at a Nanoscopic Scale in Relation to the Mode of Preparation - A. Mauger (CNRS), A. Ait-Salah, F. Gendron, M. Massot (University P & M Curie), K. Zaghib (Institut de Recherche d'Hydro-Quebec (IREQ)) and C. M. Julien (Universite P. et M. Curie)

08:40 **187** Characterization and Electrochemical Properties of Li^+ Ion-Exchanged Products of Hollandite-Type $K_y(Mn_{1-x}Co_x)O_2$ for Lithium Battery Electrodes - Y. Kadoma, S. Oshitari and N. Kumagai (IWATE University)

09:00 **188** Relationship Between Thermodynamic Stability, Crystal Structure, Properties and Cathode Performance Depend on Different Synthetic Process and Li Content of $Li_x(Mn_{1/3}Co_{1/3}Ni_{1/3})O_2$ as a Cathode Active Material for Li Secondary Battery - Y. Idemoto, Y. Idemoto, T. Matsui and N. Koura (Tokyo University of Science)

09:20 **189** Structural Evaluation of Intercalation Compounds on the Reduced Dimensionality: Cathode Materials for Application in Battery Technology - R. V. Chintalapalle (University of Michigan), K. Zaghib (Hydro-Quebec) and C. Julien (Universite Pierre et Marie Curie)

Intercalation Compounds II
Co-Chairs: W. Weppner and P. Hovington

10:00 **190** Structural Changes and Thermal Stability of the Intercalation Compounds as Cathode Materials Studied by Synchrotron Based X-Ray Techniques - X. Yang (Brookhaven National Laboratory), K. Chung (Korea Institute of Science and Technology), J. McBreen (Brookhaven National Laboratory), K. Zaghib (Institut de Recherche d'Hydro-Quebec (IREQ)), X. Huang (Institute of Physics, Chinese Academy of Sciences) and J. Chen (Industrial Technology Research Institute, Taiwan)

10:30 **191** Influence of the Composition of Layered $Li(Ni,Mn,Co)O_2$-Type Materials on the Evolution of their Structure and Electrochemical Properties Upon Cycling in Lithium Batteries - L. Croguennec, N. Tran, M. Menetrier, F. Weill and C. Delmas (ICMCB-CNRS and ENSCPB)

11:00 **192** Electrochemical, Magnetic, and Structural Investigations of the $Li_x(Mn_yFe_{1-y})PO_4$ Olivine Phases - A. Yamada, Y. Takei, H. Koizumi, N. Sonoyama, R. Kanno (Tokyo Institute of Technology), K. Ito (Kyoto University), M. Yonemura (Ibaraki University) and T. Kamiyama (KEK)

11:30 **193** Studies on the Influence of Impurities on the High Temperature Performance of $LiFePO_4$ - M. Wohlfahrt-Mehrens, P. Axmann (Zentrum fur Sonnenenergie- und Wasserstoff-Forschung, Baden-Wuerttemberg), C. Stinner and G. Arnold (Zentrum fuer Sonnenenergie- und Wasserstoff-Forschung, Baden-Wuerttemberg)

Intercalation Compounds III
Co-Chairs: M. Whittingham and M. Yoshio

14:00 **194** Overview of Advanced Microstructural Techniques for Battery Development and Commercialization - P. Hovington, M. Lagace, K. Zaghib (Hydro-Quebec), A. Vallee (Avestor) and M. Gauthier (Phostech Lithium Inc.)

14:30 **195** Materials Development for High-Performance Lithium Ion Batteries - W. J. Weppner (Christian-Albrechts-University), R. Murugan, V. Thangadurai and J. Schwenzel (Chr.-Albrechts University Kiel)

15:00 **196** Thin Film Batteries using $LiMn_2O_4$ Fabricated by Sequential Pulsed Laser Deposition - J. Kawamura (Tohoku University), N. Kuwata and T. Suzuki (IMRAM, Tohoku University)

15:20 **197** New Colloidal Method for Preparing Chalcopyrite-Type Semiconductors Using N-Methylimidazole - A. Hammami, R. Imbeault (Universite du Quebec à Montreal), F. Courtel (INRS-EMT), M. Morin (Universite du Quebec a Montreal) and B. Marsan (UQAM)

15:40 **198** The Discharge Process of Porous Nickel Hydroxide Electrode: An Electrochemial Impedance Spectroscopy Study - S. G. Real, E. Castro and A. Visintin (INIFTA)

Intercalation Compounds IV
Co-Chairs: J. Kawamura and J. Irvine

16:20 **199** Novel Energy Storage System Based on an Attraction Between Graphitic Carbon and Anion - M. Yoshio, H. Wang (Saga University) and T. Ishihara (Kyushu University)

16:40 **200** Synthesis and Electrochemical Properties of Mesoporous Manganese Oxide for Electrochemical Capacitor Application - S. Ma and K. Kim (Yonsei University)

17:00 **201** Layered Transition Metal Oxides as Cathodes for Sodium Secondary Battery - S. Okada, Y. Takahashi, T. Kiyabu, T. Doi, J. Yamaki (Kyushu University) and T. Nishida (Kinki University)

17:20 **202** Hybrid Nanocomposite Materials for Energy Storage Applications - P. Gomez-Romero (ICMAB, CSIC)

17:40 **203** A Capacitance-Enhanced Double Layer Electrochemical Cell - Y. Ngu, M. Peckerar, N. Goldsman (University of Maryland), M. Kbheis and G. Metze (Laboratory for Physical Sciences)

B2 Intercalation Compounds for Batteries and Hybrid Supercapacitors

Energy Technology / Battery

Universal Ballroom, 2nd Floor, Expo Center

Tuesday Evening Poster Session, 19:00-21:00
Co-Chairs: C. M. Julien and K. Zaghib

- **204** HQ Asymmetric Super Capacitor: Graphite-$Li_4Ti_5O_{12}$/Ionic Liquid/Carbon - K. Zaghib (Hydro-Quebec), P. Charest, A. Guerfi, M. Dontigny (Hydro-Quebec) and K. Kinoshita (Kinoshita consulting)
- **205** $LiFePO_4$-VGCF Composite Cathode for Li-Ion Batteries - M. Takeuchi (Showa Denko K.K.), M. Dontigny (Hydro-Quebec), A. Sudoh (Showa Denko K.K.), M. Petitclerc (Hydro-Quebec), C. Sotowa (Showa Denko K.K.) and K. Zaghib (Hydro-Quebec)
- **206** $Li_4Ti_5O_{12}$ Material Prepared by Mechano Chemical Activation: Structure and Electrochemical Performance - A. Guerfi (Hydro-Quebec), A. Yuichi (Keio University, Japan), P. Charest (Hydro-Quebec), S. Mamoru (Keio University, Japan) and K. Zaghib (Hydro-Quebec)
- **207** A New Lithium Iron Phosphate $LiFe_2P_3O_{10}$ Synthesized by Wet Chemistry - C. M. Julien (Universite P. et M. Curie), A. Ait-Salah (University P & M Curie), C. Ramana (University of Michigan), F. Gendron, J. Morhange (University P & M Curie) and A. Mauger (CNRS)
- **208** Synthesis, Structural and Magnetic Properties of $LiFe_{1.5}P_2O_7$ - C. M. Julien (Universite P. et M. Curie), A. Ait-Salah (University P & M Curie), C. Ramana (University of Michigan), F. Gendron, J. Morhange (University P & M Curie) and A. Mauger (CNRS)

- **209** A New Approach Toward Local Structure of Spinel Compounds Using Magnetic Properties - C. M. Julien (Universite P. et M. Curie), M. Kopec, J. R. Dygas, F. Krok (Warsaw University of Technology), F. Gendron (University P & M Curie) and A. Mauger (CNRS)
- **210** $LiNi_{0.33}Mn_{0.33}Co_{0.33}O_2$ Positive Electrode for Rechargeable Lithium Batteries - C. M. Julien, A. Abdel-Ghany (University P & M Curie), A. Mauger (CNRS), M. Massot (University P & M Curie), K. Zaghib (Institut de Recherche d'Hydro-Quebec (IREQ)), F. Gendron (University P & M Curie) and C. Ramana (University of Michigan)
- **211** Studies of the Local Structure in $LiCo_{1-2y}Ni_yMnyO_2$ (0.25< or Equal to y < or Equal to 0.5) Cathode Materials - C. M. Julien, A. Abdel-Ghany (University P & M Curie), K. Zaghib (Institut de Recherche d'Hydro-Quebec (IREQ)), A. Mauger (CNRS) and F. Gendron (University P & M Curie)
- **212** Magnetic Properties of $LiNi_{0.33}Mn_{0.33}Co_{0.33}$ as Positive Electrode for Li-Ion Batteries - C. M. Julien, A. Abdel-Ghany (University P & M Curie), A. Mauger (CNRS), M. Massot (University P & M Curie), K. Zaghib (Institut de Recherche d'Hydro-Quebec (IREQ)), F. Gendron (University P & M Curie) and C. Ramana (University of Michigan)
- **213** Experimental Attempt of Lithium Doping to Impurity-Free Single-Walled Carbon Nanotubes Obtained by Highly Efficient Synthesis Method - O. Tanaike (Energy Technology Research Institute), K. Imoto, D. Futaba, K. Hata (AIST) and H. Hatori (National Instiyute of Advanced Industrial Science and Technology (AIST))
- **214** Characterization of Li Intercalating Materials for Hybrid Supercapacitors - J. Y. Nerkar (CSIRO), G. Wilson (CSIRO-Energy Technology), S. Donne (University of Newcastle) and A. Pandolfo (CSIRO-Energy Technology)
- **215** Stabilization Affects on the NiOOH Electrode Through the Influences of Conductive Carbons and Graphites - S. Donne and E. Skipworth (University of Newcastle)
- **216** Investigation of Li_xCoO_2 Phases Produced by Heat Treatment of Delithiated $LiCoO_2$ Powders - T. Yi, M. Kombolias and H. Gabrisch (University of New Orleans)
- **217** Comparative Electrochemical Study of Low Temperature Fluorinated Graphites used as Cathode in Primary Lithium Batteries - A. Hamwi, K. Guerin and M. Dubois (Universite Clermont Ferrand II LMI)
- **218** Solid-State Diffusion of Sodium Through Beta-MnO_2 Lattice - A. Gholami and A. Eftekhari (Materials and Energy Research Center)
- **219** Spectroscopic Characterization of Lithium Nickel Phosphate for Electrochemical Applications - R. V. Chintalapalle, S. Utsunomiya, U. Becker (University of Michigan), A. Ait-Salah (University P & M Curie), A. Mauger (CNRS), F. Gendron and C. Julien (Universite Pierre et Marie Curie)
- **220** Diffusion Coefficient of Lithium and Electrochromism in Amorphous and Crystalline Vanadium Oxide Films - J. Scarminio, P. Catarini da Silva and A. Urbano (Universidade Estadual de Londrina)
- **221** Electrochemical Performance of Pulsed-Laser Deposited V_2O_5 Films - R. V. Chintalapalle (University of Michigan) and C. Julien (Universite Pierre et Marie Curie)
- **222** Electrolyte Penetration into Gamma-MnO_2 Pores During Discharge Using Electrochemical Impedance Spectroscopy - S. Donne and J. Arnott (University of Newcastle)
- **223** High Voltage Cathodes for Superior Battery Systems - S. Donne, A. Hamilton, M. Rose, T. Jones and J. Forrester (University of Newcastle)
- **224** Structures and Electrocehmical Properties in $Li(Ni_{0.5}Mn_{0.5})O_2$: Theory and Experiment - G. Ceder, Y. Meng (MIT), Y. Hinuma, K. Kang (Massachusetts Institute of Technology), C. Grey and J. Breger (SUNY Stony Brook)
- **225** Key Elements on $LiFePO_4$: Performance, Stability and Availability - N. Ravet, C. Michot (University of Montreal), G. Nuspl (Sud-Chemie), G. Liang and M. Gauthier (Phostech Lithium Inc.)

B3 Lithium-Ion Batteries

Battery / Energy Technology

Galactic 2, Conference Center, Sunrise

Anodes II
Co-Chairs: Y.-M. Chiang and D. Doughty

08:00 **253** An Overview on Stabilized Lithium Metal Powder (SLMP), an Enabling Material for a New Generation of Li-Ion Batteries - M. Yakovleva, Y. Gao and B. Fitch (FMC Lithium)

08:30 **254** Nanostructured Molybdenum Oxides as Negative-Electrode Materials for Lithium-Ion Batteries - S. Lee, R. Deshpande, H. Mahan and A. Dillon (National Renewable Energy Lab)

08:50 **255** Improved Li-Ion Battery Negative Electrode Capacity Retention with Fullerene Soot Additive - M. J. Erickson, R. Doe and M. Wagner (George Washington University)

09:10 **256** Graphite Foams for Li-Ion Battery Current Collectors - N. J. Dudney, T. Tiegs, J. Kiggans Jr. and J. Klett (Oak Ridge National Laboratory)

09:30 **257** Single Walled Carbon Nanotube (SWNT)-Copper Oxide Composites - In-Situ Formation and Electrochemical Performance as Anode Materials for Li-Ion Batteries - B. Wei, V. Subramanian and H. Zhu (Louisiana State University)

09:50 Intermission (20 Minutes)

10:10 **258** Application of In Situ Techniques for Investigations in Lithium-Ion Battery Materials - J. Vetter, L. Hardwick (Paul Scherrer Institute), A. Wursig (presently Basel University), M. Holzapfel (Paul Scherrer Institute), O. Schneider (presently ETH Zurich), J. Ufheil and P. Novak (Paul Scherrer Institute)

10:40 **259** Investigation on Effects of Microstructures of Carbon-Coatings on Cycling Stability of Si Anode for Lithium-Ion Batteries - Y. Yen (National Taiwan University), W. Liu (National Taiwan University), H. Wu (Materials Research Laboratories, ITRI) and N. Wu (National Taiwan University)

11:00 **260** The Preparation Nanocrystalline a-Fe_2O_3 in Presence of Ionic Liquids used as Anode Materials for Lithium Ion Batteries - H. Zheng and L. Shi (Henan Normal University)

11:20 **261** An In-Situ X-Ray Diffraction Study of Crystalline Si as Negative Electrode Material for Li-Ion Battery - J. Li and J. Dahn (Dalhousie University)

Battery Division: Technology Award
Chair: R. Jow

14:00 **262** Evolution of the Lithium Ion Battery Technology - K. Lee (LG Chemical)

Electrolytes II
Co-Chairs: R. Jow and D. Aurbach

14:40 **263** Characterization and Thermal Stability of SEI Between a Graphite Electrode and Methyl Difluoroacetate-Based Electrolyte - J. Yamaki, S. Yamami, T. Doi and S. Okada (Kyushu University)

15:10 **264** On the Possibility of Using Ionic Liquids as Electrolyte Solutions for Rechargeable Li and Mg Batteries. - D. Aurbach, O. Chusid, Y. Gofer and E. Markevich (Bar Ilan University)

15:30 **265** Electrolytes for Low Temperature Operations of Li-Ion Batteries - R. Jow (Army Research Laboratory), S. S. Zhang (U.S. Army Research Laboratory), K. Xu and J. Allen (Army Research Laboratory)

15:50 **266** Characterisation and Modeling of the Transport Properties in $LiPF_6$/EC/EMC Electrolyte - A. Nyman, M. Behm and G. Lindbergh (Royal Institute of Technology)

16:10 Intermission (30 Minutes)

16:40 **267** Lithium Oxalyldifluoroborate as a Salt for the Improved Electrolytes of Li-Ion Batteries - S. S. Zhang (U.S. Army Research Laboratory)

17:10 **268** Large-Scale Simulation and Optimization of Li-Ion Electrolytes for Application to Cell Modeling and Design - K. L. Gering (INL)

17:30 **269** Triphenylamines as a New Class of Redox Shuttle Additives for Lithium-Ion Batteries - L. M. Moshurchak, R. Wang, C. Buhrmester and J. Dahn (Dalhousie University)

17:50 **270** Lithium-Conducting Ionic Melt Electrolytes from Polyether-Functionalized Fluorosulfonimide Anions - S. Creager, B. Hallac, O. Geiculescu, R. Rajagopal and D. DesMarteau (Clemson University)

18:10 **271** MD Simulations Study of Liquid Electrolytes and SEI Components - O. Borodin (University of Utah) and G. Smith (Univeristy of Utah)

B3 Lithium-Ion Batteries

Battery / Energy Technology

Universal Ballroom, 2nd Floor, Expo Center

Tuesday Evening Poster Session, 19:00 - 21:00
Co-Chairs: G. G. Amatucci, K. M. Abraham, R. Jow, K. Zaghib, and Y. K. Sun

- **272** A Study on Surface Treatment of Layered $LiNi_{1/3}Mn_{1/3}Co_{1/3}O_2$ Materials in Lithium Secondary Batteries - H. Kim (Korea Electrotechnology Research Institute), M. Kong, K. Kim, S. Moon (KERI) and H. Kim (Korea Electrotechnology Research Institute)
- **273** Electrochemical Properties of $Li[Li_{0.2}Ni_{0.1}Co_{0.2}Mn_{0.5}]O_2$ Synthesized by Sol-Gel Process – W. Zhu, X. Niu and S. Zhang (Chongqing University)
- **274** Investigation of Li Removal Reaction for Spinel-Type $LiMVO_4$ (M = Mn, Co, Ni) as Cathode Materials for Li-Ion Battery Using Ab Initio Calculation - J. Shirakawa, N. Kasada, M. Nakayama and M. Wakihara (Tokyo Institute of Technology)
- **275** Templated $LiMPO_4$ Nanoelectrodes for Lithium-Ion Batteries - C. R. Swartz (University of Kentucky) and S. Lipka (University of Kentucky Center for Applied Energy Research)
- **276** Battery Performance of Manganese Oxide Electrochemically Synthesized in the Presence of Carbon Nanotubes - F. Molaei and A. Eftekhari (Materials and Energy Research Center)
- **277** The Effects of Lithium Content on the Structure and Electrochemical Properties of $Li_{1+x}(Mn_{0.5}Ni_{0.5})_{1-x}O_2$ - S. Kang, S. Park (Argonne National Laboratory), W. Yoon (Brookhaven National Laboratory), C. Johnson and K. Amine (Argonne National Laboratory)
- **278** Influence of Ti Ion Doping on Electrochemical Properties of LiFePO4/C Electrode for Lithium-Ion Batteries - H. Guorong, G. Gaoxuguang and P. Pengzhongdong (Central South University)
- **279** Structural Changes of $LiFePO_4$ During Lithium Extraction/Insertion Studied by In Situ X-Ray Diffraction and In Situ Raman Spectroscopy - K. Chung (Korea Institute of Science and Technology), W. Yoon, J. McBreen, X. Yang (Brookhaven National Laboratory), K. Zaghib (Institut de Recherche d'Hydro-Quebec (IREQ)), H. Shin, C. Kim, W. Cho and B. Cho (Korea Institute of Science and Technology)
- **280** Electrochemical Investigation of $Li_{1-x}Fe_{1-y}Ni_xO_2$-Li_xMnO_2 (0.0 < or Equal to y < or Equal to 0.4) Materials Using EXAFS Analysis - Y. Lee, G. Park, S. Cho (Chonnam National University) and H. Ahn (Korea Electrical Engineering & Science Research Institute)

- **281** Synthesis and Electrochemical Properties of $Li_{1-x}Fe_{0.8}Ni_{0.2}O_2$-$Li_xMnO_2$ (Mn/(Fe+Ni+Mn) = 0.8) Material - Y. Lee, G. Park, S. Cho (Chonnam National University) and H. Ahn (Korea Electrical Engineering & Science Research Institute)
- **282** Electrochemical Properties of xLi_2MnO_3-$(_{1-x})LiNi_{0.5}Co_{0.1}Mn_{0.4}O_2$ Cathode Materials with High Energy Density - K. Park, J. Yoon, D. Im and S. Doo (Samsung Advanced Institute of Technology)
- **283** Lithium Diffusion Through Aligned Nanofibers of Manganese Oxide Spinel - S. Manafi and A. Eftekhari (Materials and Energy Research Center)
- **284** Synthesis and Electrochemical Properties $Li[Ni_{0.8}Co_{0.1}Mn_{0.1}]O_{2-x}F_x$ Via Co-Precipitation - S. Woo, Y. Sun, B. Park and K. Lee (Hanyang University)
- **285** Synthesis of Vanadium(III) Borates/Carbon Composite using Microwave Heating Process and Their Electrochemical Properties as Anode Material of Lithium Ion Battery. - D. Kim and H. Kwon (Korea Advanced Institute of Science and Technology)
- **286** The effect of AlF_3 Coating on the High-Voltage Cycling Behavior of $Li[Ni_{1/3}Co_{1/3}Mn_{1/3}]0_2$Cathode - S. Cho, S. Lee and Y. Sun (Hanyang University)
- **287** Sucrose Combustion Process for Cathode Materials of the Lithium Secondary Battery - S. Yi, K. Chung (Korea Advanced Institute of Science and Technology), H. Chung (Dongshin University) and H. Kim (Korea Advanced Institute of Science and Technology)
- **288** Synthesis of Nanostructured $Li[Ni_{1/3}Co_{1/3}Mn_{1/3}]O_2$ via a Modified Carbonate Process - Y. Sun (Hanyang University), S. Park (Argonne National Laboratory), H. Shin (Hanyang University), S. Myung (VK Corporation), K. Amine (Argonne National Laboratory) and J. Prakash (Illinois Institute of Technology)
- **289** Improving High Rate Cycling Performance of Nanoparticulate $LiCoO_2$ - H. Chen (State University of New York at Stony Brook) and C. Grey (SUNY Stony Brook)
- **290** Determination of c Lattice Parameter in $LiCoO_2$ by Convergen t Beam Electron Diffraction - Q. Xing and H. Gabrisch (University of New Orleans)
- **291** The Electrochemical Properties of Carbon-Coated Silicon/Graphite Composite Electrode - H. Kim and B. Cho (Korea Institute of Science and Technology)
- **292** Electrochemical Studies of Si/C Composites as Anode Materials for Rechargeable Lithium Ion Batteries - J. Park, H. Kim, D. Im, G. Kim and S. Doo (Samsung Advanced Institute of Technology)
- **293** Characteristics of a-Si/M Thin-Film as an Anode Material for Lithium Secondary Batteries - S. Oh, S. Choi, H. Kim and B. Cho (Korea Institute of Science and Technology)
- **294** Electrochemical Properties of Carbon Nanotube/Silicon Composites for Anode of Li-Ion Battery - J. Eom (Samsung SDI) and H. Kwon (Korea Advanced Institute of Science and Technology)
- **295** Study of 1-butyl-3-Methylimidazolium Tetrafluoroborate for Lithium Battery Electrolyte - N. M. Giroud, H. Rouault (CEA), E. Chainet (Institut National Polytechnique de Grenoble) and J. Poignet (LEPMI)
- **296** Ionic Conductivities of Gelled Polymer Electrolyte/Salt Systems for Lithium Secondary Battery : Swelling Contribution - S. Lee and Y. Bae (Hanyang University)
- **297** Improved Low Temperature Electrolytes for High Power Lithium Ion - B. C. Deveney (Saft), K. Nechev and T. Guseynov (Saft America)
- **298** The SEI between $LiMn_2O_4$ Cathode and Electrolyte - S. Wu and J. Yan (Tatung University)
- **299** Lithium Intercalation Capacity of Ultrafine Rutile TiO_2 Electrode - C. Jiang, M. Wei (AIST), I. Honma (National Institute of Advanced Industrial Science and Technology) and H. Zhou (AIST)
- **300** Preparation and Electrochemical Study of $Li_4Ti_5O_{12}$ Anode Material for Lithium Ion Battery - S. Park, H. Kim, M. Oh, H. Kim and H. Kim (Chungbuk National University)
- **301** C-$Li_4Ti_5O_{12}$/Ionic Liquid/C-$LiFePO_4$ 2 V System for Fast Charge Applications - K. Zaghib (Hydro-Quebec), P. Charest, A. Guerfi, M. Dontigny and M. Petitclerc (Hydro-Quebec)
- **302** Carbon Nanoparticles Prepared by Electrolysis of Molte n Alkali Carbonates and used as Anode Materials in Li Ion Battery - H. Groult (University Paris 6 - CNRS), A. Barhoun (University Abdelmalek Essaadi), B. Kaplan, K. Le Van and F. Lantelme (University Paris 6)
- **303** Post-Mortem Analysis of Saft Li-Ion Cell Stored more than 4 Years at Fifty Degrees Celsius - C. Siret, F. Castaing and P. Biensan (SAFT)
- **304** VGCF an Alternative Carbon Conductor for Li-ion Technology - K. Zaghib (Hydro-Quebec), M. Takeuchi (Showa Denko K.K.), M. Dontigny (Hydro-Quebec), A. Sudoh (Showa Denko K.K.), M. Peitclerc (Hydro-Quebec) and C. Sotowa (Showa Denko K.K.)
- **305** Improving the Capacity of the Li-Ion Cell by the New Process "Lithium Metal Coating Process" - J. Lee, S. Kim and S. Kim (Samsung SDI Co., LTD.)
- **306** Over-Discharge Protection in Li-Ion Batteries: Part I. Approach for Overcharge Protection Method - H. Chung, T. Earmme, H. Kim and M. Lee (Samsung SDI)
- **307** Over-Discharge Protection in Li-Ion Batteries: Part II. Performances of Li-Ion Battery with Over-Discharge Protection - T. Earmme, H. Chung and H. Kim (Samsung SDI)

- **308** On the Mg Trapping Mechanism in Electrodes Comprising Chevrel Phases - D. Aurbach, A. Mitelman, E. Levi and E. Lancry (Bar-Ilan University)
- **309** Thin Film Cathodes for Microbattery Applications - K. Freedman, V. Yufit (Tel Aviv University), D. Golodnitsky (Tel Aviv University, Wolfson Applied Materials Research Center), E. Strauss (Tel Aviv University), L. Burstein (Wolfson Applied Materials Research Center, Tel Aviv University), M. Nathan and E. Peled (Tel Aviv University)
- **310** Possible Li Intercalation System of Nanocomposite of Prussian Blue/Carbon Nanotubes - E. Nouri and A. Eftekhari (Materials and Energy Research Center)
- **311** Preparation of Thin Film Model Electrodes by APID (Atmospheric Pressure Ion Deposition) - P. R. Raimann (TU Graz), J. Besenhard (Institute for Chemsitry and Technology of Inorganic Materials), K. Moller, M. Winter, M. Sternad, N. Hochgatterer, M. Schweiger, E. Lanzer, C. Korepp, L. Nubbaumer and R. Saf (TU Graz)
- **312** Microstructure and Electronic Structure Determination of $Li_4Ti_5O_{12}$ for Lithium-Ion Battery Applications - R. V. Chintalapalle, S. Utsunomiay, U. Becker (University of Michigan), K. Zahib (Institut de Recherches d'Hydro-Quebec) and C. Julien (Universite Pierre et Marie Curie)

B4 Metal/Air and Metal/Water Batteries

Battery / Energy Technology

Universal Ballroom, 2nd Floor, Expo Center

Tuesday Evening Poster Session, 19:00-21:00
Co-Chairs: J. J. Xu, K. Zaghib and D. A. Scherson

- **372** Dual Catalysts System Based on Nano-Manganese Oxide and Multiwall Carbon Nanotube for Four-Electron Oxygen Reduction - T. Ohsaka, D. Zhang (Tokyo Institute of Technology), T. Sotomura (Matsushita Electric Co. Ltd.), M. El-Deab and T. Okajima (Tokyo Institute of Technology)
- **373** The Improvement of Charge Characterization for a Sealed Ni-MH Battery - H. Kim, J. Kim, S. Boo, J. Lee, D. Chang, B. Choi (Korea Institute of Industrial Technology), Y. An (IBT), J. Jo (Korea Institute of Industrial Technology), S. Jung and C. Park (Chonnam National University)
- **374** The Study on the Anode and Electrolyte of Magnesium-Air Battery - C. Chen, H. Zheng (Chongqing University,China) and Y. Si (Sichuan Science and Engineering College)

B5 Organic Photovoltaics

New Technology / Energy Technology / Fullerenes, Nanotubes, and Carbon Nanostructures

Universal Ballroom, 2nd Floor, Expo Center

Tuesday Evening Poster Session, 19:00-21:00
Chair: B. Gregg

- **395** Synthesis, Characterization and Applications of Heteroleptic Ru(II)-Dyes Carrying Triphenylamine as Donor Antenna Groups - M. Thelakkat, C. S. Karthikeyan, K. Peter and H. Wietasch (University of Bayreuth)
- **396** Ionic Conductivity of Viscous Polymeric Electrolytes for Photoelectrochromic Cell Applications - L. Hechavarria, H. Hu, M. Ricon, M. Miranda and A. Jimenez (Centro de Investigacion en Energia)
- **397** Novel Photoelectrochemical Cell with Mesoscopic Electrodes Sensitized by Lead-Halide Compounds (2) - A. Kojima (Tokyo Polytechnic University), K. Teshima (Peccell Technologies, Inc.), T. Miyasaka (Toin University of Yokohama) and Y. Shirai (Tokyo Polytechnic University)

B6 Proton Exchange Membrane Fuel Cells 6

Energy Technology / Physical and Analytical Electrochemistry / Battery / Industrial Electrolysis and Electrochemical Engineering

Galactic 5, Conference Center, Sunrise

ORR: Noble-Metals
Co-Chairs: Z. Ogumi and S. Mukerjee

- 08:00 **438** Pt Alloy Nanoparticle Catalysts with High Lattice Strain for the Electroreduction of Molecular Oxygen - P. Strasser and S. Koh (University of Houston)
- 08:20 **439** Effect of Thermal Annealing on the Properties of Ptrich Shell-Corich Core Oxygen Reduction Electrocatalyst - J. Do (Tunghai University), Y. Chen (Powerchip Semiconductor Corp.) and M. Lee (Diwan College Management)
- 08:40 **440** Alloy Oxygen Reduction Electrocatalysts - T. He, E. Kreidler, L. Xiong, E. Ding (Honda Research Institute USA), Y. Fujiwara (Ohio State University) and Q. Xu (Honda Research Institute USA)
- 09:00 **441** Electronic and Local Structures of Pt and Pt-alloy Electrodes and Their Electrochemical Performances for Polymer Electrolyte Fuel Cells - Y. Uchimoto, K. Amezawa, T. Kinumoto and Z. Ogumi (Kyoto University)
- 09:20 **442** Towards Improving the Performance of PEM Fuel Cell by Using Mix Metals Electrodes Prepared by Dual Ion Beam Assisted Deposition - A. F. Gulla (PEMEAS USA), R. Allen (E-TEK Div. PEMEAS USA) and S. Mukerjee (Northeastern University)

Galactic 8, Conference Center, Sunrise

Durability - Membrane Degradation Mechanisms
Co-Chairs: S. Cleghorn and H. Liu

08:00 **443** Chemical Durability Studies of PFSA Polymers and Model Compounds under Mimic Fuel Cell Condition - D. A. Schiraldi, C. Zhou and T. Zawodzinski Jr (Case Western Reserve University)

08:40 **444** The Origin and Fate of Peroxide in PEM Fuel Cells - R. Subbaraman, T. A. Zawodzinski, R. Edwards, M. C. Pelsozy, D. A. Schiraldi, C. Zhou and R. Sidik (Case Western Reserve University)

09:00 **445** Degradation Analysis of Nafion Membrane Assembled with Commercial Electrocatalysts. - A. F. Gulla (PEMEAS USA), N. Hakim, S. Mukerjee, N. Ramaswamyand (Northeastern University) and R. Allen (E-TEK Div. PEMEAS USA)

09:20 **446** New Evaluation Method for Degradation Rate of Polymer Electrolytes - H. Uchida, M. Aoki and M. Watanabe (University of Yamanashi)

09:40 Intermission (20 Minutes)

10:00 **447** Impact of Gas Partial Pressure on PEMFC Chemical Degradation - H. Liu (Giner Electrochemical Systems, LLC), J. Zhang, F. Coms (GMFCA), W. Gu (Fuel Cell Activities, General Motors), B. Litteer (GMFCA) and H. A. Gasteiger (General Motors Fuel Cell Activities)

10:40 **448** Membrane Degradation Mechanisms in PEMFCs - V. Mittal, H. Kunz (University of Connecticut) and J. Fenton (University of Central Florida)

11:00 **449** Phenomenon Analysis of PEFC for Automotive Use(1)Membrane Degradation Behavior during OCV Test - A. Ohma, S. Suga, S. Yamamoto and K. Shinohara (NISSAN)

11:20 **450** Effective Testing Matrix for Studying Membrane Durability in PEM Fuel Cells: Part I. Chemical Durability - W. Liu and M. Crum (W. L. Gore & Associates, Inc.)

11:40 **451** Effect of Water Activity on the Durability of PEM Fuel Cells. II. H_2O_2 Kinetics on Pt Alloys - V. A. Sethuraman, J. Weidner (University of South Carolina), A. Haug, S. Modi and L. Protsailo (UTC Power)

Galactic 4, Conference Center, Sunrise

Gas Diffusion Layers
Co-Chairs: T. Nguyen and M. Mench

08:05 **452** Capillary Pressure and Permeability of Gas Diffusion Layers: Measurement and Pore Network Modeling - M. Ioannidis, J. Gostick, M. Fowler and M. Pritzker (University of Waterloo)

08:40 **453** Probing Effects of GDL Microstructure on Liquid Water Transport by Pore Network Modeling - P. Sinha and C. Wang (Pennsylvania State University)

09:00 **454** Analysis of Gas Diffusion Layer and Flow Field Design using Neutron Radiography - K. Yoshizawa, K. Ikezoe, Y. Tasaki (Nissan Motor CO., LTD. Nissan Research Center), D. Kramer, E. Lehmann and G. Scherer (Paul Scherrer Institut)

09:20 **455** Withdrawn

09:40 Intermission (20 Minutes)

10:00 **456** Water Transport in Gas Diffusion Layers of PEMFCs - S. Litster (Stanford University), A. Bazylak, D. Sinton and N. Djilali (University of Victoria)

10:20 **457** Capillary Pressure Measurements of the Gas Diffusion and Catalyst Layers in PEMFCs - T. V. Nguyen, G. Lin, H. Ohn (University of Kansas), D. Hussey, D. Jacobson and M. Arif (National Institute of St andards and Technology)

10:40 **458** In situ Cross-sectional Observation of GDL - M. Maeda, M. Shiozawa (NIPPON SOKEN, Inc.), T. Ochi and H. Nakaji (Toyota Motor Corporation)

11:00 **459** Two-Phase Transport Properties and Transport Simulation of the Gas Diffusion Layer of a PEFC - T. Koido, T. Furusawa, K. Moriyama and K. Takato (Honda R&D Co.,Ltd.)

11:20 **460** Water Phase Distribution in the Gas Diffusion Layer along a Serpentine Flow Field of a PEMFC - S. Shimpalee, M. J. Martinez and J. Van Zee (University of South Carolina)

11:40 **461** Diffusion Media and Interfacial Effects on Fluid Storage and Transport in Fuel Cell Porous Medi a and Flow Channels - M. Mench, A. Turhan, J. Kowal, K. Heller and J. Brenizer (Penn State University)

Galactic 5, Conference Center, Sunrise

ORR:Noble-Metals
Co-Chairs: A. Wieckowski and V. Stamenkovic

10:00 **462** Superior Cathode Catalysts: From Extended to Nanoscale Surfaces - V. Stamenkovic and N. Markovic (Argonne National Laboratory)

10:20 **463** Acid Stability and Oxygen Reduction Activity of Magnetron-Sputtered $Pt_{1-x}Ta_x$ ($0 < x < 1$) Films - A. Bonakdarpour, R. Lobel and J. Dahn (Dalhousie University)

10:40 **464** Oxygen Reduction Reaction on Platinum/ Tantalum Phosphate Electrocatalysts for PEM Fuel Cells - O. A. Baturina (Nova Research/Naval Research Laboratory), Y. Garsany, T. Schull and K. Swider-Lyons (Naval Research Laboratory)

11:00 **465** Hexaboride Ceramics as PEMFC Cathode Supports - E. Brosha, M. Wilson, F. Garzon, C. Johnston and F. Uribe (Los Alamos National Laboratory)

11:20 **466** In-Situ X-Ray Spectroscopy of Ruthenium Nanoparticle Modified with Selenium for Oxygen Reduction Reaction - H. You (Argonne National Laboratory), J. Inukai (Yamanashi University, Japan), A. Wieckowski (University of Illinois at Urbana-Champaign) and K. Chang (ANL)

11:40 **467** Oxygen Reduction Electrocatalysis at Chalcogen-modified Ruthenium Cathodes - P. Zelenay, J. Choi, C. Johnston (Los Alamos National Laboratory), P. Babu, A. Wieckowski (University of Illinois at Urbana-Champaign) and N. Alonso-Vante (University of Poitiers)

ORR: Non-Noble Metals
Co-Chairs: S.Fiechter and J-P. Dodelet

14:00 **468** Fe-Based Catalyst for Oxygen Reduction: Functionalization of Carbon Black and Importance of the Microporosity - M. Lefevre, F. Jaouen, J. Dodelet (INRS-EMT), X. H. Li, K. Chen and A. Hay (McGill)

14:20 **469** Influence of the Molecular and Mesoscopic Structure on the Electrocatalytic Activity of Pyrolysed CoTMPP in the Oxygen Reduction - P. Bogdanoff, I. Herrmann, U. Koslowski (HMI-Berlin), S. Fiechter (Hahn Meitner Institute) and C. Kramer (HMI-Berlin)

14:40 **470** Co-C-N Oxygen Reduction Catalysts Prepared by Combinatorial Magnetron Sputter Deposition - R. Yang, J. Dahn, A. Bonakdarpour and E. B. Easton (Dalhousie University)

15:00 **471** Improvement of Fe/N/C-Based Catalysts for Oxygen Reduction in PEM Fuel Cells: Maximizing the Disordered Phase in the Carbon Black Support - S. Ruggeri (INRS) and J. Dodelet (INRS-EMT)

15:20 **472** Manganese Oxide/Carbon-Based Electrocatalysts for ORR in Alkaline Medium: Mechanism - I. Roche (INPG), M. Chatenet, E. Chainet (Institut National Polytechnique de Grenoble) and J. Vondrak (Institute of Inorganic Chemistry)

Galactic 4, Conference Center, Sunrise

Stack and System Modeling
Co-Chairs: A. Weber and T. Nguyen

14:00 **473** Proton Exchange Membraines: Polymeric Versus Solid State - F. B. Prinz (Stanford University)

14:30 **474** Numerical Evaluation of Effective Gas Diffusivity - Saturation Dependence of Uncompressed and Compressed Gas Diffusion Media in PEFCs - V. P. Schulz (Fraunhofer-ITWM), P. P. Mukherjee (The Pennsylvania State University), J. Becker, A. Wiegmann (Fraunhofer-ITWM) and C. Wang (The Pennsylvania State University)

14:50 **475** Simple Model for the Water Phase Distribution in the Gas Diffusion Layer of a PEMFC Cathode - M. J. Martinez, S. Shimpalee and J. Van Zee (University of South Carolina)

15:10 **476** Modeling of Catalyst Layer Surface Coverage and Volume Blockage Owing to Liquid Water in a PEFC - P. P. Mukherjee and C. Wang (The Pennsylvania State University)

15:30 Intermission (20 Minutes)

15:50 **477** Numerical Investigation of Water Transport in the PEMFC Components - V. Gurau, J. Mann and T. A. Zawodzinski (Case Western Reserve University)

16:10 **478** Macroscopic Modeling and Simulation for Polymer Electrolyte Membrane Fuel Cells - M. Yoneda, Y. Tago, K. Suzuki, M. Takimoto (Mizuho Information and Research Institute, Inc.) and E. Ejiri (Chiba Institute of Technology)

16:30 **479** A Simulation of Two-Phase Flow inside Polymer Electrolyte Membrane Fuel Cells - M. Yoneda, K. Suzuki and M. Takimoto (Mizuho Information and Research Institute, Inc.)

16:50 **480** Stack Models and Designs for Improving Fuel Cell Startup From Freezing Temperatures - R. Bradean (Ballard Power Systems), H. Haas (Ballard Power System), K. Eggen, C. Richards and T. Vrba (Ballard Power Systems)

17:10 **481** Combined Heat and Mass Transfer Model of a Passive Air Breathing Fuel Cell Cathode - R. O'Hayre (Colorado School of Mines), T. Fabian, S. Litster, F. B. Prinz and J. G. Santiago (Stanford University)

17:30 **482** PEM Fuel Cell System Modeling with Liquid Fuel Processing and Hydrogen Membranes - A. Bhargav, E. Shields, J. Pearlman, S. Seyed-Reihani, G. S. Jackson (University of Maryland) and P. Hearn (Ballard Power Systems)

Galactic 8, Conference Center, Sunrise

Durability - Membrane Failure Mechanisms & Modified/Alternative Materials
Co-Chairs: W. Liu and S. Burlatsky

14:00 **483** Mechanistic Understanding of MEA Mechanical Failure Modes - S. Burlatsky, D. Condit, M. Gummalla, N. Gupta (United Technologies Research Center), X. Huang, R. Solasi, Y. Zou, K. Reifsnider (University of Connecticut), T. Madden (UTCPower), V. Atrazev and M. Alev (Russian Academy of Science)

14:20 **484** Effective Testing Matrix for Studying Membrane Durability in PEM Fuel Cells: Part 2. Mechanical Durability and Combined Mechanical and Chemical Durability - M. Crum and W. Liu (W. L. Gore & Associates, Inc.)

14:40 **485** Fuel Cell Membrane Degradation: Accelerated Testing, Diagnosis, Counter Measures - F. Finsterwalder, M. Quintus and M. Schaloske (DaimlerChrysler)

15:00 **486** Increased Stability of PFSA Proton Exchange Membranes Under Fuel Cell Operation by the Decomposition of Peroxide Catalyzed by Heteropoly Acids. - A. M. Herring (Colorado School of Mines), H. Gregory (3M), M. Fanqin (CSM), N. Aieta, J. L. Horan (Colorado School of Mines), M. Frey (CSM) and S. Hamrock (3M)

15:20 **487** MEA Durability Test of PEM Fuel Cells at 100oC and 25%RH - H. Xu, M. Wu, Y. Liu, V. Mittal, F. Kassim, B. Vieth, L. Bonville, H. Kunz (University of Connecticut) and J. Fenton (University of Central Florida)

15:40 Intermission (20 Minutes)

16:00 **488** High Temperature PEM Fuel Cells with Polybenzoxazine-Based Membrane for Enhanced Durability with Excellent Electrical and Physical Properties - S. Choi, W. Jeon, H. Sun, D. Lee, D. Seung (Samsung Advanced Institute of Technology) and H. Ishida (Case Western Reserve University)

16:20 **489** Aging Tests of Radiation Grafted Fuel Cell Membranes - L. Gubler, M. Slaski, A. Wokaun and G. Scherer (Paul Scherrer Institut)

16:40 **490** Extended PEMFC Durability From Membrane Electrode Assemblies Based On A New Reinforced Membrane - T. R. Ralph and D. Barnwell (Johnson Matthey Fuel Cells)

Galactic 5, Conference Center, Sunrise

ORR: Non-Noble Metals
Co-Chairs: B. Popov and J. P. Dodelet

16:00 **491** Thermally Treated Fe-C-N Oxygen Reduction Catalysts Prepared by Vacuum Deposition - E. B. Easton, A. Bonakdarpour, R. Yang, D. Stevens (Dalhousie University), D. O'Neill, G. Vernstrom, D. O'Brien, A. Schmoeckel, T. Wood, R. Atanasoski (3M) and J. Dahn (Dalhousie University)

16:20 **492** XAFS Study of Heat-Treated Cobalt Tetraphenylporphyrin Supported on Active Carbon - K. Hiroshima, T. Nonaka, T. Asaoka and Y. Morimoto (Toyota Central R&D Labs, Inc.)

16:40 **493** Sputtered Ta-Ni-C as an Electrocatalyst for Oxygen Reduction Reaction - R. Yang, J. Dahn and A. Bonakdarpour (Dalhousie University)

17:00 **494** Non-Platinum Cathode Based on Tantalum for PEFC - J. Kim, A. Ishihara, S. Mitsushima, N. Kamiya and K. Ota (Yokohama National University)

17:20 **495** Non Noble Metal Catalyst for Oxygen Reduction Reaction in Acidic Medium - S. P. Kumaraguru, V. Nallathambi and B. Popov (University of South Carolina)

B6 Proton Exchange Membrane Fuel Cells 6

Energy Technology / Physical and Analytical Electrochemistry / Battery / Industrial Electrolysis and Electrochemical Engineering

Universal Ballroom, 2nd Floor, Expo Center

PEM VI Poster Session, Membranes, 19:00-21:00
Co-Chairs: T. Zawodzinski and T. Fuller

- **496** Structure and Dynamics at Minimally Hydrated Arrays of Acid-Functionalized Surface Groups as a Model for Fuel Cell Membranes - A. Roudgar, S. Narasimachary and M. Eikerling (Simon Fraser University)
- **497** Anhydrous Proton Conducting Membranes for High Temperature PEFCs - J. Kim, T. Mori (National Institute for Materials Science) and I. Honma (National Institute of Advanced Industrial Science and Technology)
- **498** Quantum Chemistry and MD Simulation Studies of Fluorinated Ionomers - O. Borodin (University of Utah) and G. Smith (Univeristy of Utah)
- **499** Nano-Structure Controlled Polymer Electrolyte Membranes for Fuel Cell Applications Prepared by Ion Beam Irradiation - T. Yamaki (Japan Atomic Energy Agency), Y. Kozone (Gunma University), A. Hiroki, M. Asano (Japan Atomic Energy Agency), H. Kubota (Gunma University) and M. Yoshida (Japan Atomic Energy Agency)
- **500** Synthesis, Ionic Conductivity, and Thermal Properties of Hyperbranched Polymer with Phosphonic Acid Groups at Terminals for High Temperature Fuel Cell - T. Itoh (Mie University) and Y. Aihara (Samsung Yokohama Research Institute)
- **501** Structure and Dynamics of Hybrid Organic-Inorganic Membrane Materials for Fuel Cell Applications - J. L. Horan (Colorado School of Mines), J. Turner (National Renewable Energy Laboratory), S. Dec and A. M. Herring (Colorado School of Mines)
- **502** Synthesis, Properties and PEFC Performance of Aromatic Polymer with Pendant Fluoroalkylsulfonic Acid - K. Yoshimura and K. Iwasaki (Sumitomo Chemical)
- **503** The Characteristic Change of Water Behaviors in PEFC Membranes after Heating - A. Y. Nosaka (Nagaoka University of Technology), S. Watanabe, I. Toyoda (Advanced Technology Research Center, Mitsubishi Heavy Industries, LTD.) and Y. Nosaka (Nagaoka University of Technology)
- **504** A Proton Conducting Electrolyte based on Novel Polyparabanic Acid Doped by H3PO4 for Medium Temperature PEMFC. - Y. Aihara and A. Sonai (Samsung Yokohama Research Institute)
- **505** Electrochemical Activity of Ordered Intermetallic PtPb Nanoparticles towards Formic Acid and Methanol Oxidation for Fuel Cell Applications - F. Matsumoto, C. Roychowdhury, V. Zeldovich, S. Warren, F. DiSalvo and H. Abruna (Cornell University)
- **506** Hydrocarbon Polymer Electrolyte Membrane for Fuel Cells - D. Izuhara, S. Adachi, H. Taiko, M. Kidai and J. Torikai (Toray Industries, Inc.)
- **507** High Temperature Membranes for PEMFC Based on Perfluorosulfonic Acids and Ionic-Liquids - P. T. Pha m (3M Company), S. Hamrock, W. Lamanna, R. Atanasoski, G. Haugen, S. Nam (3M), J. Woods Halley and L. Jia (University of Minnesota)
- **508** The Effect of Proton Conductivity of SPEEK Composite Membrane with Organic Compounds for DMFC - S. Park, H. Kim and S. You (Chungbuk National University)
- **509** Abstract withdrawn
- **510** Abstract withdrawn
- **511** A Comparison of Styrene and Alpha-Methylstyrene Based Radiation Grafted Fuel Cell Membranes - L. Gubler, M. Slaski, A. Wokaun and G. Scherer (Paul Scherrer Institut)

PEM VI Poster Session, Catalysts, 19:00-21:00
Co-Chairs: T. Zawodzinski and T. Fuller

- **512** Shape Formation of Platinum Nanoparticles in The Presence of Sulfate Anion - A. Hatanaka (Doshisha University), K. Matsuzawa (Keihannna Interaction Plaza Inc.), M. Inaba, A. Tasaka (Doshisha University), Y. Iriyama and Z. Ogumi (Kyoto University)
- **513** Improvement of PEMFC's Power Performance by Electrophoretic Deposition of Pt/MWNT Nanocatalysts - R. Louh and F. Tsai (Feng Chia University)
- **514** In-Situ Synchrotron SAXS and XRD Measurements on Electrochemical Dealloying of Pt-Alloy Nanoparticles for ORR Electrocatalysts - J. E. Leisch (SSRL), M. Toney (SSRL, SLAC), P. Strasser, S. Koh and C. Yu (University of Houston)
- **515** Degradation of Pt-Ru Catalyst in PEFCs - H. Yamada, A. Tasaka and M. Inaba (Doshisha University)
- **516** Remote Voltage Generation through Sono-Electrochemical Process on Platinum Surface - H. Kim (Korea Institute of Industrial Technology)
- **517** Preparation and Characterization of Pt Catalysts Supported on Activated Carbon Fiber by Growth of Carbon Nanofiber - S. Park and Y. Shul (Yonsei university)
- **518** Sub-Stoichiometric Titanium Oxides as Platinum Support for PEM Fuel Cells - T. Ioroi, H. Senoh (National Institute of Advanced Industrial Science and Technologies (AIST)), Z. Siroma (National Institute of Advanced Inductrial Science and Technology), S. Yamazaki, N. Fujiwara (National Institute of Advanced Industrial Science and Technologies (AIST)), K. Yasuda and K. Tanimoto (National Institute of Advanced Inductrial Science and Technology)
- **519** Electroactive Alcohol-Tolerant Pt-Alloys - F. Rodriguez-Varela (Centro de Investigacion y de Estudios Avanzados-Unidad Saltillo) and O. Savadogo (Ecole Polytechnique de Montreal)
- **520** Preparation or Nanosized Platinum Catalyst for PEM Fuel Cells - E. Modica, P. Creti' (CNR-ITAE), A. Stassi (CNR ITAE), R. Ornelas (CNR-ITAE), V. Antonucci (CNR ITAE) and A. S. Arico (CNR-ITAE)
- **521** A Pyrochlore-Type Oxide Electrocatalyst for DMFC - T. Otsubo, S. Takase and Y. Shimizu (Kyushu Institute of Technology)
- **522** Size and Composition Distribution Dynamics of Pt Alloy Nanoparticle Electrocatalysts Probed Using Small Angle X-ray Scattering - S. Koh, C. Yu (University of Houston), J. E. Leisch (SSRL), M. Toney (SSRL, SLAC) and P. Strasser (University of Houston)
- **523** Oxygen Reduction Reaction and PEM Fuel Cell Performance of a Chalcogenide Platinum Material - G. Alonso (Research Center on Advanced Materials, S. C.), Y. Gochi (Centro de Investigacion en Materiales Avanzados, S.C.), R. Barbosa, L. G. Arriaga (Institute of Electrical Research) and N. Alonso (Lab. Electrocatalyse, UMR-CNRS 6503)
- **524** Raman Study on Pt/C Electrode in Aqueous Solution - A. Mineshige, N. Ohata, T. Tanaka, M. Kobune and T. Yazawa (University of Hyogo)
- **525** Structural Analysis and ORR Activity of Cathode Catalysts for Polymer Electrolyte Fuel Cells - H. Yoshida, T. Kinumoto, K. Amezawa, Y. Uchimoto and Z. Ogumi (Kyoto University)
- **526** Kinetics and Mechanism of Oxygen Reduction at Sol Derived [Co-N-C]-Based Catalysts in Proton Exchange Membrane Fuel Cells - A. Mani and V. Birss (University of Calgary)
- **527** Pt - Ru Deposition on MWCNT for PEM Fuel Cell - Y. Verde (Instituto Tecnologico de Cancun), R. Gomez-Vargas, G. Gonzalez (CIMAV), G. Alonso (Research Center on Advanced Materials, S. C.), L. Torres and G. Rosado (Instituto Tecnologico de Cancun)
- **528** Pulsed Laser Deposited Pt-Ru Nanoparticles for Electrocatalysis in Fuel Cells - C. Hamel (INRS), D. Guay and M. Chaker (INRS - Energie, Materiaux et Telecommunications)
- **529** Dry Synthesis of Pt Alloy Core/Shell Structures for PEM Fuel Cell Applications - P. Pietrasz , M. C. Pelsozy, R. Sankaran and T. A. Zawodzinski (Case Western Reserve University)
- **530** Improvement of PEM Fuel Cell Performance Using Low Equivalent Weight Ionomers and Pt-Co/C in the Cathode - H. Xu, H. Kunz (University of Connecticut) and J. Fenton (University of Central Florida)

PEM VI Poster, Components and Cells, 19:00-21:00
Co-Chairs: T. Zawodzinski and T. Fuller

- **531** A Thin-Film/Agglomerate Model of Proton-Exchange-Membrane Fuel Cell Cathode - K. Yin (Yuan-Ze University)
- **532** Membrane Electrode Assembly for Direct Methanol Fuel Cell - D. Izuhara, S. Adachi, H. Taiko, M. Kidai and J. Torikai (Toray Industries, Inc.)
- **533** Operation of PEMFC Under Non-Humidified Condition Using Silica Composite Electrode Approach - S. Lee, V. Singaram, H. Kim, E. Cho, H. Ha, I. Oh and T. Lim (Korea Institute of Science and Technology)
- **534** Modeling of Triple-Phase Boundary of Polymer Electrolyte Fuel Cells by using Pt Supported Carbon Electrode - T. Hirai, T. Kinumoto (Kyoto University), K. Kikuchi (The University of Shiga Prefecture), K. Amezawa, Y. Uchimoto and Z. Ogumi (Kyoto University)
- **535** Diagnostics of Cathode Flooding in a Segmented PEMFC with Local Reference Electrodes - Z. Siroma (National Institute of Advanced Inductrial Science and Technology), J. Takahashi (Doshisha University), K. Yasuda, K. Tanimoto (National Institute of Advanced Inductrial Science and Technology), M. Inaba and A. Tasaka (Doshisha University)

- **536** A Multi-Scale Approach for the Simulation of Polymer Electrolyte Membrane Fuel Cells - M. Yoneda, Y. Tago, K. Suzuki and M. Takimoto (Mizuho Information and Research Institute, Inc.)
- **537** Nafion Quantity Variation on Electrodes used in SPE Electrolyzer - L. Morales, L. G. Arriaga, U. Cano (Institute of Electrical Research) and R. Acosta (Universidad de Quintana Roo)
- **538** Impact of Functionalization of Nanoparticles on the Methanol Permeability of Ionomer-Nanocomposite Membranes for DMFC - C. S. Karthikeyan (University of Bayreuth), S. Nunes (Polymer Technology-I, GKSS Research Centre), L. Prado and K. Schulte (Technical University of Hamburg-Harburg)
- **539** Preparation of Carbon-Coated Fe-Based Metal for Bipolar Plates of PEFC - T. Fukutsuka, T. Yamaguchi, Y. Matsuo and Y. Sugie (University of Hyogo)
- **540** Development of Catalyst and Gas Diffusing MEA Layers for PEFC using Taguchi's Method - K. Shigyo and H. Nishiguchi (Mitsubishi Electric Corporation)
- **541** Gas Difusion Electrodes for PBI Cells - Q. Li (Technical University of Denmark), C. Pan, J. Jensen, M. Nilsson and N. Bjerrum (DTU)
- **542** Gradient Catalyst Coating for a PEM Fuel Cell Operation Under Non-Humidification Condition - S. Lee, H. Kim, K. Kim, E. Cho, I. Oh and T. Lim (KIST)
- **543** Development of Semi-Empirical Cell Voltage Model For Proton Exchange Membrane Fuel Cell - J. Choi and Y. Bae (Hanyang University)
- **544** A CFD-Based Modeling of Transport Phenomena in Direct Methanol Fuel Cells - D. Suh (Samsung SDI)
- **545** Micro Layer of GDL Using Porous PTFE Film - N. Furuya and N. Mineo (University of Yamanashi)
- **546** Investigation of Water Content Distribution in a Single-Channel PEMFC by Environmental-Controlled MRI - T. Nanjo (Tokyo Insitute of Technology), S. Tsushima and S. Hirai (Tokyo Institute of Technology)

B7 Solid-State and Solid-Electrolyte Batteries

Battery / Energy Technology

Universal Ballroom, 2nd Floor, Expo Center

Tuesday Evening Poster Session, 19:00-21:00

- **656** Ion Conduction in Alkaline Metal Nitrate Doped Rare Earth Oxide - S. Tamura, K. Ando, A. Mori, S. and N. Imanaka (Osaka University)
- **657** Dimethyl Sulfate-Doped Polyaniline and its Electrochemical Properties as the Electrodes of Lithium Secondary Battery and Redox Super-capacitor - K. Kim, K. Ryu and M. Kang (ETRI)
- **658** Study of the Effects of Polymer Structure on Polymer Electrolytes that Contain Ionic Liquid - D. M. Tigelaar, M. Meador and W. Bennett (NASA Glenn Research Center)
- **659** Solid State Electrolytes from Blends of POSS-PEO (n = 4) 8 and PEO or Methylcellulose - H. Zhang and S. L. Wunder (Temple University)
- **660** Nanostructured Polyaniline and its Composite as Cathode Materials in Rechargeable Lithium Polymer Cells Assembled with Gel Polymer Electrolyte - D. Kim, S. Sivakkumar and J. Ko (Hanbat National University)
- **661** Fabrication of YSZ Thin Film on $(Sm_2O_3)_{0.1}(CeO_2)$ Substrate by CVI Method and its Electrical Properties - K. Kikuchi, F. Tamazaki (The University of Shiga Prefecture), A. Mineshige (University of Hyogo) and Z. Ogumi (Kyoto University)

C1 Biological Nanostructures, Materials, and Applications

Nanotechnology / Organic and Biological Electrochemistry / Physical and Analytical Electrochemistry / Sensor

Universal 9, 1st Floor, Expo Center

Co-Chairs: M. Demirel and J. Moran Lopez

08:00 **662** The Mechanics of Nanoscale Structural Elements in Living Cells - S. Kumar (University of California, Berkeley)

08:40 **663** Artificial Thermophilic Biocatalysts on Electrodes: Poly(lysine)-Enzyme Films at 90 oC - J. Rusling and P. Guto (University of Connecticut)

09:00 **664** Bio-Active Materials: Synthesis, Characterization and Functional Study - S. Panero, J. Serra Moreno and S. Materazzi (University of Rome La Sapienza)

09:20 **665** Mitochondrial Power Supplies: A Fundamental Study of Rate Performance - A. Sastry, M. Inamdar, A. Was and M. Philbert (University of Michigan)

09:40 Intermission (20 Minutes)

10:00 **666** Electric Field Directed Self-Assembly of Protein and DNA Derivatized Nanoparticles Into Higher-Order 3D Structures - M. J. Heller, D. Dehlinger and B. Sullivan (University of California, San Diego)

10:20 **667** Density Functional Theory Study of L-Cysteine Adsorption on Ag(111) - E. Santos (Universidad Nacional de Cordoba), K. Potting (University of Ulm), P. Velez and E. Leiva (Universidad Nacional de Cordoba)

10:40 **668** Directing Placement, Alignment, and Transport of Magnetic Nanoparticle-Labeled Microtubules - M. Williams, B. Hutchins, M. Platt and W. Hancock (The Pennsylvania State University)

11:00 **669** Photo-Assisted Tuning of Si Nano-Crystal Photoluminescence - V. Reipa (NIST), J. Choi and N. Wang (University of Maryland)

11:20 **670** Evaluation of Electrochemical Surface Treatments of Ti by using Mesenchymal Stem Cells Culture - L. P. Dick, A. Santos dos Santos, G. Pieta Dias, D. Oberdoerfer, F. da Silva and N. Nardi (Universidade Federal do Rio Grande do Sul)

11:40 **671** Characterization of CdTe Embedded CdS Nanocomposite Nanoparticles for Bioimaging Applications - C. Yang, H. Kang, J. Bae, M. Park, J. Lee (Sungkyunkwan University) and C. Kim (University of Texas at Arlington)

12:00 Intermission (60 Minutes)

13:00 Intermission (60 Minutes)

14:00 **672** Surprising Observations on the Nanoscale Environment in Aqueous Solution - G. H. Pollack (University of Washington)

14:40 **673** Novel Nanostructured Polymer Thin Films for Applications in Nanomedicine - M. C. Demirel (The Pennsylvania State University, University), A. Lakhtakia (The Pennsylvania State University) and A. Singh (Naval Research Laboratory)

15:00 **674** Melatonin-Induced Modifications on Phospholipid Bilayers Properties Observed by AFM and NMR - T. Creczynski-Pasa (Federal University of Santa Catarina), V. Rodrigues De Lima, M. Luis Munford, M. S B Caro (UFSC), M. Ines B Tavares (UFRJ) and A. Avelino Pasa (UFSC)

15:20 **675** Electrochemical Deposition of Nano-Micro Structured Octacalcium Phosphate/Protein Composite Coating on Titanium for Biomedical Applications - C. Lin, H. Wang and R. Hu (Xiamen University)

15:40 **676** Effect of Porous Oxide Films on Characterization and Bioactivity of Titanium Niobium Alloy by Electrochemical Treatments - K. Ou and K. Ou (Gratuate Institute of Oral Sciences)

16:00 Intermission (20 Minutes)

16:20 **677** Segregation of Molecules at Ultra-Small Gap between Metal Nano-Architectures on Solid Surface - H. Nabika, A. Sasaki, M. Oowada and K. Murakoshi (Hokkaido University)

16:40 **678** Luminescent Observation and Flow Property of Nanocrystalline Silicon Particles in Vivo - K. Sato, S. Yanagisawa and K. Hirakuri (Tokyo Denki University)

17:00 **679** Electrochemical and Microstructure Study of New Thin Film Magnesium Alloys for Biomedical Applications - E. Sikora, B. A. Shaw and J. Petrilli (The Pennsylvania State University)

17:20 **680** Exploring the Fuel Flexibility of Microbial Fuel Cells - O. Bretschger (University of Southern California), Y. Gorby, D. Kennedy (Pacific Northwest National Laboratory), F. Viva, K. Nealson and F. Mansfeld (University of Southern California)

17:40 **681** Electrochemical Biomineralization-the Deposition of Calcite with Chiral Facets - E. A. Kulp, S. Limmer, E. Bohannan and J. A. Switzer (University of Missouri-Rolla)

18:00 Concluding Remarks (30 Minutes)

C1 Biological Nanostructures, Materials, and Applications

Nanotechnology / Organic and Biological Electrochemistry / Physical and Analytical Electrochemistry / Sensor

Universal Ballroom, 2nd Floor, Expo Center

Tuesday Evening Poster Session, 19:00-21:00

- **682** Interactions of Human Cells and Bioliquids with Titanium Bioalloys - E. V. Vasilescu, M. Popa, E. V. Vasilescu, P. Drob (Institute of Physical Chemistry) and I. Demetrescu (Politehnica University Bucharest)
- **683** Cellular Toxicity and Luminescent Characteristics of Nanocrystalline Silicon Particles - S. Yanagisawa, K. Sato and K. Hirakuri (Tokyo Denki University)
- **684** Functional Biosensor Using Nanodisk Electrode Array Prepared by Ideally Ordered Anodic Porous Alumina - M. Harada, K. Nishio (Tokyo Metropolitan University) and H. Masuda (CREST,JST)
- **685** L-Cysteine Films on Ag(111)Investigated by Electrochemical and Optical Methods - E. Santos (Universidad Nacional de Cordoba), L. Avalle (Universidad Nacional de Cordoba), R. Scurtu and H. Jones (University of Ulm)

C2 Molecular Electrochemistry

Orgaic and Biological Electrochemistry / Physical and Analytical Electrochemistry

Universal Ballroom, 2nd Floor, Expo Center

Tuesday Evening Poster Session, 19:00-21:00

- **703** Voltammetric Characterization of $[ReO]^{3+}$ Containing Complexes - M. Cerda Bresciano (Facultad de Ciencias), E. Mendez (Lab. de Biomateriales - Fac. de Ciencias - UY), C. Kremer (Cat. Q.Inorganica - Fac. de Quimica - UY) and A. Castro Luna (INIFTA - Un. Nacional de La Plata - AR)
- **704** PEO-Based Composite Electrolytes Filled with Silanated Fumed Silica - H. Zhang and S. L. Wunder (Temple University)
- **705** Electrochemical Oxidation of Sulfite Mediated by Iron Porphyrins/Carbon Modified Electrodes in Wine Model Electrolyte - M. J. Aguirre, G. Ramirez, P. Bravo and T. Gonzalez (Universidad de Santiago de Chile)
- **706** Peculiarities of Voltammetry and Dissociation of Hydroxycarboxylic Acids - E. Kvaratskhelia (Inorganic and Electrochemistry) and R. Kvaratskhelia (R.Agladze Institute of Inorganic Chemistry and Electrochemistry)
- **707** Stereochemical Control in Electroreductive Cyclization and Electrohyrdrodimerization Reactions Using Chiral Auxilaries and Lewis Acid Complexes - J. A. Mallory and R. Little (University of California, Santa Barbara)

- **708** Electrosynthesis and Characterization of Polyaniline Films on ASTM 304 Steel, in Phosphoric, Sulfuric and Perchloric Acid Electrolytes - O. Vallejo, P. Roquero (Facultad de Quimica - Universidad Nacional Autonoma de Mexico) and E. Rivera (Instituto de Investigaciones en Materiales - UNAM)
- **709** Effect of Sodium Dodecyl Sulphate on the Analytical Determination of Dopamine and Ascorbic Acid - S. Corona Avendano, G. Alarcon Angeles (Universidad Autonoma Metropolitana-Iztapalapa), G. Rosquete Pina, M. Romero Romo (Universidad Autonoma Metropolitana (Azcapotzalco), M. Palomar-Pardave; (Universidad Autonoma Metropolitana), A. Rojas Hernandez (Universidad Autonoma Metropolitana-Iztapalapa) and M. Ramirez-Silva (Universidad Autonoma Metropolitana)

C3 Nanoparticles, Electrons, and Photons

Organic and Biological Electrochemistry / Physical and Analytical Electrochemistry

Universal Ballroom, 2nd Floor, Expo Center

Tuesday Evening Poster Session, 19:00-21:00
Co-Chairs: F. Maran and J. Rusling

- **727** Controlled Emission from Ag Nanoparticles Arrayed on Solid Surface - B. Takimoto, H. Nabika and K. Murakoshi (Hokkaido University)
- **728** Sonochemically Shynthetized Mixed $Ni(OH)_2$ and $Co(OH)_2$ Nanoparticles and their Application in Electrochromic Electrodes - M. Vidotti, R. Salvador, E. Ponzio (Instituto de Quimica - USP) and S. Torresi (Universidade de Sao Paulo)
- **729** Preparation of Conducting Flexible Film Using Au Nanoparticle and Its Application - N. Yoshi, M. Iwamoto, Y. Yamamoto (Frontier Science Innovation Center, Osaka Prefecture University), H. Shiigi and T. Nagaoka (Osaka Prefecture University)
- **730** Polyaniline Particles with Internal Nanostructures - A. Abbaspourrad and A. Eftekhari (Materials and Energy Research Center)
- **731** Synthesis and Characterization of $Cu[Fe(CN)_6]$ - Nanoparticles and their Application in H_2O_2 Sensors and Electrochromic Electrodes - A. B. Torre (Intituto de Quimica - Universidade de Sao Paulo), M. Vidotti, P. Fiorito (Instituto de Quimica - USP) and S. Torresi (Universidade de Sao Paulo)

C4 Pharmaco-Electrochemistry

New Technology

Universal Ballroom, 2nd Floor, Expo Center

Tuesday Evening Poster Session, 19:00-21:00
Co-Chairs: J. F. Gonzalez and S. Torresi

- **732** Voltammetric Behavior of a 4-Nitroimidazole Derivative: Nitro Radical Anion Formation in Presence of Surfactants - J. A. Squella, P. Jara and L. Nunez-Vergara (Universidad de Chile)
- **733** Spectroelectrochemical Study of the Hemin - Glutathione Interaction in the Absence and Presence of Surfactants - A. M. Toader (University of Bucharest), C. Diaconu (Institute of Virology) and E. Volanschi (University of Bucharest)
- **734** Interaction Between Fe(II) and 1-4,Dihydroxyanthraquinone: an Spectroscopic and Electrochemical Study - A. Morales (FES- Cuautitlan, UNAM), I. Gonzalez (Universidad Autonoma Metropolitana-Iztapalapa), F. J. Gonzalez (Cinvestav), R. Moya (FES- Cuautitlan, UNAM) and M. Gomez (Universidad Autonoma Metropolitana - Xochimilco)
- **735** Electrochemical Oxidation and Reactivity with Superoxide Anion of Some New C-4 Hydroxyphenyl 1,4-Dihydropyridines in Dimethylsulfoxide - L. J. Nunez-Vergara, M. Lopez, R. A. Salazar, P. Navarrete and J. A. Squella (Universidad de Chile)
- **736** Electrochemical Characterization of Aquous Extracts of Whitania Aristata and Artemisia Thuscula - D. A. Vasco (University of Antioquia), M. Vazquez, J. Smith (Universidad de Antioquia) and D. Benjumea (Universidad de La Laguna)
- **737** Stability of the Nitro Radical Anion in Micellar Media: Influence of the Substituent - P. A. Jara Ulloa, L. J. Nunez-Vergara and J. A. Squella (Universidad de Chile)
- **738** Determination of Hydrogen Solubility Values in Some Human Fluids by Using an Electrochemical Sensor - M. A. Esteso, R. Raposo and E. Calvino (University of La Laguna)
- **739** Beta-Lapachone Effects on Oxidative Stress Analyzed in Real Time and in Vivo, on Single Macrophages - D. Ferreira, D. Ferreira (Ecole Normale Superieure), M. O. Goulart (Universidade Federal de Alagoas), I. Tapsoba, S. Arbault and C. Amatore (Ecole Normale Superieure)

D1 Corrosion General Poster Session

Corrosion

Universal Ballroom, 2nd Floor, Expo Center

Tuesday Evening Poster Session, 19:00-21:00
Chair: P. Schmuki

- **759** pH Sensitive Microcapsules for Delivery of Corrosion Inhibitors - W. Li (NASA Postdoctoral Fellowship Program) and L. Calle (NASA-KSC)

- **760** Corrosion Performance of Carbon Steel in a Marine-Industrial Atmosphere - V. Torres, C. Rodriguez, F. J. Rodriguez, J. Genesca and L. Martinez (Universidad Nacional Autonoma Mexico, UNAM)
- **761** Accelerated Evaluation Cycle for Commercial Epoxy Varnish Free of Pigments - E. Angeles, C. Magana Zavala, E. Garcia Ochoa and F. J. Rodriguez (Universidad Nacional Autonoma Mexico, UNAM)
- **762** Responsive Structured Thin Films Magnesium Alloys for Biomedical Applications - E. Sikora, B. A. Shaw, J. Petrilli, N. Pytel, S. Pursel and M. Horn (The Pennsylvania State University)
- **763** Evaluation of Passive Films on Titanium Bioalloys in Physiological Electrolytes - E. V. Vasilescu, M. Popa (Institute of Physical Chemistry), I. Demetrescu (Politehnica University Bucharest), P. Drob (Institute of Physical Chemistry), D. Ionita (Politehnica University Bucharest) and E. V. Vasilescu (Institute of Physical Chemistry)
- **764** Pickling of Oxidized 304 Stainless Steel in Spent Mixed Acids from Etching Process of Si Wafer - M. Kim, J. Ahn (Korea Institute of Geoscience and Mineral Resources), H. Kim (University of Science and Technology), J. Ahn (Daejin University) and J. Kim (DAEIL Development Co., Ltd.)
- **765** Imidazole Compounds Compared to Oligofenilvinilenbisquinolines as Corrosion Inhibitors - M. Veloz (Universidad Autonoma del Estado de Hidalgo), J. Alvarado-Cortes (UAEH), R. Martinez-Palou (IMP), R. Vazquez (UAEH) and V. Reyes-Cruz (Universidad Autonoma del Estado de Hidalgo)
- **766** Effects of Cr on the Structure of the Passive Films on Ni-(15, 30)Cr - H. Kwon (Korea Advanced Institute of Science and Technology) and H. Jang (Korea Institute of Science and Technology)
- **767** Interaction of Aqueous Iodine Species With Ag/Ag_2O Surfaces - X. Zhang, C. Wren, D. Shoesmith, S. Stewart and C. Last (University of Western Ontario)
- **768** Investigation of Self-Corrosion and Galvanic Compatibility of Various Components used in Automotive Condensers - O. V. Kostrubsky, S. Mehta and J. Noveskey (Brazeway Inc)
- **769** Anticorrosive Properties of Chitosan and Chitosan Derivative for Protection of Iron in Bicarbonate/Chloride Environment - C. Dupont (Universite Laval), J. Gagnon (Universite du Quebec a Rimouski), M. Pezolet (Universite Laval) and S. Simard (Universite du Quebec a Rimouski)
- **770** Evaluation of the Electrochemical Behavior of Amorphous Carbon Films for Biomedical Applications - P. N. Rojas-Pelaez, V. Mendoza and S. Rodil (Instituto de Investigaciones en Materiales)
- **771** Corrosion Resistant Hydrophilic Zeolite Coatings for Improved Heat Transfer - R. A. Munoz, J. Liu, G. Aguilar and Y. Yan (University of California, Riverside)
- **772** Inhibitive and Aggressive Properties of H_2CO_3/HCO_3-/CO_{32}- Aqueous System Species Toward Cobalt and Nickel - S. Simard, S. Ouellet and D. Gallant (Universite du Quebec a Rimouski)
- **773** Applications of a Height-Regulated Scanning Kelvin Probe for Studies of Modified Polymer/Metal Interfaces Under Corrosive and Mechanical Load - G. Grundmeier, G. Klimow, K. Wapner and M. Stratmann (MPI fur Eisenforschung)
- **774** Intergranular Corrosion if Aluminum 2024-T351, Using Diferent Cosntant Extension Rate and Electrochemical Noise - F. Almeraya (Centro de Investigacion en materiales avanzados), C. Gaona (Centro de Investigacion en Materiales Avanzados, CIMAV), C. Lopez, A. Borunda and A. Martinez (CIMAV)
- **775** Study of the Effect of Solidification Rate on the Corrosion Resistance of a Directionally Solidified Aluminium-Lanthanum Alloy - J. A. Gonzalez-Sanchez, L. Dzib-Perez and T. Perez-Lopez (Universidad Autonoma de Campeche)
- **776** Synergism between Cerium Salt and EDTA in Improving the Corrosion Resistance of Anodized Aluminum - J. Lei, L. Li (Chongqing University), D. Li (Beijing University of Aeronautics and Astronautics) and S. Zhang (Chongqing University)
- **777** Electrochemical Behavior of AZ31 Magnesium Alloy in Typical Rain of Southwest China - J. Lei, L. Li, S. Zhang and X. Hao (Chongqing University)
- **778** HBr Corrosion Studies of Alloys Used in Semiconductor Wafer Manufacturing - C. Wyse, J. Vininski and R. Torres (Matheson-Trigas, Inc.)
- **779** Site Control in Anodic Etching of Semiconductor Single Crystals by Direct Nanoimprinting Using SiC Molds - H. Masuda (CREST, JST), H. Murakami and K. Nishio (Tokyo Metropolitan University)
- **780** Resistance Corrosion Test of Ceramic Thin Film Coating on Low Carbon Steel - G. Carbajal De la Torre (Universite de Sciences de Lille 1), M. Espinosa Medina (Instituto Mexicano del Petroleo) and A. Martinez Villafane (Centro de Investigacion en Materiales Avanzados)
- **781** Numerical Simulation of Corrosion Cells by the Method of Fundamental Solution - C. P. Barrios (Centro de Investigacion en Materiales Avanzados (CIMAV)), F. Almeraya-Calderon (CIMAV), R. Nunez-Jaquez (ULSA Chihuahua), C. Gaona-Tiburcio, A. Martinez-Villafane and J. Chacon Nava (CIMAV)
- **782** Oxygen Reduction at Thiole SAMs on Au (111) - A Combined Experimental and Modelling Apporach - A. T. Blumenau, U. Biedermann, E. Torres, A. Laaboudi and M. Rohwerder (Max-Planck-Institute for Iron Research)
- **783** Effect of Permissible Variations in the Phosphating Process on the Final Properties of a Tricationic Phosphate Coating - O. I. Gonzalez Pena, F. A. Rodriguez Aguilar and R. Antano Lopez (CIDETEQ, S. A.)

- **784** Effect of Permissible Variations in the Phosphating Process on the Final Propieties of a Tricationic Phosphate Coating - F. A. Rodriguez Aguilar and R. Antano Lopez (CIDETEQ)
- **785** Electrochemical Behavior of FeAl Based Intermetallics with Ag and Cu in 0.25 M H_2SO_4 at Room Temperature and in Simulated Human Body Fluid Environment - M. H. Hernandez (UNAM) and M. Espinoza Medina (Instituto Mexicano del Petroleo)
- **786** Evaluation of Benzotriazole as Corrosion Inhibitor for Carbon Steel as Reinforcement of Concrete - I. Costa and M. Mennucci (IPEN / CNEN)
- **787** Study of Anaerobic Biofilms from Gasoline Pipelines Distribution - D. Ramirez Espinosa (Unidad Profesional Interdisciplinaria de Biotecnologia) and X. Dominguez Benetton (Instituto Mexicano del Petroleo)
- **788** Corrosion Performance of SS-304L Exposed to Lithium Bromide Aqueous Solution at 70°C Applying the Electrochemical Noise Technique and Polarization Curves - C. Cuevas (Universidad Autonoma del Estado de Morelos), J. Castrellon and A. Trujillo (Universidad Autonoma del Estado de Morelos)
- **789** The Efficiency of the Smeared Crack Approach in the Estimate the Cracking for Corrosion in the Reinforced Concrete Structures - J. H. Castorena (Universidad Autonoma de Sinaloa), F. Almeraya (Centro de Investigacion en materiales avanzados), A. A. Torres-Acosta (Instituto Mexicano del Transporte), J. Velazquez (Universidad Autonoma de Sinaloa), C. Gaona (Centro de Investigacion en Materiales Avanzados, CIMAV) and A. Martinez (CIMAV)
- **790** Electrochemical Evaluation of Ternary Mix Concretes - C. Gaona (Centro de Investigacion en Materiales Avanzados, CIMAV), R. Nunez (La Salle University), F. Almeraya (Centro de Investigacion en Materiales Avanzados), A. Borunda and A. Martinez (CIMAV)
- **791** Anti-Corrosion Properties of Fe-Ni-Al_2O_3 Cermet Inert Anode - X. Cao, Z. Shi, S. Yang (School of Material and Metallurgy) and Z. Qiu (Northeastern University)
- **792** Bond Strength Degradation Due to Impressed Current Cathodic Protection in Reinforced Concrete - D. Koleva, O. Copuroglu, K. van Breugel and J. de Wit (Delft University of Technology, The Netherlands)

D2 Corrosion of Electronic Materials and Devices

Corrosion / Electronics and Photonics

Universal Ballroom, 2nd Floor, Expo Center

Tuesday Evening Poster Session, 19:00-21:00

- **793** Study on a Hydrophobic Nano-TiO_2 Coating and its Photo-Generated Cathodic Protection to Metals - C. Lin, G. Shen, J. Li and H. Yun (Xiamen University)
- **794** Electrochemical and Surface Evaluation on Aluminum 2024 T-3 Pretreated with Meta cryloxypropylmethoxysilane and Cerium Nitrate - G. E. Englert (Universidade Federal do Rio Grande do Sul), D. Azambuja and S. Takeuchi (UFRGS)

D3 Corrosion of Infrastructure

Corrosion

Universal 4, 1st Floor, Expo Center

Cementitious Systems - Monitoring
Co-Chairs: P. Castro-Borges and A. Sagues

08:00	**827**	EIS Monitoring of Cathodic Protection of Steel Reinforced Concrete Enhanced by Humectants - A. Del Valle (Instituto Mexicano del Transporte), J. Genesca-Llongueras (Universidad Nacional Autonoma de Mexico) and M. Martinez-Madrid (Universidad Marista de Queretaro)
08:20	**828**	The Potentiality of Electrochemical Evaluation as a Non Destructive Analysis in Reinforced Concrete Structures - O. De Rincon (Universidad del Zulia) and C. Andrade (IETcc)
08:40	**829**	Corrosion-Related Failure of Post Stressed Tendons - D. Tromans (University of British Columbia)
09:00	**830**	Electrochemical Noise Corrosion Monitoring of Post Tensioned Tendons - A. A. Sagues, L. Vieceli Taveira and B. Joseph (University of South Florida)
09:20	**831**	Evaluation of Electrochemical Behavior of Two Inhibitors for Galvanized Rebars in Alkaline Solutions - M. J. Herrera (Centro de Fisica Aplicada y Tecnologia Avanzada), M. Martinez and J. Perez (Instituto Mexicano del Transporte)
09:40		Intermission (20 Minutes)

Natural and Industrial Media
Co-Chairs: H. Castaneda and A. Sagues

10:00	**832**	Embedded Electrodes as Sensors in Coatings: Implications for Study of Infrastructure Corrosion - G. Bierwage n, K. Allahar, Q. Su and D. E. Tallman (North Dakota State University)
10:20	**833**	Galvanic Behavior of Type 2 Aluminized Steel in Simulated Natural Waters - A. A. Sagues and L. Caseres (University of South Florida)
10:40	**834**	Atmospheric Corrosion of Zinc Induced by Runoff of the Metal - E. D. Meraz (Universidad Juarez Autonoma de Tabasco), L. Veleva (CINVESTAV, Merida) and M. Acosta (Universidad Juarez Autonoma de Tabasco)
11:00	**835**	Influence of H_2O_2 on the Passive Films on Carbon Steel in Borate Solution at pH 10.6 - X. Zhang, C. Wren, D. Shoesmith, W. Xu and K. Daub (University of Western Ontario)
11:20	**836**	Monitoring of Electrochemical Corrosion Process through Experiments and Computational Simulation - R. Pidaparti, E. Neblett and J. Alvarez (Virginia Commonwealth University)

11:40 **837** Effect of Organic Acids in CO_2 Corrosion - C. M. Canto Maya (Ohio University), V. Fajardo (UNAM), S. Nesic and B. Brown (Institute for Corrosion and Multiphase Technology)

Pipelines; Coatings
Chair: H. Castaneda

14:00 **838** Analysis of the Influence of Different Parameters on the Corrosion of Underground Pipelines - L. P. Dick, C. Weber, L. Rodrigues, C. Castilhos, P. Schutz and S. da Silva (Universidade Federal do Rio Grande do Sul)

14:20 **839** Evaluation of ECDA Indications for Assessing Pipeline Integrity - M. E. Orazem, J. McKinney, C. Chu (University of Florida), O. Moghissi (CC Technologies, Inc.), D. Riemer (Hutchinson Technology, Inc.) and D. D'Zurko (Northeast Gas Association)

14:40 **840** Electrochemical Characterization of X80 Steel under Sour Environments and Addition of Imidazoline Based Compounds - M. Galicia (Instituto Mexicano del Petroleo), R. Hernandez (Universidad Nacional Autonoma de Mexico) and H. Castaneda (Instituto Mexicano del Petroleo/Battelle Memorial Institute)

15:00 **841** Corrosion Internal Characterization in Pipeline used for Transporting Refining Oil - N. Nava (Instituto Mexicano del Petroleo), C. Knight (Pemex), M. Espinosa, A. Contreras and E. Sosa (Instituto Mexicano del Petroleo)

15:20 **842** Biocomplexity and Bioelectrochemical Influence of Anaerobic Biofilms in Gasoline Distribution Pipelines - X. Dominguez Benetton (Instituto Mexicano del Petroleo) and D. Ramirez Espinosa (Unidad Profesional Interdisciplinaria de Biotecnologia)

15:40 **843** Detection of SCC Crack Initiation Mechanism for X-65 Steel by Considering Hydrogen Effect Under Polarization Conditions in Near Neutral Solutions- An Electrochemical Mechanical Impedance Approach - H. Castaneda (Instituto Mexicano del Petroleo/Battelle Memorial Institute) and B. Leis (Battelle Memorial Institute)

16:00 Intermission (20 Minutes)

16:20 **844** Hydrophilic and Hydrophobic Interfaces: the Performance of Functional and Non-Functional Silane-Treated Epoxy-Coated Steel - S. Lyon and N. Ali (University of Manchester)

16:40 **845** Microstructural and Electrochemical Investigation of the Corrosion Protection Afforded by Modified Organosilane Films to Al Alloy 2024-T3 in 0.1M NaCl - H. G. de Melo (Sao Paulo University), L. E. Palomino (USP) and M. Montemor (Instituto Superior Tecnico, DEQ Lisbon, Portugal)

17:00 **846** Influence of Silica Nanoparticles Addition in the Electrochemical Behavior of Carbon Steel Pre-Treated with a Bis-Amino-Silane - P. H. Suegama (Universidade de Sao Paulo), I. Aoki and H. G. de Melo (Sao Paulo University)

17:20 **847** Electrodeposited Zn-Sn Alloy as a Replacement for Cadmium Coatings - P. Ganesan, Y. Choi, S. P. Kumaraguru and B. Popov (University of South Carolina)

17:40 **848** EIS Study of Corrosion Process of 1018 Carbon Steel in Acid Solutions Typical of Atmospheric Distillation Plants - J. Marin-Cruz, L. Quej-Ake (Instituto Mexicano del Petroleo) and R. Cabrera-Sierra (ESIQIE - Instituto Politecnico Nacional)

D4 Critical Factors in Localized Corrosion 5, a Symposium in Honor of Hugh S. Isaacs

Corrosion

Universal 1, 1st Floor, Expo Center

Inhibitors and Coatings for Aluminum Alloys
Co-Chairs: M. Kendig and G. Frankel

08:00 **862** Inhibition of AA2024-T3 Corrosion by Vanadates - G. Frankel and M. Iannuzzi (Ohio State University)

08:30 **863** The Effect of Borate on Cerium Film Formation - A. J. Aldykiewicz (W.R. Grace), A. J. Davenport (University of Birmingham) and H. Isaacs (Brookhaven National Laboratory)

09:00 **864** High Silica Zeolite (ZSM-5) Coated Aluminum (Al-2024-T3): Micro-Structural Characterization by Laser Confocal Microscopy and Electrochemical Studies - R. A. Munoz (University of California, Riverside), D. Beving (University of California) and Y. Yan (University of California, Riverside)

09:20 **865** Corrosion Protection Due to Bacteria /Metal Interactions - E. Kus, K. Nealson and F. Mansfeld (University of Southern California)

09:40 Intermission (20 Minutes)

10:00 **866** Simplified Analysis of EIS for A Conversion Coated Aluminum Undergoing Pitting - M. W. Kendig and M. W. Kendig (Rockwell Scientific Company)

Intergranular Corrosion and Hydrogen Absorption
Co-Chairs: S. Fujimoto and K. Nisancioglu

10:30 **867** Effect of Heat Treatment on Grain Boundary Nanostructure and Corrosion of Low Copper AlMgSi Alloy - K. Nisancioglu, M. Larsen (Norwegian University of Science and Technology), J. Walmsley and O. Lunder (SINTEF)

10:50 **868** In Situ, Three Dimensional Quantification of Intergranular Corrosion Rates for Aluminium Alloys and Stainless Steels - B. Connolly, D. Horner, S. Fox, A. J. Davenport, S. Ghosh, C. Padovani (University of Birmingham), M. Stampanoni, A. Groso (Paul Scherrer Institut), F. De Carlo and X. Xiao (Advanced Photon Source - Argonne National Lab)

11:10 **869** Surface Processes Accompanying Corrosion-Induced Hydrogen Absorption into Aluminum - S. Adhikari, K. Hebert (Iowa State University) and J. Lee (University of Illinois)

11:30 **870** Degradation of Mechanical Strength of Al Alloys by Electrochemically Introduced Hydrogen - S. Fujimoto, T. Kouno, T. Tsuji (Osaka University) and T. Haruna (Kansai University)

Corrosion Division Award Lectures
Chair: R. Kelly

14:00 **871** Understanding Localized Corrosion through Electrochemical Measurements - G. T. Burstein (University of Cambridge)

14:30 **872** Semiconductive Nature of Passive Films on Fe-Cr Alloys - H. Tsuchiya and S. Fujimoto (Osaka University)

15:00 Intermission (20 Minutes)

Pitting Corrosion in Aluminum and Aluminum Alloys - Stability, Nanostructure and Copper Redistribution
Co-Chairs: N. Missert and K. Zavadil

15:20 **873** Influence of Specimen Area on the Pitting Probability of Aluminum Revisited - With a Special Reference to Aluminum Bonding Pad in Electronic Devices - Y. Ishikawa (Yokohama National University) and T. Ozaki (Independent consultant)

15:50 **874** Pit Stability Criteria for Aluminum and Implications for the Mechanism of Tunneling Corrosion - A. B. Cook, S. Lyon, N. Stevens (University of Manchester), N. Laycock, S. White (Industrial Research Limited) and R. Newman (University of Toronto)

16:10 **875** Programming Void Populations in the Passive Oxide of Aluminum in an Attempt to Correlate Evolving Nanostructure with Passivity Loss - K. R. Zavadil, P. Kotula and T. Ohlhausen (Sandia National Laboratories)

16:30 **876** Small Length-Scale Dissolution Phenomena in Al-Cu-X Alloys - R. G. Buchheit and M. Cavanaugh (Fontana Corrosion Center)

16:50 **877** Following Corrosion-Driven Relocation of Electrically-Connected Copper on AA2024 using Electrogenerated Chemiluminescence (ECL) Imaging - H. N. Mcmurray (University of Wales Swansea) and Z. Barrett (Airbus UK)

17:10 **878** Dissolution Characteristics of Al_2Cu and Al-4Cu Thin Films - N. Missert (Sandia National Laboratories), H. Isaacs (Brookhaven National Laboratory), G. Copeland (Sandia National Laboratories), B. Ingham (Industrial Research Limited), R. Huang (Xiamen University) and N. Vasiljevic (Sandia National Laboratories)

Universal Ballroom, 2nd Floor, Expo Center

Tuesday Evening Poster Session, 19:00-21:00
Chair: M. Ryan

- **879** Fe-Cr Alloying for Iron Surface Modification by Nonsymmetric Alternating Pulsed Electrolysis - S. Yagi, K. Murase (Kyoto University), T. Hirato (Tohoku University) and Y. Awakura (Kyoto University)
- **880** Corrosion Initiation and Anodic-Cathodic Alternation of Localized Corrosion of SiC-Reinforced Aluminum Composites in NaCl Solution - H. Ding and L. Hihara (University of Hawaii)
- **881** Simple Fabrication of a Silver Epoxy Coated Microelectrode for SECM Imaging in Small Volumes - L. F. Diaz-Ballote (Cinvestav Merida) and D. Wipf (Mississippi State University)
- **882** Initiation of Localized Corrosion of Iron Investigated by Wavelet Transformation with Channel Flow Electrode - M. Itagaki, D. Nakajima, I. Shitanda, K. Watanabe (Tokyo University of Science), T. Nukaga and F. Umemura (Tokyo Electric Power Company)
- **883** Crevice Corrosion of Ni-Cr-Mo Alloys - P. Jakupi, D. Zagidulin, J. Noel and D. Shoesmtih (The University of Western Ontario)
- **884** Effect of Nickel on Metastable Pitting of Stainless Steels: Computer Simulations Study - B. Malki (LTPCM/GEDAI/ENSEEG) and B. Baroux (Institut National Polytechnique de Grenoble)
- **885** Electrochemical Testing of Exfoliation Corrosion Sensitivity of Aluminum Alloys - B. Malki (LTPCM/GEDAI/ENSEEG), B. Baroux (Institut National Polytechnique de Grenoble), T. Marlaud and A. Deschamps (LTPCM/GEDAI/ENSEEG)
- **886** Electrochemical Investigation of Localized CO_2 Corrosion Mechanisms - J. Han, Y. Yang, B. Brown and S. Nesic (Institute for Corrosion and Multiphase Technology)
- **887** Measurements of the Localized Dissolution Rate During Potentiostatic Generation of Corrosion Pits in Austenitic Stainless Steel in Natural Seawater - J. A. Gonzalez-Sanchez and L. Dzib-Perez (Universidad Autonoma de Campeche)
- **888** Copper Local Corrosion Under Joint Presence of Beta-Alanine and Nitrate-Ions in Alkaline Solutions - S. A. Kaluzhina and V. Minakova (Voronezh State University)
- **889** Effects of High Salt Concentration on General CO_2 Corrosion - H. Fang, S. Nesic (Institute for Corrosion and Multiphase Technology) and S. Wang (Champion Technologies)
- **890** SRET Evaluation of the Corrosion Behavior of Thixocast AZ91 Magnesium Alloy in Dilute NaCl Solution at Room Temperature - S. Jin, E. Ghali (Laval University), C. Blawert and W. Dietzel (GKSS Research Center)
- **891** A Hybrid Scanning Probe Technique for In Situ Imaging Surface Topography and Corrosion Potential of Localized Corrosions - C. Lin, Y. Li and X. Zhuo (Xiamen University)
- **892** Diagnosis of Steel Corrosion in Fresh Water by Using Mahalanobis Distance - M. Itagaki, M. Itagaki, E. Takamiya, I. Shitanda, K. Watanabe (Tokyo University of Science), T. Nukaga and F. Umemura (Tokyo Electric Power Company)

- **893** Determination of the Diffusivity of Cation Vacancy in the Passive Film on Ni - H. Kwon (Korea Advanced Institute of Science and Technology), H. Jang (Korea Institute of Science and Technology) and S. Ahn (Korea Institute of Energy Research)
- **894** Examination of Corrosion Products and the Alloy Surface after Crevice Corrosion of a Ni-Cr-Mo Alloy - X. Shan and J. Payer (Case Western Reserve University)
- **895** Aluminum Aloy 6061 Galvanic Corrosion, Pitts Grown and Passivation in Artificial Seawater Solution. II System Modeling - A. Pikelny (WEHO) and D. DeFranco (L-3 Communications, Ocean Systems)
- **896** Crevice Corrosion Current and Potential Oscillations Analysis at Open Circuit - T. Souier, B. Malki (LTPCM/GEDAI/ ENSEEG) and B. Baroux (Institut National Polytechnique de Grenoble)
- **897** Predictive Model for Cut-Edge Corrosion of Galvanized Steels - R. Oltra (CNRS), B. Vuillemin, F. Thebault (CNRS Universite de Bourgogne), A. Christian (ARCELOR), F. Dosdat (ARCLEOR) and K. Ogle (ENSC Paris)
- **898** Effects of Sliding Wear at Various Loading Conditions on the Local Mechanical-Electrochemical Behaviour of Duplex Stainless Steels - H. Krawiec (AGH-University of Science and Technology), V. Vignal (CNRS-Universite de Bourgogne), P. Ponthiaux and F. Wenger (Ecole Centrale Paris)
- **899** Corrosion Current Fluctuations at Metastable to Stable Pitting Transition of Aluminum - B. Malki (LTPCM/GEDAI/ ENSEEG) and B. Baroux (Institut National Polytechnique de Grenoble)

D5 High Temperature Corrosion and Materials Chemistry 6

High Temperature Materials / Corrosion

Universal 5, 1st Floor, Expo Center

Oxidation of Chromia-Forming Alloys and Defect Chemistry of Chromia
Co-Chairs: J. Fergus and A. Martinez Villafane

08:00 **949** Microstructural Investigation of the Effect of Water Vapour on the Oxidation of the Si-Containing FeCrNi Steel 353MA at 900ºC in Oxygen - T. Jonsson, F. Liu, S. Canovic, H. Asteman, J. Svensson, L. Johansson and M. Halvarsson (Chalmers University of Technology)

08:20 **950** The Electrical Conductivity of Cr_2O_3 Doped with 16.5 mol%TiO_2 at 1073 K - M. Ueda, T. Hatanaka, K. Kawamura and T. Maruyama (Tokyo Institute of Technology)

Kinetics and Oxide Defect Chemistry
Co-Chairs: S. Singhal and E. Copland

08:40 **951** "High Temperature Materials Division - Outstanding Achievement Award Address" On the Measurement of Properties of Oxides under Conditions of Thermodynamic Equilibrium: The Role of Kinetics - A. V. Virkar (University of Utah)

09:20 **952** Defect Structure and Diverence of Ionic Flux in the Growing Scale - T. Maruyama (Tokyo Institute of Technology)

09:40 Intermission (20 Minutes)

10:00 **953** Voids Formation in a Growing Nickel Oxide Scale and Cobaltous Oxide Scale at 1373 K - K. Akiba, M. Ueda, K. Kawamura and T. Maruyama (Tokyo Institute of Technology)

Thermodynamic Property Determination of Oxides and Oxygen-Containing Systems
Co-Chairs: E. Copland and S. Singhal

10:20 **954** Calorimetric Studies of Reactions Above 1200ºC - A. Navrotsky (University of California at Davis)

11:00 **955** Mass Spectrometric Determination of Activity in SrO-TiO_2 System - E. Rangel Salinas (Instituto Politecnico Nacional), A. Pisch (Institut National Polytechnique de Grenoble/LTPCM), C. B. Chatillon (CNRS/ INPG) and C. Bernard (Institut National Polytechnique de Grenoble/LTPCM)

11:20 **956** Thermodynamics of Iodine Transport in Nuclear Major Accident. I. Mass Spectrometric Study of the Cs-O-H System Vaporization. - F. Z. Roki (LTPCM/INPG/ CNRS), C. B. Chatillon (CNRS/INPG), M. Ohnet and D. Jacqueman (IRSN)

11:40 **957** Analysis of the Impurities Influence on Molten Indium and Gallium Antimonides: Application to Crystal Growth - L. Sylla (EPM/CNRS - ENSHMG), J. Harvey (ENSEEG, UJF, INPG, Lab Thermodynam & Physicochim Met, CNRS), A. Pisch (Institut National Polytechnique de Grenoble/LTPCM) and T. Duffar (EPM-CNRS, ENSHMG)

High Temperature Reactions in Silica-Forming Systems
Co-Chairs: E. Wuchina and E. Opila

14:00 **958** High Temperature Mass Spectrometric Study of the Interactionsin the SiC-SiO_2 System and their Influence on the Recrystalization Process of Silicon Carbide - G. Honstein (LTPCM/INPG/CNRS), C. B. Chatillon (CNRS/INPG) and F. Baillet (LTPCM/INPG/ CNRS)

14:20 **959** Oxidation and Volatilization of SiC in a Hydrogen-Rich Rocket Engine Environment - E. Opila (NASA Glenn Research Center)

14:40 **960** Coating Strategies for Oxidation Resistant High Temperature Mo-Si-B Alloys - J. H. Perepezko, R. Sakidja (Univ. of Wisconsin-Madison) and F. Rioult (Univ. of Wisconsin-Madison 09/06)

Ultra High Temperature Materials
Co-Chairs: E. Opila and E. Wuchina

16:00 **961** Molecular Modeling of Oxidation of Ultra-High Temperature Ceramics - J. Li (Ohio State University), C. Foerst (MIT), A. Samanta (Ohio State University) and S. Yip (MIT)

16:20 **962** Thermodynamics-Based Materials Selection for Corrosion-Resistant Performance in High-Temperature Missile Propulsion Systems. Part 2. Consideration of Gas Phase Equilibria - M. M. Opeka (Navy - NSWC)

16:40 Intermission (20 Minutes)

17:00 **963** Gas Evolution during Oxidation of Refractory Borides and Carbides at 1500C to 2700C - A. G. Metcalfe (Arthur G. Metcalfe & Associates)

17:20 **964** Studies of Phase Stability and Microstructure in the Ta-C System - E. Wuchina (NSWCCD), S. DiPietro (Exothermics, Inc.), M. M. Opeka (Navy - NSWC) and L. Matson (AFRL)

17:40 **965** Characterization of Plasma Sprayed TaC - E. Wuchina (NSWCCD), D. Butts (Plasma Processes, Inc.), M. M. Opeka (Navy - NSWC) and L. Matson (AFRL)

18:00 **966** Oxidation-Protective Iridium and Iridium-Rhodium Coating Produced by Electrodeposition from Molten Salts - A. Shchetkovskiy (Plasma Processes Inc.), A. Etenko (Plasma Processes, Inc), T. McKechnie and A. Smirnov (Plasma Processes Inc.)

D5 High Temperature Corrosion and Materials Chemistry 6

High Temperature Materials / Corrosion

Universal Ballroom, 2nd Floor, Expo Center

Tuesday Evening Poster Session, 19:00-21:00
Co-Chairs: E. Opila and J. Fergus

- **967** Morphology and Kinetic Effect of Combined Nd and Pr on the Oxidation of a Fe-13Cr Alloy - A. Martinez-Villafane, J. Chacon-Nava, A. Borunda-Terrazas (Advanced Materials Research Center), F. Almeraya-Calderon (CIMAV) and G. Gonzalez-Rodriguez (Universidad Autonoma del Estado de Morelos)
- **968** Polarization Study of 316 Stainless Steel and its Alloying Elements in Supercritical Water Containing 0.1M HCl - K. Lee (Korea Institute of Machinery & Materials), M. Lee (Korea Maritime Univ.) and D. Chang (KIMM)
- **969** Impedance Distribution of Hydrogen Permeation in the Corrosion Process of Low-Carbon Steel into a Modified Alkaline Sour Environment - H. Castaneda (Instituto Mexicano del Petroleo/Battelle Memorial Institute), M. Espinosa-Medina and E. Sosa (Instituto Mexicano del Petroleo)
- **970** Electrochemical Impedance Spectroscopic Study of Passive Zirconium in High Temperature, Hydrogenated Aqueous Solutions - D. D. Macdonald, J. Ai, Y. Chen and M. Urquidi-Macdonald (Pennsylvania State University)
- **971** The Oxidation of 1-Propanol by CuO - T. DeVore and M. peretich (James Madison university)

Solid-State Joint General Session

E1

Dielectric Science and Technology / Electronics and Photonics

Universal Ballroom, 2nd Floor, Expo Center

Tuesday Evening Poster Session, 19:00-21:00

- **972** Defect Reduction in Plasma-Enhanced CVD Borophosphosilicate Glass Films - Y. V. Sokolov, M. Daggubati and Q. Wang (Fairchild Semiconductor)
- **973** Radical Oxidation on Ultra Pure Silicon Surface - K. Kawase (Mitsubishi Electric Corp.), M. Higuchi, T. Suwa (Tohoku University), H. Umeda, M. Inoue (Renesas Technology Corporation), A. Teramoto, T. Hattori, S. Sugawa and T. Ohmi (Tohoku University)
- **974** Electrochemical Deposition and Characterization of Ni-ZrP_2O_7 Nano-Composites - H. Kim (KITECH), J. Jung, Y. Kim (Seoul National University), Y. Kim and S. Shin (KITECH)
- **975** Crystal Extension of Delta Phase in Sb_xTe_{100-x} Phase Change Binary Alloy Along Longitudinal Axis without Phase Separation - Y. Kim (Korea Institute of Science and Technology), C. Sun, J. Lee (Korea Advanced Institute of Science and Technology), M. Youm (Korea Institute of Science and Technology) and A. Wakahara (Toyohashi Univ. of Tech.)
- **976** Properties of Borophosphosilicate Glass Films Grown with Different Nitrous to Silane Ratios Using Plasma-Enhanced CVD - M. Daggubati, Y. V. Sokolov, D. Roy and Q. Wang (Fairchild Semiconductor Corp.)
- **977** Surface Energy and Equilibrium Shape of Hexagonal Structured $Ge_2Sb_2Te_5$ Grain - Y. Kim, Y. Park, M. Youm (Korea Institute of Science and Technology) and A. Wakahara (Toyohashi Univ. of Tech.)
- **978** Substrate Effect on Chemical Reaction - A Computational Simulation - S. Itoh (Toshiba Corp.)
- **979** The Dehydration Effect on the MgO Protecting Layer in AC-PDP - S. Moon, T. Heo, S. Park, J. Kim and H. Kim (Seoul National University)
- **980** Gas Flow Effects on MgO Thin Films Deposited by E-Beam Evaporation Method - T. Heo, S. Moon, S. Park, J. Kim and H. Kim (Seoul National University)
- **981** Morphology of the Surface of the Polycrystalline and Single-Crystal SiC Treated with pure NF_3 Plasma and Analysis of Chemical Reaction of SiC with NF_3 - T. Kanatani (Doshisha University), T. Tojo (Toyotanso Co.Ltd), M. Tanaka (Sumitomo Osaka Semento Co.Ltd), M. Inaba and A. Tasaka (Doshisha University)
- **982** Study of Corrosion-Wear Behavior of AISI 304L by Elecrochemical Noise - J. Celis (Katholieke Universiteit Leuven), P. Ponthiaux (Ecole Centrale Paris) and A. Berradja (Katholieke Universiteit Leuven)

E2 Advanced Gate Stack, Source/Drain, and Channel Engineering for Si-Based CMOS 2: New Materials, Processes, and Equipment

Electronics and Photonics / Dielectric Science and Technology / High Temperature Materials

Universal 3, 1st Floor, Expo Center

Advanced Gate Stacks
Co-Chairs: V. Misra and H. Iwai

08:10 **1013** Evolution of Structural and Electrical Properties of Plasma Nitrided Silicon Oxynitrides during the Formation Process - O. Storbeck (Qimonda GmbH & Co. OHG)

08:30 **1014** Effect of Deposition Temperature on Thermal Stability of Lanthanum Oxide/Si Interfacial Transition Layer - H. Nohira, T. Matsuda, Musashi Institute of Technology), K. Tachi (Tokyo Institute of Technology), Y. Shiino, J. Song, Y. Kuroki, J. Ng (FCRC, Tokyo Institute of Technology), P. Ahmet, K. Kakushima, K. Tsutsui (Tokyo Institute of Technology), E. Ikenaga, K. Kobayashi (JASRI/SPring-8), H. Iwai (FCRC, Tokyo Institute of Technology) and T. Hattori (FCRC, Tokyo Institute of Technology; ARL, Musashi Institute of Technology)

08:50 **1015** Control of Material Interactions in Advanced High-k Metal Gate Stacks - C. Wajda, G. Leusink (TEL Technology Center, America), K. Akiyama, S. Ashigaki, S. Aoyama, K. Shimomura, M. Aruga, T. Takahashi, K. Yamazaki and H. Yamasaki (Tokyo Electron AT)

09:20 **1016** Thermal Stability of HfN Compounds on HfO_2/SiO_2 Gate Stacks - A. Callegari (IBM, T. J. Watson Research Center), M. Gribelyuk (IBM SRDC East Fishkill) and A. Kellock (IBM Almaden)

09:40 Intermission (20 Minutes)

10:00 **1017** On the Growth of Native Oxides on Hydrogen-Terminated Silicon Surfaces in Dark and Under Illumination with Light - A. Y. Kovalgin, A. Zinine, R. Bankras, H. Wormeester, B. Poelsema and J. Schmitz (MESA+ Institute for Nanotechnology, University of Twente)

10:20 **1018** Low Temperature Silcore a-Silicon Deposition - P. R. Fischer (ASM Belgium), S. Van Aerde (ASM Belgium N.V.), E. Oosterlaken, B. Bozon and P. M. Zagwijn (ASM Europe B.V.)

10:50 **1019** Impact of Grain Size Distribution of Gate Poly-Si on PMOSFET Performance - K. Saki (Toshiba Corporation)

11:10 **1020** The Stress of Polycrystalline Silicon for the Advanced CMOS Technologies - Y. Chen (Texas Instruments Inc.), D. Mercer (Texas Instruments), T. Tran and P. Hester (ADE Corporation)

11:30 **1021** Ni, Pt and Yb Based Fully Silicided (FUSI) Gates for Scaled CMOS Technologies - J. A. Kittl (Texas Instruments), A. Lauwers (IMEC), M. van Dal (Philips Research Europe), H. Yu, A. Veloso, T. Hoffmann, M. Pawlak, C. Demeurisse, S. Kubicek (IMEC), M. Niwa (Matsushita), C. Vrancken, P. Absil and S. Biesemans (IMEC)

Co-Chairs: P. Fischer and D. L. Kwong

14:00 **1022** Charge Defects, Vt Shifts, and the Solution to the High-K Metal Gate n-MOSFET Problem - S. Guha, V. Narayanan, V. Paruchuri, B. Linder, M. Copel, N. Bojarczuk, Y. Kim (IBM Research), M. Chudzik, Y. Wang and P. Ronsheim (IBM)

14:30 **1023** NBTI Study on PMOS Devices with TiN/HfO_2 Gate Stack and Process Induced Strain - A. K. Shickova (IMEC vzw), P. verheyen, G. Eneman (IMEC), E. San Andres (IMEC vzw), P. Absil (IMEC), B. Kaczer and G. Groeseneken (IMEC vzw)

14:50 Intermission (20 Minutes)

15:10 **1024** Challenges in Dual Workfunction Metal Gate CMOS Integration - B. Lee, S. Song and R. Jammy (SEMATECH)

15:40 **1025** Feasibility of Dipole Based Work Function Tuning for Sub 1nm EOT Metal Gated High-K Stacks - V. Misra, R. Jha, B. Chen and J. Lee (North Carolina State University)

16:10 **1026** Low Pressure Chemical Vapor Deposition of Ta-Based Material - K. Yanagita, C. Dussarrat and L. Beyssac (Air Liquide Laboratories)

16:30 **1027** Chlorine Controlled High Throughput TiN Process with Space Divided CVD - H. Kim (Jusung Engineering Co., Ltd)

17:00 **1028** Damascene Metal Gate Technology for Gentle Integration of Crystalline High-K-Gate Dielectrics - R. Endres (Darmstadt University of Technology), Y. Stefanov and U. Schwalke (Institute for Semiconductor Technology)

17:20 **1029** Thermal/Chemical Stability of ALD Ru-TaN Thin Films for Gate Electrode Applications - M. Tungare, S. Kumar and E. Eisenbraun (University of Albany-SUNY)

Universal Ballroom, 2nd Floor, Expo Center

Tuesday Evening Poster Session, 19:00-21:00

- **1030** Resist Stripping Process on Germanium: a Basic Post-Implant Study - L. Lachal, J. Chiaroni and F. Perrin (CEA)
- **1031** Real-Time Observation of Initial Thermal Oxidation on Si(110)-16x2 Surface by Photoemission Spectroscopy - M. Suemitsu (Tohoku Univ.), A. Kato, H. Togashi, A. Konno, Y. Yamamoto (Tohoku University), Y. Teraoka, A. Yoshigoe (JAEA) and Y. Narita (Kyushu Institute of Technology)

E3 Atomic Layer Deposition Applications 2

Dielectric Science and Technology

Universal 12, 1st Floor, Expo Center

Progress in ALD Equipment and Processing
Co-Chairs: S. B. Kang and M. Schaekers

10:00 **1060** Recent Trends on the ALD Technology for ULSI Device Fabrication - K. Lee, S. Lee and S. Kim (Integrated Process System Ltd.)

10:30 **1061** ALD Technology - Present and Future Challenges - S. Haukka (ASM Microchemistry)

11:00 **1062** High Performance ALD Reactor for High-k Films - J. Dalton, H. Kim, Z. Zhang, T. Seidel, Z. Karim and S. Ramanathan (Aixtron-Genus)

11:20 **1063** Comparison of ALD of HfO_2, SiO_2, and $HfSiO_x$ Thin Films Using Various Metal/Silicon Alkylamide Precursors and O_3 - Y. Senzaki (Rohm and Haas Electronic Materials), L. Bartholomew, C. Barelli, J. Owyang (AVIZA Technology), D. Shenai and C. Marsman (Rohm and Haas Electronic Materials)

11:40 **1064** Silicon Nitride Molecular Layer Deposition Process Development using Dichlorosilane and Ammonia - D. L. O'Meara (TEA), K. Hasebe (TEL), A. Dip (TEA), S. Maku (TEL), K. Matsushita, R. Mo, P. Higgins, M. Chudzik (IBM), M. Gribelyuk (IBM SRDC East Fishkill) and L. Tai (IBM)

Emerging ALD Applications II
Co-Chairs: J. Elam and E. Kessels

14:00 **1065** Atomic Layer Deposition on Biological Macromolecules: Metal Oxide Coating of Tobacco Mosaic Virus, Ferritin and DNA - M. Knez (MPI-MSP Halle), A. Kadri, C. Wege (University of Stuttgart), U. Gosele (Max-Planck-Institute of Microstructure Physics), H. Jeske (University of Stuttgart) and K. Nielsch (Max-Planck-Institute of Microstructure Physics)

14:30 **1066** Fabrication and Characteristics of TiO_2 Nanotubes Using Atomic Layer Chemical Vapor Deposition (ALCVD) - J. Kim, D. Cha, B. Lee, M. Kim (University of Texas at Dallas), S. Won, H. Shin and J. Lee (Kookmin University)

14:50 **1067** Area Selective Atomic Layer Deposition of Titanium Dioxide - D. W. Hess, A. Sinha and C. Henderson (Georgia Institute of Technology)

Emerging ALD Applications III
Co-Chairs: S. De Gendt and C. Summers

15:30 **1068** Transparent Conducting Oxides at High Aspect Ratios by ALD - M. J. Pellin, J. Elam (Argonne National Laboratory), A. Martinson and J. Hupp (Northwestern University)

16:00 **1069** Atomic Layer Deposition of Electrocatalytic Platinum for Solid Oxide Fuel Cells - S. F. Bent and X. Jiang (Stanford University)

16:30 **1070** Synthesis and Properties of ZrO_2-In_2O_3 Overlayers by ALD on the Porous SOFC State-of-the Art Cathode - M. Cassir, C. Brahim and A. Ringuede (ENSCP)

16:50 **1071** Nucleation and Growth of Noble Metals on Oxide Surfaces Using Atomic Layer Deposition - J. Elam, A. Zinovev, J. Hryn and M. J. Pellin (Argonne National Laboratory)

17:10 Concluding Remarks (10 Minutes)

Universal Ballroom, 2nd Floor, Expo Center

Tuesday Evening Poster Session, 19:00-21:00
Co-Chairs: J. Elam and A. Londergan

- **1072** Effect of Process Pressure on Atomic Layer Deposition of Al_2O_3 - M. Li, Y. Chang, H. Wu, C. Huang, J. Chen, J. Lue and S. Chang (Promos Technologies Inc.)
- **1073** Crystallization of Amorphous Si Thin Films Using Sub-nm Nickel Oxide Thin Layers Deposited by Atomic Layer Deposition - K. An, W. Cho (Korea Research Institute of Chemical Technology), B. So, Y. You, J. Hwang (Hongik University), S. Lee, T. Chung and C. Kim (Korea Research Institute of Chemical Technology)
- **1074** Atomic Layer Depositon of TiO_2 Thin Films Using NH_3 Gas - S. Kwon, Y. Jin and S. Kang (Korea Advanced Institute of Science and Technology)
- **1075** Radical-Assisted Silcore(TM)CVD of Si_3N_4 and SiO_2 Nanolaminates - P. R. Fischer (ASM Belgium), E. Oosterlaken, B. Bozon and P. M. Zagwijn (ASM Europe B.V.)
- **1076** Optimization of Plasma Enhanced Atomic Layer Deposition Processes for Oxides, Nitrides and Metals in the Oxford Instruments FlexAL Reactor - C. Hodson (Oxford Instruments Plasma Technology), N. Singh (Oxford Instruments), S. Heil (Eindhoven University of Technology), H. Hemmen and E. Kessels (TU Eindhoven)
- **1077** Atomic Layer Deposition of Al_2O_3/NiO/Al_2O_3 Laminate Structures for Nonvolatile Memory Device Applications - K. An, W. Cho, S. Lee, T. Chung, Y. Lee, C. Kim (Korea Research Institute of Chemical Technology), Y. You and J. Hwang (Hongik University)
- **1078** Enhancement of Dielectric Properties in Hf-Al-O Films Deposited by Plasma-Enhanced Atomic Layer Deposition - P. Park and S. Kang (Korea Advanced Institute of Science and Technology)
- **1079** Improvement of the Surface Morphology and the Crystallinity of PEALD-$SrTiO_3$ Thin Films by Inserting SrO Interlayer on Ru Bottom Electrodes - J. Kim, J. Ahn (Korea Advanced Institute of Science and Technology), J. Kim, S. Yeom, J. Roh (Hynix Semiconductor Incorporated) and S. Kang (Korea Advanced Institute of Science and Technology)
- **1080** Optical Properties of AlTiO Films Grown by PEALD - J. Lim, S. Yun and H. Kim (ETRI)
- **1081** WN_x Film Prepared by Atomic Layer Deposition using F-Free BTBMW and NH_3 Plasma Radical for ULSI Applications - D. You (IPS Ltd.), S. Kim (Integrated Process System Ltd.), K. Lee, S. Lee and T. Seo (IPS Ltd.)
- **1082** Characteristics of ZrAlO Films Deposited by Plasma Enhanced Atomic Layer Deposition - S. Yun, J. Lim and H. Kim (ETRI)
- **1083** Selective Atomic Layer Deposition of ZrO_2 and Cu Using Soft Lithography - J. Kim, B. Lee (University of Texas at Dallas), S. Lee, H. Shin and J. Lee (Kookmin University)

E4 High Dielectric Constant Gate Stacks 4

Dielectric Science and Technology / Electronics and Photonics

Universal Ballroom, 2nd Floor, Expo Center

Tuesday Evening Poster Session, 19:00-21:00

- **1096** The Improvement in Dielectric Characteristics and Reliability of Atomic-Layer-Deposited HfO_2 Thin Films by In-Situ NH_3 Injection - J. Kim, T. Park, M. Cho, M. Seo, J. Jang and C. Hwang (Seoul National University)
- **1097** Development of a Selective Tantalum Carbide Etchant - J. S. Starzynski (Honeywell International)
- **1098** Evaluation of TSA for $HfSiO_x$ Film Deposition - C. Dussarrat, I. Suzuki and K. Yanagita (Air Liquide Laboratories)
- **1099** Towards the Fabrication of Ultra-Thin SOI on Si (001) using Epitaxial Oxide and Epitaxial Semiconductor Growth Processes - D. Lichtenwalner, J. Hydrick, V. Vankova and A. Kingon (North Carolina State University)
- **1100** Abstract withdrawn

E5 Chemical Mechanical Polishing 8

Dielectric Scie nce and Technology

Universal 20, 1st Floor, Expo Center

CMP Session 4
Co-Chairs: R. Rhoades and D. Duquette

08:00 **1148** Issues Surrounding Use of Small Wafers to Study the Frictional, Thermal and Kinetic Attributes of CMP Processes - A. Philipossian (University of Arizona), Y. Zhuang and L. Borucki (Araca Inc.)

08:40 **1149** Analysis of Pre- and Post-Conditioned Polyurethane CMP Pad Surfaces as a Function of Conditioning Temperature - A. Prasad, H. Xiang, J. Wang and E. E. Remsen (Cabot Microelectronics Corp.)

09:00 **1150** Design and Evaluation of Novel Pad Grooves for Copper CMP - D. Rosales-Yeomans, D. DeNardis (University of Arizona), L. Borucki (Araca Inc.) and A. Philipossian (University of Arizona)

09:20 **1151** Analysis of Pads with Slanted Grooves for Copper CMP - D. Rosales-Yeomans, D. DeNardis (University of Arizona), L. Borucki (Araca Inc.), T. Suzuki (Toho Engineering Co, LTD.) and A. Philipossian (University of Arizona)

09:40 **1152** Studies of the Mechanical Properties of CMP Pads - B. Kim (Purdue University), M. Tucker (Purdue Univeristy), J. Kelchner (Zeeko Technology) and S. Beaudoin (Purdue University)

CMP Session 5
Co-Chairs: Y. Li and A. Philipossian

10:00 **1153** Evolution of CMP Technology for New Applications and Materials - R. L. Rhoades (Enterpix, Inc.)

10:40 **1154** Challenges in Ultra Low-K CMP - V. Desai (New Mexico State University)

11:00 **1155** Effect of Slurry Characteristics on the Surface Tribology During Copper CMP Process - S. R. Mudhivarthi, V. Kakireddy, A. Kumar (University of South Florida) and Y. Obeng (Texas Instruments)

11:20 **1156** Yield Improvement through Optimized Pad Conditioning for CMP Applications - B. G. Basim and S. Kincal (Texas Instruments)

11:40 **1157** Next Generation STI Slurries and Chemical Endpoint for 45 nm Node Technology - B. L. Mueller (Rohm and Haas Electronic Materials), P. Flanagan, S. Lane, S. Lawing and K. Lindemann (Rohm and Haas)

CMP Session 6
Co-Chairs: V. Desai and J. Moon

14:00 **1158** Mechanisms of Corrosion and Its Prevention in Post-CMP Processing of Copper Interconnects - G. Banerjee, D. Tamboli and R. Madhukar (Air Products & Chemicals)

14:40 **1159** Effects of Abrasive Size and Concentration with An-ionic Surfactant on the Non-Prestonian Behavior of Ceria Slurry in STI-CMP - H. Kang, J. Kim (Hanyang University), H. Park (Hynix Semiconductor Inc.), U. Paik and J. Park (Hanyang University)

15:00 **1160** Surface Characterization and Flow Resistance Estimates for CMP Pads - T. Sun (University of Arizona), L. Borucki, Y. Zhuang (Araca Inc.), D. Marks, T. Clark (Psiloquest) and A. Philipossian (University of Arizona)

15:20 **1161** Nanotopography Impact of Surfactant Concentration and Molecular Weight of Nano-ceria Slurry on Oxide Removal Rate and Remaining Oxide Thickness Variation after STI CMP - J. Park, H. Kang, K. Park, U. Paik and J. Park (Hanyang University)

CMP Session 7
Co-Chairs: K. Maex and K. Lindemann

16:00 **1162** Composite Polymer Core - Silica Shell Abrasive Particles during Oxide CMP: a Defectivity Study - S. Armini (IMEC/KU Leuven), C. Whelan and K. Maex (IMEC)

16:40 **1163** Profile Measurements of Micro-Scratches Remaining on Polished Si(001) Wafers - T. Shigetoshi, K. Arima, H. Inoue, T. Kawashima, T. Hirokane, T. Kataoka and M. Morita (Osaka University)

17:00 **1164** Tuning the Removal Rate of Carbon Doped Oxide during Chemical Mechanical Polishing - Z. Liu and J. Bian (Rohm and Haas Electronic Materials, CMP Technologies)

17:20 **1165** Integrating a CMP Robust ILD Module - J. J. Naughton and J. M. Towner (AMI Semiconductor)

E6 Bioelectronics, Biointerfaces, and Biomedical Applications 2

Dielectric Science and Technology / Sensor

Universal 21, 1st Floor, Expo Center

Functionalization: Carbon
Co-Chairs: R. Penner and R. Rinaldi

08:00 **1175** Electronic and Optical Devices Based on Purified Biofunctionalized Carbon Nanotubes - M. C. Hersam (Northwestern University)

08:40 **1176** Self Assembled Carbon Nanotubes and Electronic Functionality - C. S. Ozkan (University of California)

09:20 **1177** DNA and Peptide Immobilization on Polycrystalline Boron Doped Diamond Electrodes - S. Szunerits (INPG), R. Boukherroub (Interdisciplinary Research Institute (IRI)), D. Delabouglise, B. Marcus and M. Mermoux (INPG)

09:40 Intermission (20 Minutes)

Functionalization: Novel Platforms
Co-Chairs: A. Alam and Y. Yap

10:00 **1178** IFBMs: A Toolkit for Manipulating Material-Biological Interactions - M. Grinstaff (Boston University)

10:40 **1179** Functional Tethered Bimolecular Lipid Membranes - A Novel Model Membrane Platform - W. Knoll, I. Koeper and R. Naumann (Max Planck Institute for Polymer Research)

11:20 **1180** ssDNA Immobilization on well Defined Functionalized Si(111) Surfaces - C. Henry de Villeneuve (CNRS -Ecole Polytechnique), C. Douarche, B. Lama, A. Gouget-Laemmel, A. Moraillon, F. Ozanam, P. Allongue and J. Chazalviel (CNRS - Ecole polytechnique)

11:40 **1181** Immobilization of Laccase on Conducting Substrates by Zirconium--Phosphonate-Carboxylate Coordination Chemistry - P. Krysinski (University of Warsaw), M. Mazur, A. Michota-Kaminska, J. Bukowska (University of Warsaw) and J. Rogalski (Maria Curie-Sklodowska University)

New Microarray Techniques
Co-Chairs: R. Schasfoort and W. Knoll

14:00 **1182** Tailor-Made Surfaces for High-Throughput Microarray Analysis - J. Ruehe, T. Neuman, G. Dahme, D. Freidank, H. Klapproth, M. Reimann, R. Toomey, A. Woerz and O. Prucker (University of Freiburg)

14:40 **1183** Carbon Nanotube Based Nanoelectrode Array for Biomedical Applications - M. Meyyappan, J. Li and A. Cassell (NASA Ames Research Center)

15:20 **1184** Interfacing Neurons and Electronic Devices - A. Offenhaeusser (Forschungszentrum Julich)

15:40 Intermission (20 Minutes)

Electrical Biosensors
Co-Chairs: C. Kranz and M. Reed

16:00 **1185** Metal-Gap-Semiconductor Sensing Devices for DNA Solutions - T. Hirokane, H. Hashimoto, D. Kanzaki, S. Urabe and M. Morita (Osaka University)

16:20 **1186** Metal Ion-DNA Interactions on Surfaces: Kinetics and Sensing Perspectives - H. Yu (Simon Fraser University)

16:40 **1187** Analysis of Sensitivity and Scaling of Charge-Sensitive BioFETS using Computationally Efficient Approximations and the Charge-Sheet Model - D. Landheer, W. Jiang, G. Aers and R. McKinnon (National Research Council of Canada)

Universal Ballroom, 2nd Floor, Expo Center

Tuesday Evening Poster Session, 19:00-21:00

- **1188** Capacitance and Open Circuit Potential on Semiconductor Electrodes: Further Evidence of a Strong Dependence with Protein Adsorption - G. Pilar, F. Oliva, L. Avalle and O. Camara (INFIQC Universidad Nacional de Cordoba)
- **1189** Bioelectrochemical Oxidation of D-Limonene in Reactors with Immobilized Peroxidase and Electrochemical Hydrogen Peroxide Generation - C. La Rotta, D. Werberich and E. D'Elia (Federal University of Rio de Janeiro)
- **1190** Spatio-Temporal Oscillations in Biological Molecules: 4. Molybdate - Flavin Adenine Dinucleotide Interaction - C. Krishnan, M. Garnett (Garnett McKeen Laboratory, Inc.) and B. Chu (State University of New York at Stony Brook)

E7 High Purity Silicon 9

Electronics and Photonics

Universal 13, 1st Floor, Expo Center

Oxygen, Nitrogen, and Hydrogen in Silicon II
Co-Chairs: K. Suoeka and D. Yang

08:20 **1216** Hydrogen-Related Donor Formation: Fabrication Techniques, Characterization, and Application to High-Voltage Superjunction Transistors - H. Schulze (Infineon Technologies AG), M. Buzzo (Infineon Technologies Austria AG), F. Niedernostheide (Infineon Technologies AG), M. Rueb, H. Schulze (Infineon Technologies Austria AG) and R. Job (University of Hagen)

09:00 **1217** Hydrogen Gettering and Platelet Formation in Implanted and Hydrogenated Silicon - R. Job (University of Hagen), W. Duengen (University Hagen), Y. Ma (IMEC), W. Fahrner (University Hagen), L. Keller, J. Horstmann and H. Fiedler (University Dortmund)

09:20 **1218** Precise Control of Annealed Wafer For Nanometer Devices - Y. Matsushita, H. Nagahama and R. Ta keda (Toshiba Ceramics Co. Ltd.)

09:40 Intermission (20 Minutes)

Point Defects, Stress, and Device Performance
Co-Chairs: M. Kittler and P. Wilshaw

10:00 **1219** Ab-Initio Calculations of the Energetics and Kinetics of Defects and Impurities in Silicon - W. Windl (The Ohio State University)

10:40 **1220** Lateral Incorporation of the Intrinsic Point Defects in Czochralski Silicon Crystals - M. S. Kulkarni and V. V. Voronkov (MEMC Electronic Materials)

11:00 **1221** Mechanical Stress and Defect Formation in Device Processing - M. Polignano, G. Carnevale, P. Fantini and I. Mica (ST Microelectronics)

11:20 **1222** Simulation of Slip during High-Temperature Annealing of Silicon Wafers in Vertical Furnaces - P. Gupta (MEMC Electronic Materials, Inc.) and M. S. Kulkarni (MEMC Electronic Materials)

11:40 **1223** Effects of Annealing on the Electrical Properties of Nitrogen-Doped Float-Zoned Silicon - V. V. Voronkov (MEMC Electronic Materials), G. Voronkova, A. Batunina (Institute of Rare Metals), R. Falster, L. Moiraghi (MEMC Electronic Materials) and M. Milvidski (Institute of Rare Metals)

Metallic Contamination and Gettering
Co-Chairs: O. Anttilla and B. Kolbesen

14:00 **1224** Improvement of Silicon Carrier Lifetimes by Impurity Gettering as Measured Using Cathodoluminescence - P. R. Wilshaw, K. J. Fraser, D. Stowe (University of Oxford), R. Falster (MEMC Electronic Materials), S. Galloway (Gatan UK) and S. Senkader (University of Oxford)

14:40 **1225** Analysis of the Segregation Phenomena of Copper in P/P+ Epitaxial Silicon Wefers - K. Nakamura (Komatsu Electronic Metals Co.,Ltd.), H. Iga and J. Tomioka (Komatsu Electronic Metals Co.)

15:00 **1226** Reducing Iron in Single Crystal Silicon grown using CZ process - H. Sreedharamurthy (MEMC Electronics Materials Inc)

15:20 **1227** Modeling and Optimization of Internal Gettering of Iron in Silicon - A. Haarahiltunen, H. Vainola, M. Yli-Koski, J. Sinkkonen (Helsinki University of Technology) and O. Anttila (Okmetic Oyj)

15:40 Intermission (20 Minutes)

16:00 **1228** Performance-Limiting Oxygen-Related Defects in Silicon Solar Cells - J. Schmidt (Institut fur Solarenergieforschung Hameln/ Emmerthal (ISFH)) and K. Bothe (Institute for Solar Energy Research (ISFH))

16:40 **1229** Proof of Interstitial Cobalt Defects in Silicon Float Zone Crystals Doped During Crystal Growth - H. Lemke (Technische Universitaet Berlin) and K. Irmscher (Institute for Crystal Growth)

17:00 **1230** Quantitative Evaluation on Gettering Efficiency in p-Type Silicon using a Stable 65Cu Isotope - K. Kim (Siltron Inc.) and S. Park (Pohang University of Science and Technology)

E8 Integrated Optoelectronics 3

Electronics and Photonics / Dielectric Science and Technology
Universal 16, 1st Floor, Expo Center

Integrated Optoelectronics I
Co-Chairs: J. Wilkinson and B. Ooi

08:30 **1257** VLSI Photonic Circuit Integration on Optical Printed Circuit Boards (O-PCBs) and Chips - E. Lee (INHA University)

09:00 **1258** Wafer Bonding of Magneto-Optic Garnet and its Application to Waveguide Optical Devices - T. Mizumoto, S. Hideki, S. Kazumasa and S. Yuya (Tokyo Institute of Technology)

09:30 **1259** Monolithically Integrated Large-Size Twin Ring Diode Lasers with Quantum-Well and Quantum-Dot Active Regions - M. Osinski, H. Cao, N. Withers, D. Dei, P. Eliseev and G. Smolyakov (University of New Mexico)

Integrated Optoelectronics II
Co-Chairs: M. Osinski and T. Mizumoto

10:30 **1260** Heteroepitaxy of InP on Silicon-on-Insulator for Optoelectronic Integration - F. K. Olsson, A. Aubert (KTH), M. Avella, J. Jimenez (ETSII), J. Berggren and S. Lourdudoss (KTH)

11:00 **1261** Optical Waveguide Tools for Microsystems - J. S. Wilkinson (University of Southampton)

11:30 **1262** Monolithic Integration of Photonic Devices Using Interdiffused Heterostructures - B. S. Ooi, H. S. Djie, Y. Wang, C. Dimas, D. Wang and J. Hwang (Lehigh University)

Integrated Optoelectronics III
Co-Chairs: G. Nordin and M. Willander

14:00 **1263** Integrated InP-based True Time Delay with Fiber Mode Adapter for Beamforming - F. Karouta (Technische Universiteit Eindhoven), F. Soares, E. Geluk, J. V. Zantvoort, H. de Waardt and M. Smit (TU Eindhoven)

14:30 **1264** Integration of Plasmonics with Photonic Crystal Waveguides -Novel Opportunities in Sensing - M. Skorobogatiy (Ecole Polytechnique de Montreal)

15:00 **1265** Demonstration of III-V Semiconductor/ Benzocyclobutene Optical Nanowires and Nanotapers - M. Carette (cnrs umr 8520), D. Lauvernier, J. Vilcot, D. Bernard and D. Decoster (IEMN)

Integrated Optoelectronics IV
Co-Chairs: P. Harrison and E. Lee

16:00 **1266** A Monolithically Integrated HgCdTe-Based Infrared Microspectrometer - A. J. Keating, J. Dell, C. Musca and L. Faraone (The University of Western Australia)

16:30 **1267** Two Dimensional Photonic Crystals in InP-Based Materials - S. Anand (Royal Institute of Technology)

17:00 **1268** Processing and Characterization of Hydrothermally Grown ZnO - E. Monakhov, T. Borseth, U. Grossner, J. Christensen, K. Maknys, B. Svensson and A. Kuznetsov (University of Oslo)

Universal Ballroom, 2nd Floor, Expo Center

Tuesday Evening Poster Session, 19:00-21:00

- **1269** Tuning the Electronic Properties of Self-Assembled InAs/InP(001) Quantum Dots - C. Dion (Ecole Polytechnique de Montreal), P. Desjardins (Regroupement Quebecois sur les Matériaux de pointe, École Polytechnique de Montreal), F. Schiettekatte, M. Chicoine (Regroupement Quebecois sur les Materiaux de pointe, Université de Montréal), P. Poole (Institut des Sciences des Microstructures, Conseil National de Recherches du Canada) and S. Raymond (Institut des Sciences des Microstructures, Conseil National de Recherches du Canada)

E9 Multifunctional Carbon Materials for Electrochemical and Electronic Applications

Physical and Analytical Electrochemistry / Fullerenes, Nanotubes, and Carbon Nanostructures / Dielectric Science and Technology / Energy Technology / Battery / Industrial Electrolysis and Electrochemical Engineering

Universal Ballroom, 2nd Floor, Expo Center

Tuesday Evening Poster Session, 19:00-21:00
Chair: G. Swain

- **1280** New Chemical Sensors and UV Detectors Based on Q-DLTS Signal Measurements - V. Polyakov, A. Rukovishnikov, A. Mityagin (Institute of Radio Engineering & Electronics, RAS) and B. Druz (Veeco Instruments Inc.)
- **1281** Abstract 1281 has been moved to Thursday at 11:40.
- **1282** Chemical Attachment of Single-Wall Carbon Nanotubes to an Amino-Terminated Self-assembled Monolayer on Polycrystalline Platinum Surfaces - B. I. Rosario (University of Puerto Rico), E. Contes (University of Puerto Rico, Rio Piedras Campus), M. Perez-Davis (NASA Glenn Research Center) and C. Cabrera (University of Puerto Rico, Rio Piedras Campus)
- **1283** Electrochemical Response of BDD/IrOx in Presence of As (III), Sb (III), Pb (II) and Cd (II) - M. M. Davila Martin Marino (Universidad Autonoma De Puebla), J. Mattusch and R. Wennrich (Centre for Environmental Research)
- **1284** Electrochemical Study and Preparation of Gold Substrates Functionalized with Single-Walled Carbon Nanotubes for DNA Biosensor Application - L. Santiago (University of Puerto Rico Rio Piedras Campus) and C. Cabrera (University of Puerto Rico, Rio Piedras Campus)

E10 Wide Bandgap Semiconductor Materials and Devices 7

Electronics and Photonics / Sensor

Universal Ballroom, 2nd Floor, Expo Center

Tuesday Evening Poster Session, 19:00-21:00
Co-Chairs: E. Stokes, J. Bardwell, R. Fitch, D. Merfeld, P. Shen and J. Han

- **1303** Heteroepitaxial Growth of 3C-SiC(111) on Si(110) Substrate Using Monomethylsilane - A. Konno (Tohoku University), Y. Narita (Kyushu Institute of Technology), T. Itoh (Tohoku University), K. Yasui (Nagaoka Univ. of Technology), H. Nakzawa (Hirosaki University), T. Endoh and M. Suemitsu (Tohoku Univ.)
- **1304** Homoepitaxial Growth of Vanadium Doped Semi-Insulating 4H-SiC by Bis-Trimethylsilylmethane and Bis-Cyclopentadienylvanadium Precursors - H. Song, J. Heo, H. Seo, J. Moon, J. Yim, J. Lee, S. Kwon, Y. Ahn and H. Kim (Seoul National University)
- **1305** Electrical Characterization of Novel GaN Light Emitting Diodes with II-VI Quantum Dot Active Layers - K. N. Patel, E. B. Stokes, J. Pagan, C. C. Burkhart and P. Barletta (University of North Carolina at Charlotte)
- **1306** Ionization of Acceptors in Be-Doped $Al_{0.42}Ga_{0.58}N$ with IR Optical Pumping - M. D. Hodge, E. B. Stokes and P. Batoni (University of North Carolina at Charlotte)
- **1307** Surface Study of P-Type MBE Gallium Nitride Growth over CdSe Quantum Dots - C. C. Burkhart, C. C. Burkhart, K. N. Patel, J. Pagan, P. Barletta and E. B. Stokes (University of North Carolina at Charlotte)

E11 Science and Technology of Dielectrics for Active and Passive Devices

Dielectric Science and Technology

Universal Ballroom, 2nd Floor, Expo Center

Tuesday Evening Poster Session, 19:00-21:00
Co-Chairs: K. Worhoff and P. Mascher

- **1334** Dielectric Relaxation in PbF_2 - Doped and X-Irradiated CaF_2 Crystals - I. Nicoara, M. Munteanu, N. Pecingina-Garjoaba, M. Stef and L. Lighezan (West University of Timisoara)
- **1335** Ultra-Fast All-Optical Wavelength Conversion in Silicon Waveguides using Femtosecond Pulses - R. Dekker, R. Dekker (University of Twente), J. Niehusmann, M. Foerst (RWTH Aachen) and A. Driessen (University of Twente)
- **1336** Resistive Switching in $Pt/Al_2O_3/TiO_2/Ru$ Stacked Structures - K. Kim, B. Choi, B. Koo, S. Choi and C. Hwang (Seoul National University)

- **1337** Structure and Electrical Properties of Reactively rf-Sputtered nc-TiO2-Delta (-0.04 < or Equal to Delta < or Equal to 0.2) Thin Films - D. M. Comedi (CONICET), M. Villafuerte, G. Juarez and S. Heluani (Universidad Nacional de Tucuman)
- **1338** Demonstration for Short PLC-Based Network Construction of Low-Loss High-Amount-Port Nonblocking Matrix Switches - D. Sun (Changchun Institute of Optics), Y. Zha (Tianjin University), Y. Zhang, X. Li, W. Deng (Changchun Institute of Optics) and X. Fu (Changchun University of Science and Technology)

E12 Semiconductor Wafer Bonding 9: Science, Technology, and Applications

Electronics and Photonics

Universal 22, 1st Floor, Expo Center

Wafer Bonding for Advanced Device Applications I
Co-Chairs: B. Faure and K. Hobart

08:00 **1352** Can Three-Dimensional Devices Extend Moore's Law Beyond the 32 nm Technology Node? - M. Orlowski and A. Wild (Freescale Semiconductor)

08:40 **1353** New Heterostructures and 3D Devices Obtained at CEA/LETI by the Bonding and Thinning Method - L. Di Cioccio (CEA)

09:20 **1354** Automotive Semiconductor Devices Using Bonded SOI Wafers - S. Fujino and H. Himi (Denso Corporation)

09:40 Intermission (20 Minutes)

Advanced Materials
Co-Chairs: R. Knechtel and T. Suga

10:00 **1355** New Generation of Structures Obtained by Direct Wafer Bonding of Processed Wafers - B. Aspar and C. Lagahe-Blanchard (TRACIT Technologies)

10:40 **1356** Sequential Activation Process of O_2 RIE and N_2 Radical for $LiTaO_3$ and Si Wafer Bonding - Y. Zikuhara, E. Higurashi (The University of Tokyo), N. Tamura (KOIKE co.,LTD) and T. Suga (The University of Tokyo)

11:00 **1357** Strained Silicon via Plasma Enhanced dTCE Bonding - S. Sood and R. Belford (Belford Research Inc.)

11:20 **1358** Highly-Strained Silicon-on-Insulator Development - T. Akatsu (SOITEC), J. Hartmann (CEA-LETI), C. Aulnette, Y. Le Vaillant (Soitec S.A.), D. Rouchon (CEA-LETI), A. Abbadie (SOITEC), Y. Bogumilowicz (CEA-LETI), L. Portigliatti, C. Colnat, N. Boudou, F. Lallement, F. Triolet, C. Figuet, M. Martinez, P. Nguyen, C. Delattre, K. Tsyganenko (Soitec S.A.), C. Berne (Soitec), F. Allibert (Soitec S.A.) and C. Deguet (CEA-LETI)

11:40 **1359** Evolution of Lattice Strain in Hydrogen-Implanted Silicon Prior to Layer Splitting: an X-Ray Scatter ing Study - L. Capello (CEA), F. Rieutord (CEA Grenoble), A. Tauzin, F. Mazen (CEA-LETI Grenoble), N. Sousbie and F. Letertre (SOITEC)

12:00 **1360** InAs on Insulator by Hydrogen Implantation and Exfoliation - S. L. Hayashi, A. Noori (University of California, Los Angeles), A. Cavus, A. Gutierrez-Aitken (Northrop Grumman Space Technology) and M. S. Goorsky (UCLA)

Low Temperature/ Plasma Wafer Bonding
Co-Chairs: B. Aspar and J. Raskin

14:00 **1361** Low Temperature Void Free Hydrophilic or Hydrophobic Silicon Direct Bonding - F. Fournel (CEA-DRT-LETI), H. Moriceau (CEA DRT LETI DIHS/LTFC) and R. Beneyton (CEA-DRT-LETI)

14:20 **1362** Plasma Activated Wafer Bonding of Silicon: in Situ and Ex Situ Processes - V. Dragoi and P. Lindner (EV Group)

14:40 **1363** Cu-Cu Room Temperature Bonding - Current Status of Surface Activated Bonding (SAB) - T. Suga (The University of Tokyo)

15:00 **1364** Low Temperature Bonding of PECVD Silicon Dioxide Layers - P. T. Baine, M. Bain (Queens University of Belfast), D. McNeill, H. Gamble (Queen's University of Belfast) and M. Armstrong (Queens Univeristy)

15:20 Intermission (20 Minutes)

15:40 **1365** Atmospheric Plasma Conditions Compatible with Wafer to Wafer Bonding Strategies - S. N. Farrens (Suss MicroTec) and M. Gabriel (SUSS MicroTec Lithography GmbH)

16:00 **1366** Comparison of Plasma Assisted Low-Temperature Hydrophobic and Hydrophilic Wafer Bonding - M. Breninford, D. Bailey, H. Ikram, C. Colinge and S. Holl (CSUS)

16:20 **1367** Plasma Activated Wafer Bonding as an Alternative to Standard Wafer Bonding Processes - V. Dragoi, T. Matthias, G. Mittendorfer and P. Lindner (EV Group)

16:40 **1368** Sequential Plasma Activation Process for Silicon Direct Bonding - M. R. Howlader (McMaster University), H. Itoh, T. Suga (The University of Tokyo) and M. Kim (University of Texas at Dallas)

E13 SiGe and Germanium: Materials, Processing, and Devices

Electronics and Photonics

Galactic 1, Conference Center, Sunrise

SiGe HBT Technologies
Co-Chairs: G. Niu and K. Washio

08:00 **1439** Pushing the Performance Limits of SiGe HBTs - M. H. Khater (IBM T. J. Watson Research Center)

08:30 **1440** Prospects for SiGeC HBT BiCMOS on thin-film SOI - A. Chantre (STMicroelectronics)

09:00 **1441** Self-Sligned SiGe HBT Based on Combined Dry and Wet Etching - D. Liu (Tsinghua University), S. Xu (SWID) and Y. Hao (Xidian University)

09:20 **1442** Manufacturing Control and Optimization of SiGe(C) HBT Epitaxial Growth - N. Zhang, P. Tan, C. Sinn, A. Rodriquez, G. Prando, C. Nguyen, M. Fung, L. Safran, G. Lehman, S. Gausepohl, J. Mase and N. Bell (Philips Semiconductors Fishkill)

09:40 **1443** 2D-TCAD Process Calibration for a High Speed QSA SiGe:C HBT Verified with SSRM - A. Sibaja-Hernandez, P. Eyben, S. Van Huylenbroeck, D. Vanhaeren, W. Vandervorst, S. Decoutere and H. Maes (IMEC)

Process-Induced Strain and Strain Modeling
Co-Chairs: S. Takagi and S. Bedell

10:15 **1444** Wafer-Level Stress in Combination with Process Induced Stress for Optimum Performance Enhancement - I. Cayrefourcq and A. Boussagol (SOITEC)

10:45 **1445** Strain Degradation in Strained-Si Layers Far Thicker Than the Critical Thickness Grown on Relaxed $Si_{0.65}Ge_{0.35}$ Layers - S. Kang (Siltron Inc.), H. Yuk, I. Kim, J. Lee, S. Lee, J. Shim (Siltron Inc. R&D Center) and B. Lee (LG Siltron)

11:05 **1446** Strain Control of Stripe Patterned $Si/Si_{1-x}Ge_x/Si$ Heterostructures - J. Uhm (Tohoku University), M. Sakuraba (Res. Inst. Electr. Com m., Tohoku Univ.) and J. Murota (RIEC, Tohoku University)

11:25 **1447** Strain Modeling in Advanced MOSFET Devices - S. Cea, T. Ghani, M. Giles, R. Kotlyar, P. Matagne, K. Mistry, B. Obradovic, R. Shaheed, L. Shifren, M. Stettler, S. Tyagi, X. Wang and C. Weber (Intel Corporation)

11:55 **1448** On the Influence of the Position-Dependence of Stress on Device Performance - F. M. Bufler and R. Gautschi (Synopsys Schweiz)

12:15 **1449** Analysis of Hole Transport in Arbitrarily Strained Germanium - G. Karlowatz (TU Wien), E. Ungersboeck (Institute for Microelectronics), H. Kosina (Technische Universitat Wien), W. Wessner (Institute for Microelectronics) and S. Selberherr (TU Wien)

Recessed SiGe Source/Drain for Locally Strained Si Channels
Co-Chairs: D. Sadana and M. Sakuraba

13:50 **1450** Selective Epitaxy of Si/SiGe to improve pMOS devices by recessed Source/Drain and/or Buried SiGe Channels - R. Loo, P. verheyen, R. rooyackers (IMEC), C. Walczyk (IMEC and Universitaet Siegen), F. Leys, D. Shamiryan, P. Absil, T. Delande, A. Moussa (IMEC), H. Weijtmans, R. Wise (Texas Instruments Inc.), V. Machkaoutsan (ASM-Belgium), C. Arena (ASM-America), J. McCormack, S. Passefort (KLA-Tencor Corporation), H. Sorada, A. Inoue (Matsushita Electric Industrial Co.), B. Lee, S. Hyun (Samsung Electronics Co.), S. Jakschik (Infineon Technologies AG) and M. R. Caymax (Imec)

14:20 **1451** Application of Selective Si:C Epitaxy For Recessed Source/Drain Technology - Y. Kim (Applied Materials), Z. Ye, A. Zojaji, E. Sanchez and S. Kuppurao (Applied Materials)

14:40 **1452** Facet Propagation in Si(Ge) Epitaxy or Etching - D. Dutartre, A. Talbot and N. Loubet (STMicroelectrinics)

15:10 **1453** In-Situ HCl Etching and Selective Epitaxial Growth of B-doped Ge for the Formation of Recessed and Raised Sources and Drains - J. Hartmann (CEA-LETI)

15:30 **1454** Novel Process Development for Bilayer Embedded SiGe Source/Drain Formation - Y. Miyanami, K. Ohta, T. Shinyama, Y. Owa, T. Katagiri, A. Horiuchi, Y. Hagimoto, K. Watanabe, T. Ikuta, S. Terauchi, K. Nagaoka, S. Fujita (Sony Corporation), H. Naruse, I. Mizushima (Toshiba Corporation), H. Iwamoto, N. Nagashima and S. Kadomura (Sony Corporation)

Ge-MIS Interfaces
Co-Chairs: S. Zaima and P. McIntyre

16:05 **1455** Ge and III/V as Enabling Materials for Future CMOS Technologies - M. Heyns, M. M. Meuris and M. R. Caymax (Imec)

16:35 **1456** Interface Layers for High-k/Ge Gate Stacks: Are They Necessary? - P. McIntyre, D. Chi, C. Chui (Stanford University), H. Kim (Sungkyunkwan University), K. Seo and K. Saraswat (Stanford University)

17:05 **1457** Low Temperature Surface Nitridation Processes for Dielectric-Ge Interfaces - H. J. Wadsworth, S. Bhattacharya, F. Ruddell, D. McNeill, N. Mitchell, M. Armstrong and H. Gamble (Queen's University of Belfast)

17:25 **1458** Characterization and Modeling of Atomically Sharp "Perfect" $Si:Ge/SiO_2$ Interfaces - W. Windl (The Ohio State University), T. Liang (University of Florida), S. Lopatin (FEI Company) and G. Duscher (North Carolina State University and Oak Ridge National Lab)

17:45 **1459** Effects of Interfacial Layers Formed by Plasma Oxidation and Nitridation on HfO_2/Ge-MIS Properties - T. Maeda (National Institute of Advanced Industrial Science and Technology (AIST)), Y. morita, M. nisizawa (MIRAI-AIST) and S. Takagi (The University of Tokyo)

E14 State-of-the-Art Program on Compound Semiconductors 45 (SOTAPOCS 45)

Electronics and Photonics

Universal 17, 1st Floor, Expo Center

SOTAPOCS Section III
Co-Chairs: F. Ren and J. Lin

08:00 **1537** Growth of GaN on Si Substrates - T. anderson, H. Park, S. Kang, J. Mangum (University of Florida), M. Mastro (Naval Research Lab) and O. Kryliouk (University of Florida)

08:30 **1538** Growth and Surface Reconstructions of GaN and AlN - C. Lee (Raytheon RF Components)

09:00 **1539** Approaches to Reduced-Defect Active Regions for III-N Devices - C. R. Eddy (U.S. Naval Research Laboratory), M. Mastro (Naval Research Lab), N. Bassim (U.S. Naval Research Laboratory), M. Twigg (Naval Research Lab), R. Henry (U.S. Naval Research Laboratory), R. Holm (Naval Research Lab), J. Culbertson, O. Glembocki (U.S. Naval Research Laboratory), J. D. Caldwell (Naval Research Lab), P. Neudeck (NASA Glenn Research Center), A. Trunek (OAI), J. Powell (Sest Inc.), M. Peckerar, Y. Ngu (University of Maryland), F. Yan and S. Babu (NASA Goddard Space Flight Center)

09:30 **1540** Functional One-Dimensional III-N Nanostructures: from Super-Photoconductors to DNA Sensors - L. Chen (National Taiwan University) and K. Chen (Academia Sinica)

10:00 Intermission (20 Minutes)

10:20 **1541** III-V Nanowires Grown by Metal-Organic Chemical Vapor Deposition for Optoelectronics Applications - H. Tan, Y. Kim, H. Joyce, Q. Gao, C. Jagadish (The Australian National University), M. Paladugu and J. Zou (The University of Queensland)

10:50 **1542** Microwave Wireless Power Transmission - A System Perspective - J. Lin, A. Verma, J. Kim, S. Ko, W. Wu, F. Ren, S. Jang (University of Florida) and S. J. Pearton (Materials Science and Engineering, University of Florida)

11:20 **1543** Oxide Dielectrics for Reliable Passivation of AlGaN/GaN HEMTs and Insulated Gates - B. Gila, M. Hlad, T. Anderson, J. Chen, K. Allums, A. Gerger, A. Herrero, S. Jang, B. Kang, C. R. Abernathy, F. Ren and S. J. Pearton (University of Florida)

SOTAPOCS Section IV
Co-Chairs: W. Johnson and J. LaRoche

14:00 **1544** The Influence of Device Processing on GaN HEMT Reliability - D. Katzer, J. Mittereder, S. Binari, D. Storm and J. Roussos (US Naval Research Laboratory)

14:30 **1545** Performance, Reliability, and Manufacturability of AlGaN/GaN High Electron Mobility Transistors on Silicon Carbide Substrates - J. D. Brown, S. Gibb, J. McKenna, M. Poulton, S. Lee, K. Gratzer, B. Hosse, T. Mercier, Y. Yang, M. Young, D. Green, R. Vetury and J. Shealy (RFMD)

15:00 **1546** Mechanisms of Enhanced Luminescence in Nanoscale Compositionally Inhomogeneous AlGaN - P. H. Shen, A. Sampath, G. Garrett and M. Wraback (US Army Research Lab)

15:30 Intermission (20 Minutes)

15:50 **1547** GaN High Efficiency Ultra-Violet LEDs Using Step-Free 4H-SiC Mesas - J. D. Caldwell, M. Mastro (Naval Research Lab), K. D. Hobart (The Naval Research Laboratory), O. Glembocki, C. R. Eddy, N. Bassim (U.S. Naval Research Laboratory), M. Tadjer, R. Holm (Naval Research Lab), R. Henry (U.S. Naval Research Laboratory), M. Twigg (Naval Research Lab), P. Neudeck (NASA Glenn Research Center), A. Trunek (OAI) and J. Powell (Sest Inc.)

16:20 **1548** Improvement in the Extraction Efficiency of AlGaInP and GaN Thin Film LEDs Via n-Side Surface Roughing - H. kuo (National Chiao-Tung University), T. Lu, Y. Lee, H. Huang and S. Wang (Department of Photonics, NCTU)

16:50 **1549** Hot Carrier Stress Effects of SiO_2 Passivated AlGaN/GaN High Electron Mobility Transistors - M. Ha, J. Park and M. Han (Seoul National University)

Universal Ballroom, 2nd Floor, Expo Center

Tuesday Evening Poster Session, 19:00-21:00

- **1550** Growth of High Quality ZnSe Epilayer on Si (100) - T. Yang, J. Ku (National Chiao Tung University), T. Yang (Academia Sinica), G. Luo (National Nano Device Laboratories), W. Chou and C. Chang (National Chiao Tung University)
- **1551** Intrinsic Paramagnetic Defects in GaNP Alloys Grown on Silicon - W. M. Chen, I. Vorona, I. Buaynova (Linkoping University), A. Utsumi, Y. Furukawa, S. Moon , A. Wakahara and H. Yonezu (Toyohashi University of Technology)
- **1552** Identification and Quantification of Impurities Critical to the Performance of Nitride Semiconductor Devices - R. Torres (Matheson Trigas), J. Chyi, G. Chen (National Central University, Taiwan), C. Wyse and J. Vininski (Matheson-Trigas, Inc.)
- **1553** Radio Frequency Sputter Deposition of Indium-Doped Iron Oxide Films for Photoelectrochemical Hydrogen Production - W. B. Ingler Jr, D. Sporar and X. Deng (University of Toledo)
- **1554** Electrochemical and Optical Properties of Radio Frequency Sputter-Deposited Cobalt Oxide Films - W. B. Ingler Jr, D. Attygalle and X. Deng (University of Toledo)

E15 Thin Film Transistors 8 (TFT8)

Electronics and Photonics

Universal 19, 1st Floor, Expo Center

Poly-Si TFTs from Laser Crystallization Processes
Co-Chairs: Y. Uraoka and S. Deane

08:00 **1566** Nanosecond Monitoring of Lateral Crystallization Dynamics Induced by ELA - Y. Takami (Shimadzu Corporation), T. Warabisako and M. Matsumura (Advanced LCD Tec. Development Center Co., Ltd.)

08:30 **1567** Analysis of the Hump Characteristics in Poly-Si Thin Film Transistor - S. KIM, J. Oh, J. Yang, M. Yang and I. Chung (LG.Philips LCD R&D Center)

08:50 **1568** Preferred <100> Surface and In-Plane Orientations in Self-Assembled Poly-Si by Multiple Excimer Laser Irradiation - M. HE (Delft University of Technology), R. Ishihara, W. Metselaar and K. Beenakker (Delft University of Technology, Delft Institute of Microelectronics and Submicron Technology (DIMES), Laboratory of Electronic Components, Technology and Materials (ECTM))

09:10 **1569** Crystallization of Double-Layered Silicon Thin Films by Solid Green Laser Annealing and Its Application to Low Temperature poly-Si Thin Film Transistors - Y. Sugawara, Y. Uraoka, H. Yano, T. Hatayama, T. Fuyuki (Nara Institute of Science and Technology) and A. Mimura (National Institute of Advanced Industrial Science and Technology)

09:30 Intermission (20 Minutes)

09:50 **1570** A Green Laser Crystallization of a-Si Films Using Preformed a-Si Lines - I. Brunets, J. Holleman (University of Twente), A. Y. Kovalgin (MESA+ Institute for Nanotechnology, University of Twente), T. Aarnink, A. Boogaard (University of Twente), P. Oesterlin (Innovavent GmbH) and J. Schmitz (MESA+ Institute for Nanotechnology, University of Twente)

10:10 **1571** The Role of Grain Boundaries on the Performance of Poly-Si TFTs - G. J. Papaioannou, G. J. Papaioannou (University of Athens) and D. Kouvatsos (NCSR Demokritos)

10:30 **1572** Poly-Si TFT Technology: Advances in Material, Process and Device Technology - A. Voutsas (Sharp Laboratories of America)

Poly-Si TFTs from Non-Laser Crystallization Processes
Co-Chairs: J. Daniel and T. Serikawa

11:00 **1573** Low-Temperature Crystallization of Amorphous Si Films Using Ferritin Protein with Ni Nanoparticles - Y. Uraoka (Nara Institute of Science and Technology)

11:30 **1574** A Simple Method for Gettering of Nickel within the NILC Polycrystalline Silicon Film Using alpha-Si / SiN_x Films - Y. S. Wu, C. Hou, C. Lin and C. Hu (National Chiao Tung University)

Co-Chairs: H. Hayama and J. Rogers

14:00 **1575** Molecular-Dynamics Simulations of Recrystallization Processes in Silicon: Nucleation and Crystal Growth in the Solid-Phase and Melt - T. Motooka (Kyushu University)

14:30 **1576** Ge Nuclei for Fabrication of Poly-Si Thin Films on Glass Substrates - K. Yasutake, H. Watanabe, H. Ohmi and H. Kakiuchi (Osaka University)

14:50 **1577** Analysis of Characteristics in Poly-Si Thin Film Transistor Crystallized by a New Alignment SLS Process - H. Kwang Sik, J. Yang, M. Yang, Y. Kim, T. Ahn (LG.Philips LCD) and I. Chung (LG.Philips LCD R&D Center)

TFTs on Flexible Substrates
Co-Chairs: A. Voutsas and T. Motooka

15:30 **1578** Single Crystal Inorganic Semiconductors for Flexible Thin Film Electronics - J. Rogers (University of Illinois)

16:00 **1579** The Road Toward Large-Area Electronics Without Vacuum Tools - J. Daniel, A. Arias, B. Krusor, R. Lujan and R. Street (Palo Alto Research Center)

16:30 **1580** Mist Deposition in TFT Technology - K. Shanmugasundaram, S. Price, K. Chang, D. Lee and J. Ruzyllo (The Pennsylvania State University)

16:50 **1581** Overlay Alignment in a-Si:H TFTs Fabricated on Foil Substrates - H. Gleskova, I. Cheng, S. Wagner (Princeton University) and Z. Suo (Harvard University)

17:10 **1582** 230 dpi AMPLED TFT VGA Display on Flexible Metal Foils and Row Drivers - M. Troccoli, T. Chuang, A. Hamshidi, P. Kuo, J. Spirko, M. Hatalis (Lehigh University), A. Voutsas, T. Afentakis and J. Hartzell (Sharp Laboratories of America)

Universal Ballroom, 2nd Floor, Expo Center

Tuesday Evening Poster Session, 19:00-21:00
Co-Chairs: Y. Kuo and S. Uchikoga

- **1583** Electrical Hysteresis Behavior of Low Temperature Polycrystalline Silicon Thin Film Transistors - D. Nam, H. Lee, S. Jung, T. Ahn, C. Kim, C. Kim (LG.Philips LCD) and I. Chung (LG.Philips LCD R&D center)
- **1584** Excimer Laser Crystallization of Amorphous Silicon Film with Artificially Designed Spatial Intensity Profile Beam - E. Kim, K. Kim (Seoul National University), M. Ryu, H. Kwon, C. Kim, G. Son and J. Lee (Boe Hydis Technology)
- **1585** The Analysis of the Poly-Si TFTs with Counter-Doped Lateral Body Terminal - S. Han, H. Shin, J. Park, S. Choi and M. Han (Seoul National University)
- **1586** Poly-Si Thin Fim Transistor with Multiple Nanowire Channels Prepared by Excimer Laser Annealing - P. Yang, C. Meng, M. Tsai and S. Lee (National Taiwan University)
- **1587** High-Performance Low Temperature Poly-Silicon Thin Film Transistors Fabricated by Excimer Laser Irradiation with Bottom-Gate Structure - C. Tsai, H. Chen, B. Chen and H. Cheng (National Chiao Tung University)
- **1588** Deposition of Highly Crystallized Poly-Si Thin Films on Polymer Substrates Using Pulsed-Plasma CVD under Near-Atmospheric Pressure - M. Matsumoto, M. Suemitsu (Tohoku University), T. Yara, N. Setsuo, U. Tuyoshi (Sekisui Chemicals Co. Ltd) and T. Yasutake (ETRI, AIST, Tsukuba)
- **1589** Novel Characterization Technique for Oxidation Processes - Y. V. Sokolov (Fairchild Semiconductor)
- **1590** Design, Fabrication and Characterization of Parylene-Packaged Thin-Film Transistors - H. Lo and Y. Tai (California Institute of Technology)
- **1591** The Abnormal Degradation Behavior of ZnO TFT Under Gate Bias Stress - C. Hwang, S. Ko Park, S. Chung, J. Lee, Y. Yang, L. Do and H. Chu (ETRI)
- **1592** The Improvement of Electrical Characteristic of Solution Processed Organic Thin-Film Transistors with 6,13-bis (triisopropylsi lylethynyl) Pentacene Films Employing HMDS Treatment - Y. Kim (Korea Electronics Technology Institute), J. Lee, M. Han (Seoul National Univ.) and J. Han (Korea Electronics Technology Institute)

F1 Electrochemical Deposition onto Non-Metallic Surfaces

Electrodeposition

Star 4, 2nd Floor, Sunrise

Carbon-Based Electrodes and Surface Layers
Co-Chairs: K. Strubbe and P. C. Searson

08:15 Introductory Remarks (5 Minutes)

08:20 **1607** Charge Transfer Stage during Potentiostatic Formation of Zinc Nuclei on Carbon Electrode from Zincate Solution - Y. Krishtop and V. Trofimenko (Dniepropetrovsk National University)

08:40 **1608** Pulsed-Electrodeposition of Platinum: Deposit Morphology, Current Efficiency, and Activity towards Methanol Oxidation - T. D. Hall, A. Miller and D. Hill (University of Notre Dame)

09:00 **1609** Towards a Nano-Scale Electrochemical and Spectroscopic Characterization of Organic Layers on Oxide Surfaces - A. Hubin, T. Hauffman, O. Blajiev (Vrije Universiteit Brussel), J. Snauwaert, C. Van Haesendonck (Katholieke Universiteit Leuven) and H. Terryn (Vrije Universiteit Brussel)

09:20 **1610** Charge and Interface Traps in 1-Octadecene Monolayers on Silicon as a Function of Silicon Pretreatment and Deposition Regime - I. V. Antonova, R. Soots, V. Seleznev and V. Prinz (Institute of Semiconductor Physics, Novosibirsk, Russia)

09:40 Intermission (20 Minutes)

Metallization of Semiconductor Surfaces
Co-Chairs: G. Oskam and P. M. Vereecken

10:00 **1611** Electrodeposition of Fe on n-Type GaAs and GaAlAs - G. Zangari, W. Shao, G. Pattanaik (University of Virginia), S. Vutukuri and R. Shad (University of Alabama)

10:20 **1612** Electrochemical Behavior of (100) Germanium in Copper (II) Containing Solutions - K. Strubbe and I. Huygens (Ghent University)

10:40 **1613** Electrochemical Deposition of Manganese and Copper-Manganese Alloy on Silicon - A. Radisic and P. M. Vereecken (IMEC vzw)

11:00 **1614** Electroless Displacement Deposition of Metals onto n-Type Silicon Surface - S. Yae, N. Nasu, T. Matsuda, N. Fukumuro and H. Matsuda (University of Hyogo)

11:20 **1615** Electrodeposited Extended and Laterally Confined Metal / n - Si (111) Contacts - W. Schindler and P. Hugelmann (TUM)

11:40 **1616** Electrodeposition of Copper-Silver Alloys on n-Si (100) from Acidic Sulfate Solution - W. Shao, G. Pattanaik and G. Zangari (University of Virginia)

Electrosynthesis of Semiconductor and Oxide Materials
Co-Chairs: P. C. Searson and G. Oskam

14:00 **1617** Electrodeposition into TiO_2 Nanotubes - P. Schmuki (University of Erlangen)

14:40 **1618** Formation of Porous Alumina Patterns on Silicon - P. M. Vereecken (IMEC vzw) and F. Jansen (KUL)

15:00 **1619** A Study of the Effect of Different Cadmium Sources on Chemical Bath Deposited CdS Thin Films - L. Chow, H. Khallaf (University of Central Florida) and I. Oladeji (ATMEL, North Tyniside Ltd.)

15:20 **1620** Electrosynthesized Oxide Semiconductors for Photoelectrochemical Applications - K. Rajeshwar, R. Chenthamarakshan, N. de Tacconi, G. Yogeeswaran and A. Seshadri (The University of Texas at Arlington)

15:40 Intermission (20 Minutes)

Metallization of Insulator Materials
Co-Chairs: A. Vervaet and P. M. Vereecken

16:00 **1621** Metallizing Polyetherimide Resin Reinforced with Glass Fibers - M. A. Alodan (KSU)

16:20 **1622** Metallization of Spherical Polystyrene Particles - S. Djokic (Elchem Consulting Ltd.)

16:40 **1623** Electroless Metallization and Characterization of Oxide Particles - E. E. Kalu (FAMU-FSU COE), C. Davy (Florida State University) and P. Kalu (FAMU-FSU COE)

17:00 **1624** Study of the Failure Mechanism of the Cu/Epoxy Interface After Modifications by Means of Surface Chemical Reactions - A. A. Vervaet (Ugent) and S. Siau (Arcelor)

Universal Ballroom, 2nd Floor, Expo Center

Tuesday Evening Poster Session, 19:00-21:00
Co-Chairs: P. M. Vereecken, P. C. Searson, K. Strubbe and G. Oskam

- **1625** Prussian Blue: Electrochemical Behavior and Operational Stability - N. Shams, B. Haghighi and A. Rahmati (Institute for Advanced Studies in Basic Sciences)
- **1626** Role of the Nanoparticules of TiO_2 on Making of Films of NiB Deposited by the Dynamic Chemical Plating Method - G. Stremsdoerfer, H. Omidvar (Ecole Centrale de Lyon) and Y. Meas (Centro de Investigacion y Desarrollo Tecnologico en electroquimica)
- **1627** Electrochemical Nucleation of Zinc onto Glassy Carbon - M. Plata (Instituto Politecnico Nacional), S. Olvera, C. Ramirez, A. Ezeta, H. Dorantes and E. Arce (IPN)
- **1628** Computing Current Density Distribution for Plating on Plastic Parts Using Computer Simulation - K. Lee (Korea Institute of Machinery & Materials), J. Lee (Changwon National Univ), C. Woo (Dae Lyuk Industries. Co.) and W. Che (Tongmyung Univ.)
- **1629** Enhanced Performance of Dye-Sensitized TiO_2 Solar Cells with Electrodeposited Platinum Counter Electrodes - C. Yoon (Korea University), W. Che (Daejin University) and K. Kim (Korea University)
- **1630** Electrochemical Deposition of Ruthenium on Carbon Paste Electrodes (CPE) - O. Martinez Alvarez (Research Center of Energy CIE-UNAM) and M. Miranda Hernandez (CIE-UNAM)
- **1631** Electrodeposition of Indium onto Mo/Cu for Deposition of Cu(In,Ga)Se_2 Thin Films - R. Castaneda, M. Miranda, A. Ocampo and S. Joseph (Centro de Investigacion en Energia)

- **1632** Preparation of the Ru/Pt/C Nanocatalyst by Rotating Disk-Electrode (RoDSE) Technique - D. Santiago and C. Cabrera (University of Puerto Rico, Rio Piedras Campus)
- **1633** Selective Electroless Deposition Using Photoinduced Oxidation of Sn(II) Compounds on Surface-Modified Polyimide Layers - K. Song, J. Kim, T. Byk, S. Cho, C. Noh, J. Kim (Samsung Advanced Institute of Technology) and T. Gaevskaya (Belarussian State University)

F3 Magnetic Materials Processes, and Devices 9

Electrodeposition

Universal 10, 1st Floor, Expo Center

Soft Magnetic Materials and Recording Heads
Co-Chairs: S. Brankovic and G. Zangari

08:00 Introductory Remarks (5 Minutes)

08:05 **1657** Ni Electrodeposition under Magnetic Field - M. Motoyama, Y. Fukunaka, T. Sakka, Y. Ogata (Kyoto University) and S. Kikuchi (University of Shiga Prefecture)

08:40 **1658** Electrodeposition of Ni-Fe Alloys in a Magnetic Field - A. Ispas (Technical University of Dresden) and A. Bund (TU Dresden)

09:00 **1659** Long Journey in Perpendicular Magnetic Recording -From the Beginning to the Future - Y. Nakamura (RIEC)

09:40 Intermission (20 Minutes)

10:00 **1660** Electrodeposition of Rhodium from CoFe Plating Solution and Characterization of Thin Films - I. Tabakovic, S. Riemer, M. Sun, V. Vas'ko and M. Kief (Seagate Technology)

10:40 **1661** Electrodeposition of FeCoRu Alloy - Q. Huang (IBM Coporation), C. Bonhote, J. Lam (Hitachi Global Storage Technologies) and L. Romankiw (IBM T. J. Watson Research Center)

11:00 **1662** Molecular Incorporation of Saccharin during the Electrodeposition of 2.4 T CoFe Alloys - S. R. Brankovic (University of Houston) and N. Vasiljevic (Sandia National Laboratories)

11:20 **1663** Electroless Deposition of Ultra-Thin Co-Fe Films - S. Franz, C. Borioli, M. Bestetti and P. Cavallotti (Politecnico di Milano)

11:40 **1664** Electrodeposition of Laminated Magnetic Alloys by Modulation of Current Density and Electrolyte Flow Rate in Single Plating Baths - J. A. Medina (Western Digital) and P. Frias (Universidad de Guadalajara)

Soft Magnetic Materials and Recording Heads
Co-Chairs: C. Bonhote and I. Tabakovic

14:00 **1665** Soft Magnetic Properties and Giant Magneto-Impedance of Electroplated Permalloy Thin Films - K. Hong (Chungnam National University), H. Lee (Kongju National University), C. Kim and C. Kim (Chungnam National University)

14:20 **1666** Physical Properties of High Iron Nickel-Iron Films Deposited by Direct Current Plating - K. Sasaki (Western Digital Corp.) and J. A. Medina (Western Digital)

14:40 **1667** Electroless Deposition of Thin-Film CoB alloys: The Influence of Some Bath Parameters on its Magnetic Behavior - M. C. Ribeiro and P. Sumodjo (Universidade de Sa Paulo)

15:00 **1668** Characterization of the Film of Ni-B Electroless on Steel S7, Through Optical Microscopy and Scanning Electron Microscopy. - C. Dominguez-Rios, R. Torres-Sanchez and A. Aguilar-Elguezabal (CIMAV)

15:20 **1669** Directional Permeability Dependence in Electroplated Permalloy Layers - H. H. Gatzen and M. Bedenbecker (Hanover University)

15:40 **1670** Cause of Damage of Reactive Ion Beam Etching for Ni-Fe Films with CO/NH_3 and CH_3OH Chemicals - K. Watanabe (Hitachi,Ltd.)

16:00 Intermission (20 Minutes)

Sensors and MEMS
Co-Chairs: W. Schwarzacher and C. Bonhote

16:20 **1671** Magnetic Shape Memory Alloys and Films: From Fundamentals Towards Applications - S. Faehler (IFW Dresden)

17:00 **1672** Concept for a Wafer Level Test System for Measuring Magnetic Film Properties - H. H. Gatzen, D. Dinulovic, E. Flick, H. Gerdes (Hanover University), K. Feindt and B. Malsch (Innomas GmbH)

17:20 **1673** Pulse Reversal PermAlloy Plating Process for MEMS Applications - K. Smistrup, P. Tang and P. Moler (Technical University of Denmark)

17:40 **1674** Development of a MIG-head for Magnetic Storage of Information on Machine Components - H. H. Gatzen and K. Wu (Hanover University)

Universal Ballroom, 2nd Floor, Expo Center

Tuesday Evening Poster Session, 19:00-21:00
Co-Chairs: C. Bonhote and Y. Kitamoto

- **1675** Preparation of the hcp Nano-Sheet Vobalt Via a Green-Solvothermal Route - D. S. Yuan (Jinan University)
- **1676** Theoretical Consideration of Combined Approach for the Preparation of Soft Magnetic CoNiFe Film With High Bs And Low Hc - E. Nouri and A. Eftekhari (Materials and Energy Research Center)
- **1677** FeCo/Cu and FeCo/Ru Laminated Structures by Electrodeposition - Q. Huang (IBM Coporation), C. Bonhote, J. Lam (Hitachi Global Storage Technologies) and L. Romankiw (IBM T. J. Watson Research Center)
- **1678** Magnetic and Structural Properties of Sputtered NiFeMo/Ru/CoPt Trilayer Thin Films for Perpendicular Recording Media - J. Kim, G. Jeong, I. Park, Y. Kim, S. Na and S. Suh (Sungkyunkwan University)

- **1679** Magnetic Properties of Electrodeposited Co-Pt Dot Arrays for Patterned Media - G. Jeong, H. Kim, S. Na, I. Park and S. Suh (Sungkyunkwan University)
- **1680** Structural and Magnetic Properties of Electroplated Iron-Nickel Thin Films - J. M. da Cunha (Universidade Federal do Rio Grande do Sul), L. de Oliveira, E. Spada (Univesidade Federal de Santa Catarina, Brasil) and B. Hallouche (Universidade de Santa Cruz do Sul, Brasil)

F4 Molecular Structure of the Solid-Liquid Interface and Its Relationship to Electrodeposition 5

Electrodeposition

Universal 11, 1st Floor, Expo Center

Co-Chairs: R. Alkire and D. Kolb

14:00 **1708** Different Aspects of Electrodeposition at Nanoscale: Application to Fabrication of Magnetic Nanostructures - S. R. Brankovic (University of Houston)

14:40 **1709** 3D Nanoarchitecture Produced by Electrodeposition Through a Crystalline Protein Monolayer - D. T. Schwartz, D. Allred, M. Sarikaya, F. Baneyx (University of Washington) and A. Cheng (The Scripps Research Institute)

15:00 **1710** Simulations of Kinetically Limited Nucleation and Growth at Monatomic Step Edges - R. C. Alkire and R. Stephens (University of Illinois at Urbana-Champaign)

15:20 Intermission (20 Minutes)

15:40 **1711** Study of Electrodeposition of Molybdenum-Tin Alloys - L. E. Moron-Vera and J. Torres (Centro de Investigacion y Desarrollo Tecnologico en Electroquimica)

16:00 **1712** Electrodeposition of Epitaxial Magnetic Films onto n-GaAs - J. J. Mallett, E. Svedberg, M. Vaudin, L. Benderski, W. Egelhoff and T. Moffat (NIST)

16:20 **1713** In Situ X-Ray Investigations of Surfaces of Semiconductor Electrodes in Contact with Aqueous Electrolyte - J. Zgenhagen (ESRF)

17:00 **1714** Electrodeposition of Pt and Au on Single Crystal Metal Oxide Surfaces - R. R. Adzic, M. Vukmirovic, P. Liu and J. Muckerman (Brookhaven National Laboratory)

17:20 **1715** In Situ Stress and Nanogravimetric Measurements During Underpotential Deposition of Bismuth on Au - G. R. Stafford and U. Bertocci (NIST)

Universal Ballroom, 2nd Floor, Expo Center

Tuesday Evening Poster Session, 19:00-21:00

- **1716** Comparative Study of Anodic and Cathodic Electrodeposited Films - P. Drob, M. Popa, E. V. Vasilescu (Institute of Physical Chemistry), J. Mirza Rosca, A. Santana Lopez (Las Palmas University) and S. Drob (University of Bucharest)
- **1717** Electrochemical Study of Zn-Co Alloy in Presence of Benzylideneacetone - S. C. Gama (CIDETEQ), Y. Meas, J. Ortiz, R. Ortega and G. Trejo (Centro de Investigacion y Desarrollo Tecnologico en Electroquimica)

F5 Nanostructured Metal Oxides: Processing and Applications

Nanotechnology / High Temperature Materials / Electrodeposition / Physical and Analytical Electrochemistry / Sensor

Universal Ballroom, 2nd Floor, Expo Center

Tuesday Evening Poster Session, 19:00-21:00
Co-Chairs: G. Oskam and E. Traversa

- **1734** Nucleation and Growth of ZnO Nanoparticles in Alcohols. Force-Hydrolysis vs Self-Hydrolysis. - G. R. Gattorno (Cinvestav), O. Soberanis Dominguez and G. Oskam (Cinvestav-Merida)
- **1735** Effects of Calcination Temperature and Concentration of Zinc Source on Chemical-Solution Synthesized ZnO Nano-rod - K. Y. Cheong, H. Hussin (Universiti Sains Malaysia) and K. Ismail (Northern Malaysia University College of Engineering)
- **1736** TiO_2 Films Prepared by Atomic Layer Deposition and Their Photocatalytic Activity - D. Kim and R. Pheamhom (Chonnam National University)
- **1737** Application of Three TiO_2 Polymorphs in Photoelectrochemical Solar Cells - A. G. Vega Poot (Cinvestav), D. Reyes Coronado and G. Oskam (Cinvestav-Merida)
- **1738** Electrochemical Characterization of a Nanostructured Electrode of Manganese Oxide in an Ionic Liquid - F. F. Bazito (IQ-USP), R. Torresi (Universidade de Sao Paulo) and T. M. Benedetti (Instituto de Quimica USP)
- **1739** Alternative Sol-Gel Routes for Synthesizing Gas Sensing Nanostructured Materials - G. Neri, A. bonavita, G. Micali and G. Rizzo (University of Messina)
- **1740** Effect of TiO_2 Addition on Phase Stability and Electrical Conductivity of Nano-Structured Cubic Zirconia Used as an Electrolyte in Solid Oxide Fuel Cells - S. Tekeli, M. Guru and A. Akcimen (Gazi University)
- **1741** Electrochemical Properties of Nanocrystalline Y_2-XPrXRu$_2O_7$ Pyrochlore for Electrodic Application in IT-SOFCs - C. Abate, E. Traversa (University of Rome Tor Vergata,) and E. Wachsman (University of Florida)
- **1742** Nanostructured Ceria-Zirconia as a Promising Anode Component for IT-SOFC: Synthesis and Characterization - S. Desinan (University of Tokyo), M. Miyayama (Research Center for Advanced Science and Technology, The University of Tokyo) and E. Traversa (University of Rome Tor Vergata,)

- **1743** Ormosil-Nafion Composite Membranes for PEM Fuel Cells - B. Mecheri (University of Rome), A. D'Epifanio (University of Rome Tor Vergata), A. Rainer (University of Rome), E. Fabbri, E. Traversa, and S. Licoccia (University of Rome Tor Vergata)
- **1744** Electrocatalytic Activity of Nano-Crystalline Ni-Co-Mo-Fe Alloys on the Oxygen Evolution Reaction (OER) - M. A. Dominguez (IPN), M. Plata (Instituto Politecnico Nacional), A. Torres (UNAM), C. Ramirez and E. Arce (IPN)

G1 Industrial and Environmental Electrochemistry

Industrial Electrolysis and Electrochemical Engineering

Universal 6, 1st Floor, Expo Center

Water Treat Treatment and Electrooxidation
Co-Chairs: Y. Meas and D. Mah

08:00 **1775** Electrochemical Oxidation of Organic Pollutants for Wastewater Treatment - C. Comninellis (Ecole polytechnique de Lausanne)

08:40 **1776** Influence of the Dissolved Oxygen Under Pressure on Electrochemical Destruction Toluene and Acetone in Water Solutions of Electrolits - A. Isaev, A. Djamilya and A. Zazav (Daghestan State University)

09:00 **1777** Electrochemical Oxidation of Sulfide Ion in Synthetic Gas Industry Sour Waters - D. Bejan, K. Waterston and N. Bunce (University of Guelph)

09:20 **1778** Removal Mechanism of COD using Electrocoagulation - J. A. Gomes, D. Cocke, H. A. Moreno, E. Peterson (Lamar University) and J. Parga (Instituto Tecnologico de Saltillo)

09:40 **1779** Electrochemical Generation of Green Rust - H. A. Moreno, D. Cocke, J. A. Gomes (Lamar University), P. Morkovsky (Kaspar Electroplating Corporation), J. Parga (Instituto Tecnologico de Saltillo), E. Peterson (Lamar University) and C. Garcia (Instituto Tecnologico de La laguna)

10:00 Intermission (20 Minutes)

10:20 **1780** Effects of Structure and Composition of IrO_2-Ta_2O_5 Anodes on Electrocatalysis for Oxygen Evolution - N. Itoh (Kyusyu Institute of Technology), M. Matsunaga (Kyushu Institute of Technology), R. Otogawa (DAISO, Co., Ltd.) and M. Morimitsu (Doshisha University)

10:40 **1781** Electrocataytic Generation of Active Chlorine on $Ti/Sn_{1-x}Ir_XO_2$ Electrodes for Indirect Oxidation of an Acid Dye - M. E. Osugi, F. Oliveira (Instituto de Quimica - UNESP), D. Profeti, P. Olivi (Faculdade de Filosofia Ciencias e Letras de Ribeirao Preto - USP) and M. Zanoni (Instituto de Quimica - UNESP)

11:00 **1782** Photoelectrochemical Oxidation Applied to Degradation of Mutagenic Compounds - M. Boldrin Zanoni (Institute of Chemistry - UNESP), P. Alves Carneiro (Instituto de Quimica - UNESP - CAr), G. Aragao Umbuzeiro (CETESB) and M. A. Anderson (University of Wisconsin- Madison- USA)

11:20 **1783** Electro-oxidation of Ammonia Using Carbon Paper Electrodes - M. Muthuvel and G. Botte (Ohio University)

11:40 **1784** Color and Phenol Removal by Anodic Oxidation - I. Chavez (Facultad de Quimica - UNAM), U. Morales Ortiz (Universidad Autonoma Metropolitana - Iztapalapa), B. A. Frontana Uribe (Instituto de Quimica - UNAM), A. Duran Moreno (Facultad de Quimica - UNAM) and P. Roquero (Facultad de Quimica - Universidad Nacional Autonoma de Mexico)

Electrosynthesis
Co-Chairs: D. Mah and Y. Meas

14:00 **1785** Ozone Electrogeneration on Pt-Loaded Reticulated Vitreous Carbon Using Flow-Through Assembly - M. Awad, T. Ohsaka and M. Saleh (Tokyo Institute of Technology)

14:20 **1786** Intelligent Electrodes to Distinguish between Wanted and Unwanted Reactions - M. Morimitsu (Doshisha University), K. Matsumoto (Kyushu Institute of Technology), R. Otogawa (DAISO, Co., Ltd.) and M. Matsunaga (Kyushu Institute of Technology)

14:40 **1787** Effective Flocculation by Electrochemical Corrosion of Aluminum - G. A. Mathieson and A. Langdon (University of Waikato)

15:00 **1788** Electrolysis of Coal at Intermediate Temperatures - X. Jin and G. Botte (Ohio University)

15:20 Intermission (20 Minutes)

15:40 **1789** Evaluation of a Chemical-Electrochemical Process to Remove Heavy Metals from Polluted Soils - M. Oropeza, R. Felix, S. Lin Ho (Centro de Graudados del ITT), R. Cuellar (Instituto Tecnologico de Tijuana), M. Felix (Centro de Graduados del ITT), A. Fragiel and L. Cota (Centro de Ciencias de la Materia Condensada)

16:00 **1790** Synthesis and Characterization of a Novel Nanoporous Asymmetric Electrochemical De-ionization System - M. A. Anderson and K. C. Leonard (University of Wisconsin - Madison)

16:20 **1791** Treatment of Soil Contaminated with Lead - S. Lin Ho, R. Felix, Z. Vargas, J. Delgadillo (Centro de Graduados del ITT), R. Castro, X. Mendoza (Universidad Autonoma de Baja California) and M. Oropeza (Centro de Graduados del ITT)

16:40 **1792** Removal of Lead Using a Rotating Graphite Cathode - R. Felix, S. Lin Ho, M. Oropeza, P. Calvillo (Centro de Graduados del ITT), R. Castro, and X. Mendoza (Univ. Autonoma de Baja California)

Universal Ballroom, 2nd Floor, Expo Center

Tuesday Evening Poster Session, 19:00-21:00

- **1793** A Direct Electro-reduction of Silver Compounds: Application to the Preparation of Fine Silver Powder - M. Kim, J. Park, S. Kim, H. Yoon, J. Lee and J. Sohn (Korea Institute of Geoscience and Mineral Resources)
- **1794** Effect of Dichromate Added to the Electrolyte on Reduction of Hypochlorite Ion on SS400 Cathode - T. Hayashida (Doshisha University), S. Hatano, A. Kuniyone (Daiso Co.Ltd), M. Morimitsu, M. Inaba and A. Tasaka (Doshisha University)
- **1795** Electrochemical and Photocatalytic Reduction of Carbon Dioxide for Fuel Cell Utilization - C. Sequeira (IST), M. Goncalves, J. Condeco, T. Pardal (OMNIDEA, Lda.), D. Roncero, B. Aguado (Instituto Superior Tecnico/ Universidad de Valladolid) and C. Sequeira (IST)
- **1796** Diethyl Phthalate Elimination from Aqueous Solutions by Alectrochemical Oxidation - M. A. Quiroz (Universidad de las Americas Puebla), L. Vazquez-Gomez (University of Ferrara, Italy) and C. Martinez-Huitle (University of Milan, Italy)
- **1797** Evaluation of Electroremediation Process on Hydrocarbon Polluted Soils - M. Oropeza (Centro de Graduados del ITT), B. Murillo, J. Barron (Universidad Autonoma Metropolitana Iztapalapa), I. Labastida (Universidad Autonoma de San Luis Potosi), M. Teutli (Benemerita Universidad Autonoma de Puebla) and I. Gonzalez (UAM-I)
- **1798** Methodology for the Characterization of Parallel Plates Electrochemical Reactor. - G. Velasco (Universidad de Guanajuato), I. Rodriguez (Universidad Autonoma de San Luis Potosi) and A. Alatorre (Universidad de Guanajuato)
- **1799** Arsenite and Arsenate Removal from Underground Water by Electrocoagulation - M. Araceli (CINVESTAV, Unidad Saltillo) and M. Cecilia (CINVESTAV-IPN, U. Saltillo)

H1 Carbon Nanotubes: General Session

Fullerenes, Nanotubes, and Carbon Nanostructures

Universal 15, 1st Floor, Expo Center

Chair: B. Wei

09:00 **1809** Novel Opportunities for Electron Transfer Versatile Carbon Nanostructures - D. M. Guldi (University of Erlangen)

09:20 **1810** Pt-Based Alloys Deposited on Highly Dispersed Single-Walled Carbon Nanotubes - A. Kongkanand, B. Seger (University of Notre Dame), K. Vinodgopal (Indiana University Northwest), S. Kuwabata (Osaka University) and P. Kamat (University of Notre Dame)

09:40 **1811** Controlled Carbon Nanotubes Deposition by Dielectrophoresis - J. W. Swart, J. Leon and C. Verissimo (UNICAMP)

10:00 **1812** Bulk Carbon Nanotube Solids Via In Situ Carbonization with Organometallic Catalysts: Optimization for Electrochemical Applications - J. W. Long, M. Laskoski and T. Keller (Naval Research Laboratory)

Chair: D. M. Guldi

10:40 **1813** Macroscale Single/Double-Walled Carbon Nanotube Films via Direct Deposition and/or Post-Treatments - B. Wei and H. Zhu (Louisiana State University)

11:00 **1814** Single-Stranded DNA Insertion into Carbon Nanotubes by Electro- and Dielectro-Phoresis - T. Okada, T. Kaneko, R. Hatakeyama and K. Tohji (Tohoku University)

11:20 **1815** Quantum Chemical Studies of Reactivity of Carbon Dimer Defects in Carbon Nanotubes - L. A. curtiss, M. Sternberg, D. Gruen, P. zapol and P. Redfern (Argonne National Laboratory)

Universal Ballroom, 2nd Floor, Expo Center

Tuesday Evening Poster Session, 19:00-21:00

- **1816** Cluster Origin of the Transfer of Single-Wall Nanotubes - F. Torrens (Universitat de Valencia) and G. Castellano (Universidad Politecnica de Valencia-Universidad Catolica de Valencia)
- **1817** Electrical Characterization of SWCNT Assembled Device and Its Application to a Chemical Sensor - J. Park, S. Maeng (ETRI), S. Hong (Seoul National University), R. Park and S. Kim (ETRI)

H2 Recent Advances in Fullerene Science

Fullerenes, Nanotubes, and Carbon Nanostructures

Universal 15, 1st Floor, Expo Center

Chair: F. D'Souza

14:00 **1818** Self-Organized Fullerene Nano-Architectures with Controlled Dimensionality - T. Nakanishi (National Institute for Materials Science), T. Michinobu (Tokyo University of Agriculture and Technology), N. Miyashita, D. Kurth (Max Planck Institute of Colloids and Interfaces) and K. Ariga (National Institute for Materials Science)

14:20 **1819** C_{60}-Based Supramolecular Chemistry: [n]Pseudorotaxanes with Fullerene Cores - H. W. Gibson (Virginia Polytechnic Inst. & State U.), J. Jones (DuPont), Z. Ge, K. Harich, A. Pederson, H. Wang, H. Dorn (Virginia Tech), L. Echegoyen, O. Lukoyanova and C. Herranz (Clemson U)

14:40 **1820** Functionalization of Trimetallic Nitride Templated Endohedral Metallofullerenes - H. W. Gibson (Virginia Polytechnic Inst. & State U.), T. Cai, X. Wang, Z. Ge, J. Duchamp, W. Fu, L. Xu, M. Anderson, C. Slebodnick, H. Dorn, B. Li (Virginia Tech), A. Balch and M. Olmstead (U California, Davis)

15:00 **1821** Structural and Photoelectrochemical Properties of Stacked-Cup Carbon Nanotubes- Modified Electrodes - T. Hasobe, H. Murata (Japan Advanced Institute of Science and Technology) and P. Kamat (University of Notre Dame)

15:20 **1822** C_{70} in Polymer Films as a Temperature Optical Sensor - C. Baleizao (Technical University of Lisbon), S. Nagl, S. Borisov, M. Schaeferling, O. Wolfbeis (Institute of Analytical Chemistry, Chemo- and Biosensors, University of Regensburg) and M. Berberan-Santos (Instituto Superior Tecnico)

Chair: K. Vinodgopal

16:00 **1823** Formation and Study of Electron Transfer of a Self-Assembled Through Hydrogen Bonding 2-Amino Purine: C_{60}-Uracil Conjugate - F. D'Souza, S. Gadde, S. Pang, M. Zandler (Wichita State University), D. Islam, R. Horie, Y. Araki (Tohoku University) and O. ITO (Institute of Multi-disciplinary Research for Advanced Materials)

16:20 **1824** Probing Electrostatic Potentials in Solution with Carbon Nanotube Transistors - S. Nad (Cornell University), L. Larrimore, X. Zhou, P. L. McEuen (Laboratory of Atomic and Solid State Physics, Cornell University) and H. D. Abruna (Cornell University)

16:40 **1825** Intra and Intermolecular Heavy Atom Effects on the Fluorescence Properties of C_{60}, C_{70}, and Derivatives - M. Berberan-Santos, A. Fedorov (Instituto Superior Tecnico) and C. Baleizao (Technical University of Lisbon)

17:00 **1826** Soluble Functionalized Carbon Nanohorns in Donor-Acceptor Nanoensembles - N. Tagmatarchis (National Hellenic Research Foundation), G. Pagona (Theoretical and Physical Chemistry Institute), A. Sandanayaka, O. ITO (Institute of Multi-disciplinary Research for Advanced Materials), M. Yudasaka and S. Iijima (Fundamental and Environmental Research Laboratories)

Universal Ballroom, 2nd Floor, Expo Center

Tuesday Evening Poster Session, 19:00-21:00

• **1827** Addressing Large Fullerenes in the Periodic Table - F. Torrens (Universitat de Valencia) and G. Castellano (Universidad Politecnica de Valencia-Universidad Catolica de Valencia)

I1 Physical and Analytical Electrochemistry General Session

Physical and Analytical Electrochemistry

Universal 7, 1st Floor, Expo Center

Tuesday Morning I
Chair: R. Mantz

08:00 **1845** The Measurement of Ultrasonic Cavitation using Electrochemistry - C. Vian (University of Southampton), P. Birkin (School of Chemistry, University of Southampton), T. Leighton (ISVR, University of Southampton), B. Zeqiri and M. Hodnett (DQL, National Physical Laboratory)

08:20 **1846** Capillary Electrophoresis Lithography - M. L. Krim and D. Cliffel (Vanderbilt University)

08:40 **1847** Model of Zinc Oxide Precipitation - J. Drake (P&G-Gillette Technical Center)

09:00 **1848** The Impact of Oxygen Vacancies on Oxygen Reduction on Anodic Oxide Films on Titanium - D. D. Macdonald and B. Roh (Pennsylvania State University)

09:20 **1849** Anodic Reactions of Borohydride in Sodium Hydroxide Solutions - D. Santos (Instituto Superior Tecnico) and C. Sequeira (IST)

Tuesday Morning II
Chair: G. Brisard

10:00 **1850** A Novel Double-Step Potential Method for Detecting Na+ Ions in SECM Applications - N. Casillas, J. Reyes-Gomez, J. Avalos-Martinez, E. Delgado-Chavez, F. F. Velasco-Rodriguez and M. Barcena-Soto (Universidad de Guadalajara)

10:20 **1851** Formation of Local Nanostructures by Atomic Scale Scratching and Friction Experiments on Single Crystal Electrodes - H. Baltruschat and M. Nielinger (University of Bonn)

10:40 **1852** Characterization of Channel Flow Cells for Electrochemical Kinetic Studies in High Temperature Aqueous Solutions - G. R. Engelhardt (OLI Systems, Inc.) and D. D. Macdonald (Pennsylvania State University)

11:00 **1853** Cyclic Thermammetry of Aluminium in Aqueous Solution - G. T. Burstein and J. Moloney (University of Cambridge)

11:20 **1854** Cyclic Voltammetry Applied to the Characterization of Contaminated Soils - G. Urbano-Reyes, V. Reyes-Cruz (Universidad Autonoma del Estado de Hidalgo), C. Canales-Cabanas (UAEH), M. Veloz (Universidad Autonoma del Estado de Hidalgo) and I. Gonzalez (Universidad Autonoma Metropolitana - Iztapalapa)

11:40 **1855** Electrochemical Contribution of Pyrite in Arsenopyrite Reactivity - G. Urbano, V. Reyes-Cruz, M. Veloz (Universidad Autonoma del Estado de Hidalgo) and I. Gonzalez (Universidad Autonoma Metropolitana - Iztapalapa)

Tuesday Afternoon
Chair: H. De Long

14:00 **1856** Electrochemical Reduction of CO_2 on Cu Electrodes - A. C. Co (National Research Council Canada), M. Gattrell and N. Gupta (Institute for Chemical Process and Environmental Technology)

14:20 **1857** Electrochemical Adsorption Study of Natural Organic Matter and Processes at the Air/Sea Boundary - B. Cosovic, Z. Kozarac, B. Gasparovic and S. Frka (Rudjer Boskovic Institute)

14:40 **1858** EIS Studies of the Electrorreduction of Carbon Dioxide on n-TiO_2 and n-Ag-TiO_2 Cathodes - L. F. Cueto and E. Sanchez (Universidad Autonoma de Nuevo Leon)

15:00 **1859** The Intensive Research Method with use of a Set of Identical Researched Systems - A. Shekhtman (KVANT)

15:20 **1860** The Cyclic Intensive Research Method and the Reproducibility Index of a Response-Versus-Time Dependence at Influences of the Same "Strength" with Different Prehistory. - A. Shekhtman (KVANT)

Universal Ballroom, 2nd Floor, Expo Center

Tuesday Evening Poster Session, 19:00-21:00

- **1861** Redox Reaction of Catalytic Layer in the Electrochemical Reactor for NO_x Decomposition - K. Hamamoto, Y. Fujishiro and M. Awano (National Insutitute of Advanced Industrial Science and Technolog (AIST))
- **1862** Electrochemistry under Centrifugal Forces - E. Nouri and A. Eftekhari (Materials and Energy Research Center)
- **1863** On the Acetaldehyde Electrooxidation Reaction: Spectroscopic and Electrochemical Studies - A. A. Tanaka (Universidade Federal do Maranhao), M. Farias (UFMA), G. Camara, F. Nart and T. Iwasita (IQSC-USP)
- **1864** Kinetic Description of Adsorption Processes in Electrodes by Perturbations on the Double Layer Capacitance - E. R. Larios-Duran and R. Antano-Lopez (CIDETEQ)
- **1865** Fractal Analysis by Means of Electrochemical Methods: The Usefulness of Gold-Masking Approach - F. Molaei and A. Eftekhari (Materials and Energy Research Center)
- **1866** Study of the Electrochemical Reduction of the Amoebicide Etofamide in Acetonitrile and in Water/Acetonitrile Mixture - N. R. Stradiotto, A. Santos and R. Takeuchi (Universidade Estadual Paulista (UNESP))
- **1867** Electrochemical and X-Ray Photoelectron Spectroscopy Characterization of the Palladium Surfaces - I. Feliciano (UPR. Rio Piedras Campus) and C. Cabrera (University of Puerto Rico, Rio Piedras Campus)
- **1868** Direct Electrochemical Preparation of Potassium Ferrate - S. Wang (Chongqing University,China), W. Zhu (Chongqing University) and H. Shang (Institution of Chemistry and Chemical Engineering)

I2 Electrochemistry at Liquid-Liquid Interfaces

Physical and Analytical Electrochemistry

Universal Ballroom, 2nd Floor, Expo Center

Tuesday Evening Poster Session, 19:00-21:00
Co-Chairs: P. Vanysek and M. Mirkin

- **1869** Potentiometric Investigation of the Effect of Surfactants Adsorption at the Interface Between Two Immiscible Electrolyte Solutions - T. Spataru (Institute of Physical Chemistry of The Romanian Academy) and N. Bonciocat (Babes Bolyai University)
- **1870** Influence of the Co-Surfactant in the Electrical Conductivity of W/O Microemulsions - C. S. piatnicki (Universidade Federal do Rio Grande do Sul), C. Medonca (Universidade Federal de Pelotas), Y. da Silva, W. Bockel and C. Bica (Universidade Federal do Rio Grande do Sul)

I3 Electrochemical Surface Science: Recent Advances in the Study of the Electrode-Electrolyte Interface

Physical and Analytical Electrochemistry

Universal 18, 1st Floor, Expo Center

Electrodeposition
Chair: C. Cabrera

08:00 **1918** Interface Formation Using Electrochemical ALD - J. L. Stickney (The University of Georgia), Y. Kim, J. Kim, D. Banga and D. Vairavapandian (University of Georgia)

08:30 **1919** Control of Ru Oxide Formation during Cu Electrodeposition on Ru: Iodide Ad-layer Modification for Deposition in Iodide-Free Plating Baths - J. Kelber (University of North Texas)

09:00 **1920** Study on the Influence of Chloride Concentration and pH on Copper Electrodeposition - M. G. Montes de Oca Yemha (UAM-A), M. Montes de Oca (Universidad Autonoma Metropolitana), J. L. Mostany (Universidad Simon Bolivar), M. Ramirez-Silva (Universidad Autonoma Metropolitana), M. Romero (Universidad Autonoma Metropolitana), B. Scharifker (Universidad Simon Bolivar) and M. Palomar-Pardave (Universidad Autonoma Metropolitana)

09:30 **1921** Kinetics Mechanism of Copper UPD Nucleation and Growth on Mono and Polycrystaline Gold - E. Garfias-Garcia (Universidad Autonoma Metropolitana), M. Palomar-Pardave (Universidad Autonoma Metropolitana), M. Romero-Romo (Universidad Autonoma Metropoltana. Unidad Azcapotzalco), M. Ramirez-Silva (Universidad Autonoma Metropolitana) and N. Batina (Universidad Autonoma Metropolitana Iztapalapa)

10:00 Intermission (20 Minutes)

10:20 **1922** Gathering Kinetic Data of Electrochemical Phase Formation Processes Through Analysis of Experimental Current Transients. Overview and New Approaches - M. Palomar-Pardave (Universidad Autonoma Metropolitana), M. Romero-Romo (Universidad Autonoma Metropoltana. Unidad Azcapotzalco), M. Ramirez-Silva (Universidad Autonoma Metropolitana), J. L. Mostany and B. Scharifker (Universidad Simon Bolivar)

10:40 **1923** Consistency of the Classical Theory of Nucleation with Nanometric Phenomena: A Comparison from Overpotential and Temperature Studies - J. L. Mostany, B. Scharifker and K. D. Saavedra (Universidad Simon Bolivar)

11:10 **1924** Electrodeposition of Ultrathin Films on Well-Defined Noble-Metal Electrodes: Studies by UHV-EC-STM - M. P. Soriaga, J. Baricuatro (Texas A&M University), Y. Kim (University of Georgia), Y. Park and M. Hossain (Texas A&M University)

11:30 **1925** Surface Characterization of Sequential Electrodeposited Methanol Electrocatalysts on HOPG, Vulcan and Boron Doped Diamond Films - C. Cabrera (University of Puerto Rico, Rio Piedras Campus), T. Morante, I. Gonzalez, L. La Torre, D. Tryk, Y. Ishikawa, D. Santiago and E. Fachini (University of Puerto Rico)

Multicomponent Interfaces
Chair: O. Chyan

14:00 **1926** The Synthesis, Characterisation and CO Oxidation Properties of Novel Bimetallic Single Crystal Electrode Surfaces - G. A. Attard, S. Huxter and F. Vidal (Cardiff University)

14:30 **1927** Designing Palladium Alloy Electrocatalysts for Oxygen Reduction - M. Shao, P. Liu (Brookhaven National Laboratory), K. Sasaki, J. Zhang and R. R. Adzic (BrookhavenNational Laboratory)

15:00 **1928** In-Situ X-ray Scattering Studies of Bimetallic Electrocatalyst Surfaces - B. Fowler (University of Liverpool)

15:30 Intermission (10 Minutes)

15:40 **1929** Analyses of Ternary Alloy Plating Systems by a New Kinetic Model - H. H. Kuehnlein and W. Plieth (Institute of Physical Chemistry and Electrochemistry)

16:10 **1930** Modification of Electrodeposited Co-W Alloys for Hydrogen Evolution by Applied External Magnetic Field - P. Zabinski, G. Fryc and R. Kowalik (AGH University of Science and Technology)

16:30 **1931** Investigation of Interfacial Electrochemistry of Ruthenium and its Application to Advanced Metal Interconnect - O. Chyan, P. Nalla and S. Venkataraman (University of North Texas)

Universal Ballroom, 2nd Floor, Expo Center

Tuesday Evening Poster Session, 19:00-21:00

- **1932** A Nanometer Potential Probe for the Measurement of Electrochemical Potential at the Electrode-Electrolyte Interfaces - H. Kang (Seoul National University), S. Park (Pohang University of Science and Technology) and I. Jeon (Jeonbuk National University)
- **1933** Binary Compound Formation Upon Copper Dissolution: CuI(111) on Cu(100) - K. R. Wandelt (University of Bonn), P. Broekmann (Institute of Physical Chemistry), S. Huemann, N. Hai (University of Bonn), R. Hunger and W. Jaegermann (Technical University of Darmstadt)
- **1934** Viscoelastic Properties and Solvation of Electroactive Polymer Films - R. Hillman, M. Mohamoud, I. Efimov and K. Ryder (University of Leicester)
- **1935** Electrodeposition Under Forced Convection Conditions - M. G. Montes de Oca Yemha (UAM-A), M. Montes de Oca (Universidad Autonoma Metropolitana), J. L. Mostany (Universidad Simon Bolivar), M. Ramirez-Silva (Universidad Autonoma Metropolitana), M. Romero (Universidad Autonoma Metropolitana), B. Scharifker (Universidad Simon Bolivar) and M. Palomar-Pardave (Universidad Autonoma Metropolitana)
- **1936** Theoretical Study on Ionic Surfactants that Participate in Electrochemical Adsorption Processes - G. A. Rosquete (UAM-Azcapotzalco), J. Rosete (UAM-Azcapotzalco, Mexico D.F.), M. Ramirez-Silva (Universidad Autonoma Metropolitana), M. Romero (Universidad Autonoma Metropolitana) and M. Palomar-Pardave (Universidad Autonoma Metropolitana)
- **1937** L-Cysteine Adsorption on Au (111) Single Crystal Electrodes - L. Avalle (Universidad Nacional de Cordoba) and E. Santos (Universidad Nacional de Cordoba)
- **1938** Electrochemical Studies of Diamond Nanoparticles using Gas Diffusion Electrode - L. La Torre Riveros and C. Cabrera (University of Puerto Rico, Rio Piedras Campus)
- **1939** Reduction of Nitrate Ion on the Growing Surfaces of Cr Nuclei Formed During Black Chromium Electrodeposition - M. Palomar-Pardave (Universidad Autonoma Metropolitana), M. Aguilar-Sanchez (Universidad Autonoma Metropolitana), M. Palomar-Pardave (Universidad Autonoma Metropolitana), M. Romero-Romo (Universidad Autonoma Metropoltana. Unidad Azcapotzalco), M. Ramirez-Silva (Universidad Autonoma Metropolitana), E. Barrera (Universidad Autonoma Metropolitana) and L. Huerta (Universidad Nacional Autonoma de Mexico)
- **1940** Resolution of an Apparent Single-Step Electron Transfer Reaction by Impedance Measurements: Sulfur Reduction in Non-Aqueous Media - J. Park and S. Park (Pohang University of Science and Technology)

• **1941** Determination of Electrode Kinetic Parameters by Fast FT-EIS Analysis of Staircase Cyclic Voltammetric Responses - B. Chang (Postech) and S. Park (Pohang University of Science and Technology)

I4 Molten Salts 15, in Memory of Robert Osteryoung

Physical and Analytical Electrochemistry / Electrodeposition / High Temperature Materials / Battery / Energy Technology

Galactic 7, Conference Center, Sunrise

Structure and Properties of Molten Salts and Ionic Liquids
Co-Chairs: W. Henderson and P. Trulove

08:00 **1979** About the Acidity Level in Room Temperature Ionic Liquids - B. Gilbert, T. Robert (University of Liege), H. Olivier-Bourbigou and L. Magna (Institut Francais du Petrole)

08:20 **1980** Bronsted Acidity in Ionic Liquids - T. Welton and L. Crowhurst (Imperial College)

08:40 **1981** What Makes an Ionic Liquid a Liquid? An Overview - P. C. Trulove, W. A. Henderson, H. De Long, V. Young Jr. (University of Minnesota), S. Passerini (Casaccia Research Center, ENEA) and S. Parsons (University of Edinburgh)

09:00 **1982** What Makes an Ionic Liquid a Liquid? The Impact of Structure on Ionic Liquid Properties - W. A. Henderson, P. C. Trulove, H. De Long, V. Young Jr. (University of Minnesota) and S. Parsons (University of Edinburgh)

09:20 **1983** Ordered Structure in Room Temperature Molten Salts Containing Aliphatic Quaternary Ammonium Ions - S. Deki, M. Maekawa and M. Mizuhata (Kobe University)

09:40 Intermission (20 Minutes)

10:00 **1984** Molecular Modeling of Interactions between Ionic Liquids and Metal Surfaces - W. R. Carper and N. Nooruddin (Wichita State University)

10:20 **1985** Investigation of Rigid vs. Flexible Side Chain Quaternary Ammonium Ionic Liquids for Electrochemical Purposes - C. Lang and P. Kohl (Georgia Institute of Technology)

10:40 **1986** Flammability and Thermal Analysis Characterization of Imidazolium Based Ionic Liquids - H. De Long, J. Gilman, J. Shields (National Institutes of Standards and Technology), A. Morgan (University of Dayton Research Institute), D. Fox (United States Naval Academy) and P. C. Trulove (U.S. Naval Academy)

11:00 **1987** Physical, Electrochemical and Reactive Properties of Sulfate/Phosphate-Based Imidazolium and Pyridinium Ionic Liquids - T. E. Sutto (NSWC-DD) and K. McGrady (NSWCDD)

11:20 **1988** Preparation of Functionally Graded Aluminum Nitride-Oxide Coatings Using a Precursor Derived from a Chloroaluminate Ionic Liquid - M. T. Carter, C. Evenson and E. Schutte (Eltron Research, Inc.)

11:40 **1989** Crystallization of Actinide Complexes from Ionic Liquids - R. D. Rogers, V. Cocalia (The University of Alabama) and L. Nunez (Argonne National Lab)

Structure and Properties of Molten Salts and Ionic Liquids II
Co-Chairs: Z. Akdeniz and N. Papatheodorou

14:00 **1990** The Ho^{3+} Hypersensitive Transitions as Structural Probes for Molten Rare-Earth Ahlorides - G. N. Papatheodrou (FORTH) and A. Kalambounias (FORTH - ICEHT)

14:20 **1991** High Temperature NMR Description of CaF_2 Addition in Molten Cryolite - C. Bessada (CNRS), A. El Bakkali (CRMHT CNRS) and A. Rakhmatullin (CRMHT CNRE)

14:40 **1992** Density and the Viscosity of Molten Alkaline Earth Fluorides - Y. Sato, K. Yamagase, Y. Hoshino, M. Aono and Y. Ambo (Tohoku University)

15:00 **1993** Solubility of Cadmium Oxide in Alkali Melts - I. N. Skryptun (Institute of General & Inorganic Chemistry)

15:20 Intermission (20 Minutes)

15:40 **1994** Flue Gas Cleaning with Alternative Processes and Reaction Media - R. Fehrmann (Technical University of Denmark), H. Hamma (Laboratoire TECSEN, UMR), A. Riisager, J. Huang (Technical University of Denmark), J. Rogez (Laboratoire TECSEN, UMR) and S. Rasmussen (Technical University of Denmark)

16:00 **1995** Kinetic and Structural Evidences on Formation of New Catalytic Active Sites During SO_2 Oxidation Reaction on Hybrid Organic-Inorganic Nanocomposite Containing Vanadium - R. M. Nita and A. Meghea (University Politehnica of Bucharest)

16:20 **1996** Mass Balance Diagrams for the Ternary Systems with the Liquid Immiscibility - V. Lutsyk, A. Zelenaya and A. Zyryanov (Buryat Scientific Centre of the RAS)

16:40 **1997** A Polarizable Ionic Potential for Trihalides: From Clusters to Liquid Phase - Z. Akdeniz (Istanbul University), R. Ruberto (INFM Democritos, Italy), G. Pastore (Universita di Trieste, Trieste, Italy) and M. Tosi (Scuola Normale Superiore, Italy)

17:00 **1998** Empirical Evaluation of Properties of Molten Electrolytes Used for Aluminum Production - A. A. Redkin, Y. Zaikov, O. Tkatcheva and E. Filatov (Institute of High Temperature Electrochemistry)

17:20 **1999** Synthesis of Ketones from Secondary Alcohols using Electrochemically Generated Superoxide Ions in Room Temperature Ionic Liquids - P. Sethupathy, M. Matthews, J. Monnier, J. Weidner (University of South Carolina) and J. Dickensheets (Lehigh University)

Universal Ballroom, 2nd Floor, Expo Center

Tuesday Evening Poster Session, 19:00-21:00
Co-Chairs: R. Mantz and P. Trulove

- **2000** Corrosion Behavior of Electrochemical Couple: Hastelloy/Carbon Material in Zirconium Fluoride - Sodium Fluoride Melts - A. A. Omelchuk, S. Volkov, B. Voronin, N. Buryak (V.I.Vernadsky Institute of General & Inorganic Chemistry), A. Andriiko (National Technical University "KPI"), A. Bakai (National Science Center "Kharkov Institute of Physics and Technology") and R. Savchuk (Institute of General and Inorganic Chemistry)
- **2001** Low-Frequency Raman Scattering Study in Inorganic $ZnCl_2$ and $ZnBr_2$ Glass Formers - G. N. Papatheodorou (FORTH), A. Kalambounias (FORTH - ICEHT) and S. Yannopoulos (FORTH - ICE/HT)
- **2002** Behaviour of Rare Earth Elements in Molten Salts in Relation to Pyrochemical Reprocessing of Spent Nuclear Fuels - V. A. Volkovich, B. Vasin (Ural State Technical University - UPI), T. Griffiths (Redston Trevor Consulting, Ltd.), I. B. Polovov, E. Medvedev and S. Yakimov (Ural State Technical University - UPI)
- **2003** Speciation of Molybdenum and Tungsten in Molten Chlorides: A Spectroelectrochemical Study - V. A. Volkovich, D. Danilov, I. B. Polovov, B. Vasin (Ural State Technical University - UPI), T. Griffiths (Redston Trevor Consulting, Ltd.), O. Tropin and D. Tsarevskii (Ural State Technical University - UPI)
- **2004** The Chemical Behaviour of LaF_3, YbF_3 in Molten Salt NaF-ZrF_4 -Zr Mixtures - R. Savchuk, N. Kompanichenko, N. Fajdyuk (Institute of General and Inorganic Chemistry) and A. A. Omelchuk (V.I.Vernadsky Institute of General & Inorganic Chemistry)
- **2005** Electrodeposition of Tungsten, Molybdenum and Double Carbides of Tungsten (Molybdenum) and Nickel (Cobalt) from Low-Temperature Halide-Oxide Melts - H. B. Kushkhov and M. Adamokova (Kabardino-Balkarian State University)
- **2006** Hydrogen Electrode Reaction in Some Imide-Type Room-Temperature Ionic Liquids - R. Fukuta, Y. Katayama and T. Miura (Keio University)
- **2007** Electrode Kinetics of Some Iron Complexes in an Imide-Type Room-Temperature Ionic Liquid - N. Tachikawa, Y. Katayama and T. Miura (Keio University)
- **2008** Thermodynamics of the Formation of Vanadium(II) Complexes in Chloride Melts - I. B. Polovov, B. Vasin, A. Abakumov, O. Rebrin, M. Chernyshov, V. A. Volkovich (Ural State Technical University - UPI) and T. Griffiths (Redston Trevor Consulting, Ltd.)
- **2009** Spectroelectrochemical Study of Uranium and Neptunium in LiCl-KCl Eutectic Melt - I. B. Polovov (Ural State Technical University - UPI), C. Sharrad, I. May (The University of Manchester), B. Vasin, V. A. Volkovich (Ural State Technical University - UPI) and T. Griffiths (Redston Trevor Consulting, Ltd.)
- **2010** Composition and Properties of Oxide Films on a Ferriti Steel and a Nickel-Based Alloy in Molten Hydroxide - Carbonate Electrolytes - T. B. Tzvetkoff (University of Chemical Technology and Metallurgy) and M. S. Bojinov (University of Chemical Techology and Metallurgy)
- **2011** Wear of Carbon Cathodes in Cryolite-Alumina Melts - K. Vasshaug, T. Foosnaes, G. Haarberg (Norwegian University of Science and Technology), A. Ratvik and E. Skybakmoen (SINTEF Materials and Chemistry)
- **2012** Electrochemical Behaviour of Sulphur Species in Molten Chlorides - J. Hajasova (NTNU), G. Haarberg and A. Martinez (Norwegian University of Science and Technology)
- **2013** Effect of Production Ways on the Features of Sodium-Reduced Tantalum Powders - V. N. Kolosov, M. Miroshnichenko, V. Orlov and T. Prokhorova (Institute of Chemistry)
- **2014** Electronic Absorption Spectra of Molten $LaCl_3$, $GdCl_3$ and $LuCl_3$ - A. Potapov and A. Salyulev (Institute of high temperature electrochemistry)
- **2015** Electrochemical Studies of Fluorenone in Ionic Liquids and Aprotic Solvents - G. T. cheek (US Naval Academy) and D. Canby (United States Naval Academy)
- **2016** Study of Causes of Film Formation on the Electrolyte Surface during Niobium Electrorefining - I. B. Polovov, M. Chernyshov, O. Rebrin, V. A. Volkovich (Ural State Technical University - UPI), M. Shtutsa (JSC Chepetsky Mechanical Plant) and T. Griffiths (Redston Trevor Consulting, Ltd.)
- **2017** Electrochemical Oxidation of Ethanol in Ionic-Liquids and Possible Use of Ionic liquids in Hydrogen and Ethanol Based Fuel Cells - V. Katovic (WSU), A. Davidson, N. Speelman (Wright State University), S. Rodrigues and T. Retz (AFRL, Wright-Patterson AFB)
- **2018** Amino Acid Based Ionic Liquids: Solvents for Improved Biopolymer Dissolution - M. Hanley, M. Green III, P. Fylstra (US Naval Academy), W. A. Henderson (U.S. Naval Academy), D. Fox, H. De Long and P. C. Trulove (U.S. Naval Academy)
- **2019** Quantum Chemical Studies of Lithium Polymer Electrolytes - L. A. curtiss, P. Redfern (Argonne National Laboratory) and T. Kupka (Academia Sinica)
- **2020** Physicochemical Properties of Molten KF-K_2NbF_7-Nb_2O_5 System - B. Kubikova, J. Cibulkova, V. Danek (Institute of Inorganic Chemistry SAS) and M. Gaune-Escard (Ecole Polytechnique)
- **2021** Crystallization of New and Interesting Crystal Structures in Ionic Liquids: Complex Systems with Complex Results - C. C. Hines, M. Reichert (University of Alabama), S. Griffin and R. D. Rogers (The University of Alabama)

- **2022** Formation of Ionic Liquid Eutectic Mixtures as a Tool for Melting Point Depression - M. Smiglak, M. Dilip, N. Bridges, M. Reichert and R. D. Rogers (The University of Alabama)
- **2023** Codeposition of Silver with Tungsten Carbide in Tungstate Melts - V. Malyshev (National Technical University of Ukraine), A. Gab (National Technical University of Ukraine, Kiev) and M. Gaune-Escard (Ecole Polytechnique,)

J1 Biomedical and Clinical Sensors

Sensor

Universal Ballroom, 2nd Floor, Expo Center

Tuesday Evening Poster Session, 19:00-21:00

- **2084** Development of the Skin Cholesterol Sensing Method Using a Molecularly Imprinted Electrode - H. Shiigi, S. Fukazawa and T. Nagaoka (Osaka Prefecture University)

J2 Chemical Sensors 7: Chemical and Biological Sensors and Analytical Systems

Sensor

Universal 14, 1st Floor, Expo Center

High Temperature Sensors
Co-Chairs: R. Mukundan and R. Soltis

08:00 **2111** Development of WO_3-Based Thick-Film Hydrogen Sensors - A. Ahmad (Ministry of Natural Resources Canada) and J. Walsh (Natural Resources Canada)

08:20 **2112** Influence of Interfaces on the Electrical Properties of Sintered Calcia-Stabilized Zirconia Solid-Electrolytes - A. Ahmad and M. Zhou (Ministry of Natural Resources Canada)

08:40 **2113** Solid Electrolyte Impedancemetric NO_x Sensor Using Oxide Receptor - D. Koba (1-1), S. Takase and Y. Shimizu (Kyushu Institute of Technology)

09:00 **2114** Influence of H_2O on NO_x Sensors - R. Soltis, Y. Ding and D. Kubinski (Ford Motor Company)

09:20 **2115** A Theoretical Framework for Prediction of Solid State Potentiometric Gas Sensor Behavior. - B. M. White, E. Macam, F. Van Assche (University of Florida), E. Traversa (University of Rome Tor Vergata,) and E. Wachsman (University of Florida)

09:40 Intermission (20 Minutes)

10:00 **2116** NO_x Sensors for Automotive Applications - R. Mukundan, E. Brosha, F. Garzon (Los Alamos National Laboratory), R. Novak and R. Soltis (Ford Motor Company)

10:20 **2117** Miniature Solid Electrolyte Carbon Dioxide Sensors - G. Hunter, J. Xu (NASA Glenn Research Center), C. C. Liu (Case Western Reserve University), B. Ward (Makel Engineering, Inc.), D. Lukco (QSS/NASA Glenn Research Center), M. Artale, P. Lampard and D. Androjna (Sierra Lobo/ NASA Glenn Research Center)

10:40 **2118** Low Temeprature Operating Catalytic Combustion Type H_2 Sensor Using TiO_2 and UV LED - C. Han, J. Gwak and S. Han (Kore a Institute of Energy Research)

Mircosensors and Sensor Arrays
Chair: N. Miura

14:00 **2119** Microscale Chloride Sensor - F. Cao, D. Greve and I. Oppenheim (Carnegie Mellon University)

14:20 **2120** Developing Sensors to Detect Mercury - M. L. Homer (Jet Propulsion Lab/Caltech), H. Zhou, A. Jewell, C. Taylor, A. Shevade, A. Kisor, M. Ryan, S. Yen (JPL), M. Blanco and W. Goddard (Caltech)

14:40 **2121** A Field Effect Based Hydrogen Sensor for Low and High Concentrations - W. moritz (Humboldt-University), V. Fillipov, A. Vasiliev (RRC), G. Cherkashinin (Humboldt University of Berlin) and J. Szeponik (BST BioSensor Technologie GmbH)

15:00 **2122** Automated Microarray Technology for Biomedical and Environmental Sensors - Z. P. Aguilar (Vegrandis, LLC), C. Van Nguyen (University of Arkansas), M. Sirisena (Vegrandis,LLC), J. Gertsch (University of Arkansas), P. Arumugam (SFC, LLC), D. Spencer, C. Wansapura, Y. Aguilar (Vegrandis, LLC) and J. Homesley (University of Arkansas)

Nanosensors
Chair: J. Li

15:40 **2123** Using Electro-Stress to Improve the Sensitivity and Reproducibility of a Gold Nanowire Chemical Sensor - S. A. Keebaugh, W. Nam, A. K. Kalkan and S. J. Fonash (Pennsylvania State University)

16:00 **2124** Polyaniline Nanowire Resistive Sensor Fabricated by an Economic and Environmentally Safe Approach - S. J. Fonash, W. Nam, H. Carrion and S. Joshi (Pennsylvania State University)

16:20 **2125** Electrical Characterization of Semiconducting Nanowire and Its Application to a Chemical Sensor - J. Park, S. Moon, E. Kim, H. Lee, K. Park (ETRI) and G. Kim (Korea University)

16:40 **2126** A Prototype Hydrogen Sensor using Palladium Nanowire Array - S. Cho and M. Kim (Sungkyunkwan University)

Universal Ballroom, 2nd Floor, Expo Center

Tuesday Evening Poster Session, 19:00-21:00
Co-Chairs: G. Hunter and R. Mukundan

- **2127** Voltammetric Study of Baja California Red Wines - A. R. Martinez and G. Guzman (Universidad Autonoma de Baja California)
- **2128** Modified Porphyrinic Sensor for Nitric Oxide Monitoring - J. Hrbac, C. Gregor and J. Vostalova (Palacky University)
- **2129** Development of a Novel Composite Sensor Based on Doped Pyrrole Selective to Nitrate Iones - G. A. Alvarez Romero (Universidad Autonoma Metropolitana - Iztapalapa), C. Galan Vidal (Universidad Autonoma del Estado de Hidalgo), M. Palomar-Pardave and M. Ramirez-Silva (Universidad Autonoma Metropolitana)
- **2130** Detection and Analysis of Fruits Using an Electronic Nose - J. F. Schneider (Argonne National Laboratory)
- **2131** Electrochemical Catecholamine Sensors Integrated with Nanotechnology - J. A. Stinson, S. K. Lunsford (Wright State University) and D. Dionysiou (University of Cincinnati)
- **2132** Amperometric Biosensor for Hydrodinamic Applications - L. A. Garcia and A. Alatorre (Universidad de Guanajuato)
- **2133** Early Detection of Ovarian Cancer Cells using Silica Nanowires and CA125 Biomarkers - S. Bhansali, P. Sekhar, A. Zajac, N. S. Ramgir and T. Zhukov (University of South Florida)
- **2134** Early Detection of Lung Cancer using Silica Nanowires and IL 10 Biomarkers - S. Bhansali, P. Sekhar, N. S. Ramgir, T. Zhukov and A. Zajac (University of South Florida)
- **2135** Cyclometalated Osmium(II) Complexes as Efficient Mediators for Amperometric Biosensors - R. Ceron and R. Le Lagadec (Universidad Nacional Autonoma de Mexico)

J3 Microfabricated and Nanofabricated Systems MEMS/NEMS 7

Sensor / Dielectric Science and Technology / Electronics and Photonics

Universal Ballroom, 2nd Floor, Expo Center

Tuesday Evening Poster Session, 19:00-21:00
Co-Chairs: P. Hesketh and J. Davidson

- **2136** Influence of Self Affine Roughness of Wires on Atom Chips - Z. Moktadir, G. Lewis, C. Gollasch, M. Kraft (Southampton University), S. Erikson, M. Trupke and E. Hinds (Imperial College London)
- **2137** Monitoring of Instant-Mask Plating for Fabrication of Patterned Copper Microstructures - G. Zhang (Echemics)
- **2138** Complimentary Nano-Electromechanical Carbon Nanotube Switches - M. Tabib-Azar, S. Bhunia and D. Saab (Case Western Reserve University)

J4 Physics and Chemistry of Luminescent Materials 15

Luminescence and Display Materials

Universal Ballroom, 2nd Floor, Expo Center

Tuesday Evening Poster Session, 19:00-21:00
Chair: U. Happek

- **2164** Synthesis and Luminescence of Alkaline Earth-RE Fluoride Phosphor - P. K. Nammalwar (GE ITC Pvt Ltd), A. M. Srivastava (GE Global Research, Niskayuna), R. Hanumantha, A. Sounderraj, S. Venugopal and G. Chandran (GE ITC Pvt Ltd, Bangalore India)
- **2165** Preparation and Luminescence Properties of Nanosized Phosphors for PDP using RF Plasma Process - S. Choi, E. Park, J. Park, Y. Lee and C. Yang (RIST)
- **2166** Stability-Enhanced Phosphor by Wet-Chemistry Coating for Inorganic EL Device - J. Gwak (Korea Institute of Energy Research (KIER)), H. Lee (KIER), C. Han, S. Han (Korea Institute of Energy Research) and J. Hulme (KAIST)

Wednesday, November 1

0900h.....Technical Exhibit, *Universal Ballroom, 2nd Floor, Expo Center*
0930h.....Coffee Break, *Universal Ballroom, 2nd Floor, Expo Center*
1215h.....ECS Electrodeposition Division Luncheon & Business Meeting, *Star 2, Conference Center, Sunrise*
1215h.....ECS Luminescence & Display Materials Division Luncheon & Business Meeting, *Star 7, Conference Center, Sunrise*
1800h.....ECS Corrosion Division Award Reception, *Star 4, Conference Center, Sunrise*
1900h.....ECS Battery Division Award Reception, S*tar 5, Conference Center, Sunrise*
1900h.....Hugh Isaacs Symposium Banquet, *Star 1/2, Conference Center, Sunrise*
1900h.....Max Bredig Award Banquet and Address, *Star 7/8, Conference Center, Sunrise*

B1 Electrochemical Capacitors and High Power Batteries

Battery / Energy Technology / Physical and Analytical Electrochemistry

Universal 8, 1st Floor, Expo Center

Carbon Electrodes
Co-Chairs: G. Nagasubramanian and J. H. Kim

08:30 **154** Characterization of Activated Nanoporous Carbon for Supercapacitor Electrode Materials - A. Janes, H. Kurig and E. Lust (Institute of Physical Chemistry)

09:00 **155** Mesoporous Carbon Materials as Electrodes for Electrochemical Double-Layer Capacitor - S. Dai, C. Liang, S. H. Park, N. J. Dudney and D. DePaoli (Oak Ridge National Laboratory)

09:30 **156** Preparation of Porous Carbon with Mesopores and Its Application to EDLC - T. Tsumura (Oita University), T. Morishita (Toyo Tanso Co., Ltd.) and M. Inagaki (Faculty of Engineering, Aichi Inst. Tech.)

10:00 Intermission (20 Minutes)

10:20 **157** Effect of Sub-Nanometer Pore Size on Capacitance of Carbon - J. Chmiola, Y. Gogotsi, G. Yushin, C. Portet (Drexel University), P. Simon and P. Taberna (Universite Paul Sabatier)

10:50 **158** Power Electrodes Design For Carbon Carbon Supercapacitor Applications - P. Simon (Universite Paul Sabatier), C. Portet (Drexel University) and P. Taberna (Universite Paul Sabatier)

11:20 **159** 3-V Window of Graphite Oxide Supercapacitor in Aqueous Media - B. Yazdani and A. Eftekhari (Materials and Energy Research Center)

Characterization and Modeling
Co-Chairs: B. Wei and J. Miller

14:00 **160** A Novel AC Impedance Model for Electrochemical Devices - V. Subramanian, V. Diwakar, K. Potukuchi and A. Guduru (Tennessee Technological University)

14:30 **161** Electrochemical Capacitor System Life: Reductions Due to Cell Temperature and Voltage Non-uniformity - J. R. Miller and S. Butler (JME, Inc.)

15:00 **162** Characterization of $LiMn_2O_4$/C Composite Electrodes for Non-Aqueous Supercapacitors - K. Kim, J. Yoo, S. Kim and T. Yeu (Chung-Ang University)

15:30 Intermission (15 Minutes)

15:45 **163** Carbon Nanoarchitectures with Ultrathin Electroactive Polymer and Metal Oxide Coatings for Electrochemical Capacitor Applications - J. W. Long, A. Fischer and D. Rolison (Naval Research Laboratory)

16:15 **164** In Situ X-Ray Diffraction Studies of Sion Power Li/S Secondary Cells - G. Roberts, D. H. Doughty (Sandia National Laboratories), Y. Gerenov, M. Simoneau and V. Puglisi (Sion Power)

B2 Intercalation Compounds for Batteries and Hybrid Supercapacitors

Energy Technology / Battery

Universal 2, 1st Floor, Expo Center

Trends and Methods
Co-Chairs: M. Doeff and S. Okada

10:00 **226** Recent Trends in Intercalation Chemistry Cathodes and Anodes for Lithium Batteries - M. Whittingham, N. Chernova, J. Chen, Q. Fan and J. Xiao (SUNY)

10:40 **227** Surface Modification of Carbonaceous Materials by Fluorinated Gases and use as Anode in Lithium-Ion Batteries - H. Groult (University Paris 6 - CNRS), T. Nakajima (Aichi Institute of Technology), L. Perrigaud (Pierre and Marie Curie University), A. Tressaud (ICMCB CNRS) and Y. Ozhawa (Aichi Institute of Technology)

11:00 **228** Design and Optimization of Hybrid Power Systems for Fully Implantable Medical Devices - A. Sastry, C. Wang and Y. Chen (University of Michigan)

11:30 **229** Investigating SEI Formation on Lithium Ion Electrodes by Solid State NMR - S. G. Greenbaum (Hunter College of CUNY)

Battery and Supercapacitor I
Co-Chairs: A. Yamada and A. Mauger

14:00 **230** Co-Synthesis of $LiFePO_4$ and Carbon Nanotubes - M. M. Doeff and J. Wilcox (Lawrence Berkeley National Laboratory)

14:30 **231** Electronic, Structural and Magnetic Properties of Nanocrystalline $Li_{1+x}Mn_{2-x}O_4$ Spinels - J. R. Dygas, M. Kopec, F. Krok (Warsaw University of Technology), F. Gendron (University P & M Curie), A. Mauger (CNRS) and C. M. Julien (Universite P. et M. Curie)

15:00 **232** Comparison of Aqueous and Organic Hybrid Supercapacitors Using Simple Transition Metal Oxide Electrodes - T. Brousse (Laboratoire Genie des Materiaux et Procedes Associes), R. Marchand, D. Schleich (LGMPA - Polytech - Universite de Nantes), P. Taberna, P. Simon (Universite Paul Sabatier), M. Toupin and D. Bélanger (UQAM Montreal)

15:20 **233** Effects of Divalent Cation Adsorption on Interfacial Lithium-Ion Transfer at $LiMn_2O_4$ Thin Film/Aqueous Electrolyte Interface - Z. Ogumi, T. Nozawa, N. Nakayama, Y. Iriyama, T. Abe (Kyoto University) and K. Kikuchi (The University of Shiga Prefecture)

15:40 **234** Electrochemical Lithium and Sodium Reactions with Carbon Microspheres Obtained by Polycondensation - J. L. Tirado, R. Alcantara, P. Lavela and G. Ortiz (Universidad de Cordoba)

Battery and Supercapacitor II
Co-Chairs: A. Sastry and S. Greenbaum

16:20 **235** The Kinetics of Sub-Fluorinated Carbon Fluoride Cathodes for Lithium Batteries - R. Yazami (CNRS-CALTECH), Y. Ozawa (CalTech-CNRS), B. Fultz (California Institute of Technology), A. Hamwi (University Clermont-Ferrand II, LMI), J. Whitacre and R. Bugga (Jet Propulsion Laboratory)

16:40 **236** Hybrid Electrochemical Capacitor Using Graphitizable Carbon Activated with KOH for Positive Electrode - T. Aida (Daihatsu Motor Co., Ltd.), I. Murayama, K. Yamada (Daihatsu Motor Co.,Ltd.) and M. Morita (Yamaguchi University)

17:00 **237** Correlating the Oxygen Redox Chemistry and Oxygen Nonstoichiometry of $La_{1-x}Sr_xMnO_{3+\delta}$ SOFC Cathodes - J. L. Fournier and V. Birss (University of Calgary)

17:20 **238** Preparation of Porous Carbon with Bimodal Porous Structure and as a Electrode Material for Electric Double-Layer Capacitor - S. Woo, K. Dokko and K. Kanamura (Tokyo Metropolitan University)

17:40 **239** Nanohybrid Core-Shell and Lamellar Materials Based on Transition Metal Oxide/ Sulphide and Conducting Polymers: Insight in Electrochemical Properties - M. Delville, M. Quintin, G. Campet (ICMCB/CNRS), O. Devos (LISE/CNRS) and V. Murugan (Centre for Materials for Electronics Technology)

B3 Lithium-Ion Batteries

Battery / Energy Technology

Galactic 2, Conference Center, Sunrise

Cathodes
Co-Chairs: G. Ceder and T. Ohzuku

08:00 **313** Ultra-High Rate Phosphate Cathodes for Lithium-Ion Batteries - Y. Chiang, N. Meethong (Massachusetts Institute of Technology), S. Chang, H. Huang, W. Carter (MIT), A. S. Gozdz and A. Shiao (A123Systems, Inc.)

08:30 **314** $LiFePO_4$ High Electrochemical Performance at 60ºC with Purity Controlled by SQUID Magnetometry - K. Zaghib (Hydro-Quebec), A. Mauger (CNRS), C. M. Julien (Universite P. et M. Curie) and J. Goodenough (University of Texas)

08:50 **315** Cycle Life Improvement of $LiFePO_4$ Cell at High Temperature by Vinylene Carbonate as Electrolyte Additive - M. Yang (Industrial Technology Research Institute), H. Wu (Materials Research Laboratories, ITRI) and C. Su (Industrial Technology Research Institute)

09:10 **316** Improved Electrochemical performance of $LiMnPO_4$ by Spray Dry Method - H. Noguchi and Y. Xia (Saga University)

09:30 **317** Study on the Cycle Performance of $LiFePO_4$ at Elevated Temperature - H. Chang, C. Chang (National Taiwan University), H. Wu (Materials Research Laboratories, ITRI), M. Yang (Industrial Technology Research Institute) and N. Wu (National Taiwan University)

09:50 Intermission (20 Minutes)

10:10 **318** Transport and Phase Stability in $LiFePO_4$ - G. Ceder, T. Maxisch, F. Zhou and B. Kang (MIT)

10:40 **319** Incomplete Miscibility Gap in Li_xFePO_4: Some Influential Factors - A. Yamada, A. Yamada, H. Koizumi, S. Nishimura, N. Sonoyama, R. Kanno (Tokyo Institute of Technology), M. Yonemura (Ibaraki University), T. Nakamura (Hyogo University), S. Seki (Yokohama National University), Y. Ohno, Y Kobayashi and H. Miyashiro (Central Research Institute of the Electric Power Industry)

11:10 **320** Electrochemical Properties of a New Phase $Li_4VO(PO_4)_2$ Synthesized by Ion Exchange - K. S. Manepalli, V. Pralong, V. Caignaert and B. Raveau (ENSICAEN)

11:30 **321** Effect of Various Organic Precursors on the Performance of $LiFePO_4$/C Composite Cathode by Co-Precipitation Method - J. Chen (National University of Kaohsiung), Y. Lin and C. Wang (National Sun Yat Sen University)

11:50 **322** Effects of pH of Precursor Solution on Particle Morphology and Electrochemical Properties of Hydrothemally Synthesized $LiFePO_4$ - K. Dokko, S. Koizumi and K. Kanamura (Tokyo Metropolitan University)

Li-Ion Batteries
Co-Chairs: M. Thackeray and R. Yazami

14:00 **323** Cathode Influence on Abuse Response of Li-ion 18650 Cells - D. H. Doughty, E. Roth and G. Nagasubramanian (Sandia National Laboratories)

14:30 **324** Effects of Cold Temperature on Performance and Stability of Li-Ion Cells - H. Maleki (Motorola)

14:50 **325** Withdrawn

15:10 **326** Improving High-Temperature Performance of $Li_{1+x}[Ni_{1/3}Co_{1/3}Mn_{1/3}]_{1-x}O_2$ vs. Graphite Using Electrolyte Additives and Alternative Salt - J. Liu, S. Busking and K. Amine (Argonne National Laboratory)

15:30 Intermission (20 Minutes)

15:50 **327** Numerical Analysis for Internal Short-Circuit of Lithium-Ion Batteries - T. Kawai (Mitsubishi Chemical Group Science and Technology Research Center, INC)

16:10 **328** Battery Life Prediction - B. Liaw and M. Dubarry (University of Hawaii)

16:40 **329** Numerical Simulations of Thermal Behavior in Relation with Safety Improvement of Li-Ion Battery - Y. Nishiyama, T. Tanaka and K. Nakajima (Sony corporation)

17:00 **330** Packing Density Effect of Mixed Particles of Different Particle Size in Ceramic layer of Lithium Ion cells - S. Lee, J. Kim, J. Nakajima, Y. Chang, W. Han, C. Hwang, W. Lim, M. Lee, H. Bak, H. Lee and Y. Kim (Samsung SDI)

17:20 **331** Lithium Batteries in Stand Alone Photovoltaic Applications - F. Mattera (CEA-INES), D. Mourzagh (CEA-LCE) and F. Fusalba (CEA-INES)

B4 Metal/Air and Metal/Water Batteries

Battery / Energy Technology

Universal 7, 1st Floor, Expo Center

Co-Chairs: K. Zaghib and J. J. Xu

10:00 **375** Novel Anode for High Power Zinc-Air Batteries - G. X. Zhang (Teck Cominco)

10:30 **376** Electrochemical and Surface Studies of Zinc in Alkaline Solutions Containing Organic Corrosion Inhibitors-From Lab Studies to a Metal-Air Battery - Y. Ein-Eli (Technion-Israel institute of Technology)

11:00 **377** The Effect of Additives on the Electrochemical Properties of Nano-Sized Fe_2O_3-Loaded Carbon for Fe-Air Battery Anode - H. T. Bui (Japan Science and Technology Agency (JST)), J. Kageura (Interdisciplinary Graduate School of Engineering Sciences, Kyushu University), T. Doi, S. Okada and J. Yamaki (Kyushu University)

11:20 **378** Developing a Battery using Concrete as an Electrolyte - G. T. Burstein and E. Speckert (University of Cambridge)

11:40 **379** Effect of Net Geometry on Limiting Current Density Distribution in a Parallel Plate Channel - M. Venkatraman, S. Shimpalee and J. Van Zee (University of South Carolina)

Co-Chairs: C. S. Wang and Y. Ein-Eli

14:00 **380** Novel Bifunctional Non-Noble-Metal Catalysts for Oxygen Electrochemistry - J. J. Xu and Y. Yang (Rutgers, The State University of New Jersey)

14:30 **381** Non-Platinum Air Cathode Catalyst for Metal/Air Batteries - K. Sawai, D. Uda, K. Shirai and Y. Maeda (Osaka City University)

15:00 **382** Development of Perovskite on Carbon Nanofiber Electrodes by Electrospinning for Zinc-Air Batteries - Y. Shao-Horn, Y. Kim, S. Koc and Y. Kim (MIT)

15:30 Intermission (20 Minutes)

15:50 **383** Titanium-Based Air Electrodes for Secondary Air Batteries - Y. Hattori, M. Matsunaga (Kyushu Institute of Technology) and M. Morimitsu (Doshisha University)

16:10 **384** Co_3O_4 Particles Dispersed on Nb-Doped TiO_2 Support Studied as Oxygen Bifunctional Electrocatalyst - S. Poirier (Universite du Quebec a Montreal), M. De Koninck and B. Marsan (UQAM)

16:30 **385** Porous Carbon from Bamboo as a Novel Carbon Support/Electrocatalyst of Air-Cathodes - C. Lan, Y. Chi and T. Chin (National Tsing Hua University, Taiwan, ROC)

16:50 **386** Air Breathing MnO_2 Cathodes in Alkaline Electrolytes - M. C. Kimble, T. Blakley and K. Jayne (MicroCell Technologies, LLC)

17:10 **387** Impedance Modeling of the Oxygen Electrode in Alkaline Solutions - A. Svensson (Sintef), H. Weydahl and S. Sunde (NTNU)

B6 Proton Exchange Membrane Fuel Cells 6

Energy Technology / Physical and Analytical Electrochemistry / Battery / Industrial Electrolysis and Electrochemical Engineering

Galactic 5, Conference Center, Sunrise

Nanostructured Carbon Supports and Electrodes
Co-Chairs: V. Hacker and K. Vinodgopal

08:00 **547** Sonochemically Prepared Platinum Catalysts for Fuel Cell Applications - K. Vinodgopal (Indiana University Northwest), B. Seger, A. Kongkanand and P. Kamat (University of Notre Dame)

08:20 **548** Fine Size Control of Pt Clusters on Carbon Nanotubes and The Relationship between Their Electronic Structure and CO Adsorption Strength - Y. Kim, Y. Kim, I. Dabo (MIT), K. Ohshima, T. Ooi (JAIST), T. Uruga (SPring-8), K. Kobayashi (JASRI/SPring-8), M. Takata, H. Suematsu (SPring-8), T. Mitani (JAIST), N. Marzari and Y. Shao-Horn (MIT)

08:40 **549** PEFC Electrodes Based on Vertically Oriented Carbon Nanotubes - T. Hatanaka (Toyota Central R&D Labs. Inc.), H. Nakanishi, S. Matsumoto (Toyota Motor Corporation) and Y. Morimoto (Toyota Central R&D Labs. Inc.)

09:00 **550** Effect of Catalyst Support Morphology on the PEMFC Performance - M. M. Waje, W. Li, Z. Chen (University of California Riverside) and Y. Yan (University of California, Riverside)

09:20 **551** Characterization of Carbon Nanofiber-Based Fuel Cell Electrodes - V. Hacker (Institute for Chemistry and Technology of Inorganic Materials), W. R. Baumgartner (CD-Laboratory for Fuel Cell Systems), E. Wallnofer (Graz University of Technology, Graz, Austria), T. Schaffer (Graz University of Technology, CD-Laboratory of Fuel Cell Systems) and J. Besenhard (nstitute for Chemsitry and Technology of Inorganic Materials)

Galactic 8, Conference Center, Sunrise

Durability - Catalyst Activity & Stability
Co-Chairs: K.-I. Ota and H. Gasteiger

08:00 **552** Carbon Supported Pt and PtCo Alloys with Improved Corrosion Resistance for PEMFC - S. C. Ball, S. Hudson, B. Theobald and D. Thompsett (Johnson Matthey Technology Centre)

08:40 **553** DFT Study of Activity and Corrosion of Pt-based Alloy Electrocatalysts - Y. Fujiwara (Ohio State University), L. Qi (OSU), T. He (Honda Research Institute USA), C. Forst, X. Qian (MIT) and J. Li (Ohio State University)

09:00 **554** Structure Determination of Platinum Alloy Particles for Polymer Electrolyte Fuel Cells - M. C. Pelsozy, P. Pietrasz, T. A. Zawodzinski and F. Ernst (Case Western Reserve University)

09:20 **555** Dissolution of Ru from PtRu Electrocatalysts and its Mobility in DMFCs - L. Gancs, N. Hakim, B. Hult, T. Arruda and S. Mukerjee (Northeastern University)

09:40 Intermission (20 Minutes)

10:00 **556** Dissolution of Platinum in Acidic Media - K. Ota, Y. Koizumi, S. Mitsushima and N. Kamiya (Yokohama National University)

10:40 **557** Deterioration of Pt Catalyst under Potential Cycling - S. Kawahara, S. Mitsushima, K. Ota and N. Kamiya (Yokohama National University)

11:00 **558** Accelerated Degradation Tests for Pt/C Catalysts in Sulfuric Acid - R. Ornelas (CNR-ITAE), A. Stassi (CNR ITAE), E. Modica, A. S. Arico (CNR-ITAE) and V. Antonucci (CNR ITAE)

11:20 **559** In-Situ Time-Resolved XAFS Observation of Pt/C Catalysts on Cathode Side of PEM Fuel Cell - S. Murata (Toyota Motor Corporation), M. Tada (University of Tokyo), T. Asaoka, K. Hiroshima (Toyota Central R&D Labs., Inc.), H. Nakanishi, S. Matsumoto (Toyota Motor Corporation) and Y. Iwasawa (University of Tokyo)

11:40 **560** Size Effects of Platinum Nanoparticles on Activity, Peroxide Formation, and Durability of Pt/C Catalysts - M. Inaba, H. Yamada, J. Tokunaga and A. Tasaka (Doshisha University)

Galactic 4, Conference Center, Sunrise

Fuel Cell Systems and Components
Co-Chairs: T. Fuller and V. Ramani

08:00 **561** Performance Analysis of Air-Breathing Fuel Cells - S. Litster (Stanford University) and N. Djilali (University of Victoria)

08:20 **562** Investigating the Role of a Microporous Layer on the Water Transport and Performance of a PEMFC - J. G. Pharoah, B. Peppley, H. Atiyeh, E. Halliop, K. Karan (Queen's-RMC Fuel Cell Research Centre) and A. Phoenix (University of Saskatchewan)

08:40 **563** Interfacial and Bulk Thermal and Mass Transport Parameters in Fuel Cell Media - M. Mench, R. Ramasamy, K. Cho and M. Khandelwal (Penn State University)

09:00 **564** Effect of Anisotropy of Gas Diffusion Layers on Two-Phase Heat and Mass Transport in Polymer Electrolyte Fuel Cells - U. Pasaogullari (University of Connecticut), P. P. Mukherjee, C. Wang (The Pennsylvania State University) and K. Chen (Sandia National Laboratories)

09:20 **565** Oscillations in the Gas Channels - The Forgotten Player in Impedance Spectroscopy in Polymer Electrolyte Fuel Cells B. Modeling the Wave - D. Kramer, I. A Schneider, A. Wokaun and G. Scherer (Paul Scherrer Institut)

09:40 Intermission (20 Minutes)

10:00 **566** Bipolar Miniaturised Proton Exchange Fuel Cell Fabricated in a Polymeric Substrate - G. A. D'Arrigo, C. Spinella, G. Floridia (CNR-IMM), S. Specchia (Politecnico di Torino, Italy) and E. Rimini (CNR-IMM)

10:20 **567** Hydrogen Generation from Hydrolysis of Sodium Borohydride for PEMFC - J. Han (Korea Institute of Industrial Technology)

Galactic 5, Conference Center, Sunrise

PEMFC: Supports and Catalysts
Co-Chairs: T. Zawodzinski and K. Kanamura

10:00 **568** Non-Catalytic Graphitization of Phloroglucinolic Resin at Low Temperature (850°C) - H. Kim (Korea Institute of Industrial Technology)

10:20 **569** Estimating Interaction Forces and Studying their Effects on the Structure of PEM Supported Catalysts - R. Subbaraman, T. A. Zawodzinski and J. Mann (Case Western Reserve University)

10:40 **570** Preparation of Nano-Structured Catalyst Layers on Nafion Membrane by Electrophoretic Deposition - H. Munakata, T. Ishida and K. Kanamura (Tokyo Metropolitan University)

11:00 **571** Ligand-Stabilized Platinum Nanoparticles in Multi-Layer Films as Active Electrocatalysts for PEM Fuel Cells - C. Kostelansky, J. Pietron, W. Dressick, K. Swider-Lyons and T. Schull (Naval Research Laboratory)

11:20 **572** Development of High Performance Electrocatalysts for Hydrogen/Air and Direct Methanol Fuel Cells Based on Modified Carbon Black Technology - G. Rice (Cabot Corporation), J. Xie (Cabot Superior MicroPowders), H. Lei, Y. Sun, A. Kyrlidis, B. Napadensky and P. Atanassova (Cabot Corporation)

11:40 **573** Development of Durable, Low-Cost, High-Performance Pt Alloy Elctrocatalysts for H_2/Air Fuel Cell Application - Y. Sun, J. Brewster, G. Rice and P. Atanassova (Cabot Corporation)

PEMFC: Catalysis
Co-Chairs: E. Cairns and E. Stuve

14:00 **574** Probing The Electrocatalytic Interface of Novel Fuel Cell Electrocatalysts - A. C. Fojas, P. McGrath, J. Reimer and E. Cairns (University of California - Berkeley)

14:20 **575** Quantitative On-Line Mass Spectrometry - A Method to Measure Kinetic Rates of Multi-Step Reactions - L. M. Roen and E. Stuve (University of Washington)

14:40 **576** Hydrogen Oxidation on Partially Immersed Electrode - T. Kinumoto, T. Kinumoto, Y. Uchimoto (Kyoto University), K. Kikuchi (The University of Shiga Prefecture), Y. Iriyama, T. Abe and Z. Ogumi (Kyoto University)

15:00 **577** Studies of the CO Tolerance for Anodes of PtFe/C in PEMFC - E. A. Ticianelli, L. G. Pereira and V. A. Paganin (USP - Institute of Chemistry of Sao Carlos)

15:20 **578** 64-Channel PEM Fuel Cell Studies of CO-Tolerant Hydrogen Oxidation Catalysts - D. Stevens, J. Rouleau, R. Mar (Dalhousie University), R. Atanasoski, A. Schmoeckel, M. K. Debe (3M) and J. Dahn (Dalhousie University)

15:40 **579** Distribution of Nafion Ionomer in PEFC Electrodes with High Catalyst Utilization - H. Uchida, J. Song and M. Watanabe (University of Yamanashi)

16:00 **580** Enhancement in Activity and Durability of Fuel Cell Anodes and Cathodes by the Modification of Pt/C with Ruthenium Oxide Nanosheets - W. Sugimoto, T. Saida and Y. Takasu (Shinshu University)

16:20 **581** Pulse Electrodeposition of Platinum Using Narrow Pulse Width, High Peak Current Density and Various Pulse Waveforms - S. Karimi and F. Foulkes (University of Toronto)

Galactic 8, Conference Center, Sunrise

Durability - Catalyst Support Stability & Impurity Impact
Co-Chairs: S. Ball and H. Chizawa

14:00 **582** Study of Accelerated Test Protocol for PEFC Focusing on Carbon Corrosion - H. Chizawa, Y. Ogami, H. Naka, A. Matsunaga, N. Aoki and T. Aoki (Toshiba Fuel Cell Power Systems Corporation)

14:40 **583** Degradation Resistant Cathodes in Polymer Electrolyte Membrane Fuel Cells - S. Ye, M. Hall, H. Cao and P. He (Ballard Power Systems)

15:00 **584** Degradation of Carbon Supported Pt Anode and Cathode Catalysts in PEM Fuel Cells - T. Okada (National Institute of Advanced Industrial Science and Technology), M. Sugiura and G. Xie (Aisin Seiki Co., Ltd.)

15:20 **585** Durability Investigation of Cup-Stacked Carbon Nanotubes Supported Pt as PEMFC Catalyst - M. M. Waje, W. Li, Z. Chen and Y. Yan (University of California, Riverside)

15:40 **586** Durability of Platinum Electrocatalysts on Carbon Supports in PEFCs - M. R. Dowlapalli, P. Atanassov (University of New Mexico), J. Xie (Cabot Superior MicroPowders) and G. Rice (Cabot Corporation)

16:00 **587** Electrochemical Stability of Carbon Material in Acidic Solution - H. Choo, T. Kinumoto, Y. Iriyama, T. Abe and Z. Ogumi (Kyoto University)

16:20 Intermission (20 Minutes)

16:40 **588** Impact of SO_2 on the Performance of PEMFC Cathodes - Y. Garsany (Naval Research Laboratory), O. A. Baturina (Nova Research/ Naval Research Laboratory), J. Pietron and K. Swider-Lyons (Naval Research Laboratory)

17:00 **589** LANL's Approach to H_2/Air and Impurities PEM Fuel Cell Testing - T. Rockward, J. Valerio, F. Garzon and F. Uribe (Los Alamos National Laboratory)

17:20 **590** The Impact of Hydrogen Fuel Contaminates on Long-Term PEMFC Performance - F. Garzon, F. Uribe, T. Rockward, I. Urdampietta, J. Valerio and E. Brosha (Los Alamos National Laboratory)

17:40 **591** The Effects of Cationic Contamination on PEM Hydrogen Fuel Cells - B. L. Kienitz, H. Baskaran and T. A. Zawodzinski (Case Western Reserve University)

C4 Pharmaco-Electrochemistry

New Technology

Universal 20, 1st Floor, Expo Center

Pharmaco Electrochemistry
Co-Chairs: M. Urquidi-Macdonald and I. Gonzalez

10:00 **740** Pharmacoelectrochemistry of Beta-Lapachone. Electrochemical Tools for Understanding the Mechanism of Biological Action - M. O. Goulart, F. de Abreu, J. Reys (Universidade Federal de Alagoas), D. Ferreira (Ecole Normale Superieure), A. Brett (Universidade de Coimbra), I. Tapsoba, S. Arbault and C. Amatore (Ecole Normale Superieure)

10:50 **741** Structural Factors Affecting the Reactivity of the Natural a-Hydroxy Benzoquinones. An Electrochemical and ESR Study. - C. E. Frontana (Universidad Autonoma Metropolitana - Iztapalapa) and I. Gonzalez (Universidad Autonoma Metropolitana - Iztapalapa)

11:15 **742** An Investigation into the Antioxidant and Metal-Binding Properties of Curcumin, S-Allyl Cysteine and Capsaicin, by Electrochemical Methods - A. Dairam, A. Dairam and J. L. Limson (Rhodes University)

11:40 **743** Metallic Interaction Effects on the Reactivity of Lawsone Semiquinones - C. E. Frontana (Universidad Autonoma Metropolitana - Iztapalapa), G. Valle (Universidad de Costa Rica), V. Ugalde-Saldivar (Universidad Nacional Autonoma de Mexico) and I. Gonzalez (Universidad Autonoma Metropolitana - Iztapalapa)

12:05 Intermission (60 Minutes)

13:05 Intermission (30 Minutes)

13:35 **744** Electrochemical Study of Benzodiazepines Derivativ es Applied to the Analysis of Structure-Activity Relationships and Interactions with Membrane Models - L. M. Yudi (Universidad Nacional de Cordoba)

14:25 **745** Heavy Metal Transfer Across an Interface Model System Assisted by Diazadibenzocrown Ethers - M. Velazquez-Manzanares, G. Guerrero-Trejo (Universidad del Mar), J. Aguilar (Universidad Nacional Autonoma de Mexico) and J. Amador-Hernandez (Uinversidad del Mar)

14:50 **746** Characterization of the Cell Membrane Potential using Voltage Sensitive Dye - O. Ortiz, A. Hoff and M. Jaroszeski (University of South Florida)

15:15 Intermission (15 Minutes)

15:30 **747** Substituent Effects on the Stability of Radical Dianion of 4-R-2-Nitrophenols. Electrochemical and ESR Study. - J. A. Morales (Universidad Nacional Autonoma de Mexico, J. Bautista-Martinez (UNAM) and I. Gonzalez-Martinez (Universidad Autonoma Metropolitana)

15:55 **748** Electrochemical Study of Methyl 2-[p-Nitrophenyl(Hydroxy)-Methyl] Acrylate, an Anticancer Drug, in the Presence of GSH and dsDNA - M. O. Goulart, A. de Souza, E. Sales (Universidade Federal de Alagoas) and W. Almeida (UNICAMP)

16:20 **749** Interaction of Antiprotozooal Drugs with Biomolecules. An ESR and UV-Vis Spectroelectrochemical Study. - D. U. Sanchez, J. Bautista-Martinez (UNAM), I. Gonzalez (UAM-I), C. E. Frontana (Universidad Autonoma Metropolitana - Iztapalapa), P. Diaz de Leon-Luna and M. Aguilar-Martinez (Facultad de Quimica, UNAM)

D2 Corrosion of Electronic Materials and Devices

Corrosion / Electronics and Photonics

Universal 15, 1st Floor, Expo Center

Corrosion of Electronics
Co-Chairs: L. Garfias, R. Frankenthal, R. Sorensen and L. Diaz

08:00		Introductory Remarks (5 Minutes)
08:05	**795**	Modeling the Influence of the Electrolyte on the Selective Dissolution of the Least Noble Component from a Binary Alloy - S. Policastro (UVA) and R. G. Kelly (University of Virginia)
08:20	**796**	Electrochemical Shorting Behavior of Two Copper Electrodes Under Permanent Bias in 0.5M NaCl Solution - S. Jebnoun (ENSCP), E. Sutter (LGPPTS-ENSCP) and B. Tribollet (LISE-CNRS)
08:40	**797**	Monitoring Corrosion of Electronic Material and Devices Due to Ionic Contamination - B. J. Newton (Dionex Corporation)
09:00	**798**	Corrosion Resistance of Copper Coated Contacts - M. Reid, J. Punch (University of Limerick), G. Grace (Molex) and L. Garfias (S.C. Johnson & Son, Inc.)
09:20	**799**	The Investigation of Au/Pd-Ni/Ni Plating for Electrical Contacts - O. Hiramoto (Sony Corporation)
09:40		Intermission (20 Minutes)
10:00	**800**	Corrosion and Environmental Effects on Electronic Systems - R. Ambat, P. Moller and P. Westermann (Technical University of Denmark)
10:20	**801**	Accelerated Atmospheric Corrosion of Various Metals and Devices Using the Mixed Flowing Gas Chamber - K. L. Shannon (Southwest Research Institute) and L. Garfias (S.C. Johnson & Son, Inc,)
10:40	**802**	Biased Mixed Flowing Gas Testing for World Class Reliability - G. E. Derkits, J. Franey, W. Reents and D. Fleming (Lucent Technologies)
11:00	**803**	Ionic Migration in Soldered Joints of a Printed Circuit Board - M. A. Neri, C. Carreno and A. Martinez_Villafane (CIMAV)
11:20	**804**	Corrosion Products Formed on Silver and Copper Plates Exposed in a Volcanic Area - M. Watanabe, T. Handa (Nippon Telegraph and Telephone East Corporation), T. Ichino (Nippon Telegraph and Telephone Corporation) and N. Kuwaki (Nippon Telegraph and Telephone East Corporation)
11:40	**805**	Evaluation of Silver Corrosion Behavior in Sulfur Gas Released from Rubber - R. Minamitani (Hitachi, Ltd.)
12:00		Intermission (60 Minutes)
13:00		Intermission (60 Minutes)
14:00	**806**	Comparative Study of Breakdown Phenomena between Al/PEDT and Ta/PEDT Capacitor - K. Ueno, L. Dominey (Chemi-Con Materials Corp.) and R. Alwitt (Boundary Technologies, Inc.)
14:20	**807**	A Corrosion Sensor for Integrated State-of-Health Evaluation - R. Sorensen and J. Stamps (Sandia National Labs)
14:40	**808**	Hexavalent Chromium-Free Pre-Treatment for Galvanized Steel - L. A. Hernandez and L. Hernandez (Institute of Metallurgy, UASLP)
15:00	**809**	Study of Cerium Salts Concentration on AISI 1018 Commercial Steel as an Alternative in the Chemical Conversion Treatments - F. J. Rodriguez (Universidad Nacional Autonoma Mexico, UNAM), E. Onofre (UNAM), M. A. Dominguez (IPN), A. Olvera and J. Genesca (UNAM)
15:20	**810**	Kinetics of Growth and Properties of Anodic Antimonium Oxide Films - M. Lopez Teijelo and O. Linarez Perez (Universidad Nacional de Cordoba)
15:40	**811**	Ensuring High Reliability on S.C. Johnson Electrical Devices - J. Murillo (S.C. Johnson)
16:00		Discussion (30 Minutes)

D4 Critical Factors in Localized Corrosion 5, a Symposium in Honor of Hugh S. Isaacs

Corrosion

Universal 1, 1st Floor, Expo Center

Porous Anodic Films
Chair: S. Virtanen

08:00	**900**	From Random Pits to Synchronized Pores - P. Schmuki and (University of Erlangen)
08:30	**901**	Nanotube Arrays of TiO_2 Formed by Anodic Processes - B. Smyrl and M. Alhoshan (University of Minnesota)
08:50	**902**	Anodic Oxide Nanotubes on Biomedical Ti Alloys - H. Tsuchiya (Osaka University), J. Macak, A. Ghicov (University of Erlangen-Nuremberg) and P. Schmuki (University of Erlangen)
09:10	**903**	Microstructure and Corrosion Resistance of Anodic Films Formed on Magnesium - S. Ono, A. Suzuki and H. Asoh (Kogakuin University)
09:30	**904**	Model for the Steady-State Growth of Porous Anodic Alumina Films - J. Houser and K. Hebert (Iowa State University)
09:50		Intermission (20 Minutes)

Corrosion of Mg and Mg Alloys
Chair: P. Schmuki

10:10	**905**	Passivity and Localized Corrosion of Magnesium Alloys - A. J. Davenport, M. Gonzalez-Torreira, A. Fones, C. Padovani, B. Connolly (University of Birmingham), N. Stevens, T. Beale (University of Manchester), M. Stampanoni and A. Groso (Paul Scherrer Institut)
10:30	**906**	Localized Corrosion of Magnesium-Yttrium-Titanium Thin-Film Alloys - B. A. Shaw and E. Sikora (The Pennsylvanis State University)
10:50	**907**	Localized Corrosion of Magnesium in Chloride Containing Electrolyte Studied by a Scanning Vibrating Electrode Technique - G. Williams and H. N. Mcmurray (University of Wales Swansea)

11:10 **908** Influence of Simulated Biological Solutions on the Corrosion Behavior of an Mg Alloy - S. Virtanen and R. Rettig (University of Erlangen-Nuremberg)

Corrosion Resistant Alloys-Kinetics, Crevice Corrosion, and Passivity
Co-Chairs: J. Payer and R. Kelly

14:00 **909** Kinetic Studies of Localized Corrosion Using the Artificial Pit Electrode - R. Newman, A. Carcea and D. He (University of Toronto)

14:30 **910** Kinetic Stability Diagrams - D. D. Macdonald (Pennsylvania State University)

14:50 **911** Kinetics of Cathodic Reduction of Oxygen on Ni-Cr-Mo-W Alloy - D. Zagidulin, B. Sherar, P. Jakupi, J. Noel and D. Shoesmith (University of Western Ontario)

15:10 **912** Oxygen Electroreduction on Ni-Cr-Mo Alloys - S. P. Rogers, D. F. Gervasio (Arizona State University) and J. Payer (Case Western Reserve)

15:30 **913** Quantitative Analyses of the Severity of Attack on Crevice Corrosion Samples with Rigorously Controlled Crevice Dimensions - A. J. Hodges and R. G. Kelly (University of Virginia)

15:50 Intermission (20 Minutes)

16:10 **914** Modeling of Crevice Corrosion Stability and Stifling of a NiCrMo Alloy and Stainless Steel - F. J. Presuel-Moreno, F. Bocher, J. Scully and R. G. Kelly (University of Virginia)

16:30 **915** Modeling the Effects of Crevice Former, Particulates, and the Evolving Surface Profile in Crevice Corrosion - U. Landau, A. S. Agarwal, X. Shan and J. Payer (Case Western Reserve University)

16:50 **916** Effect of Soaking in Hot Saline Solutions and Humid Atmospheres on the Passive Film Behavior of a Ni-Cr-Mo Alloy - P. Pharkya and J. H. Payer (Case Western Reserve University)

17:10 **917** Corrosion Resistances of Iron-Based Amorphous Metals with Yttrium and Tungsten Additions in Hot Calcium Chloride Brine - J. C. Farmer, S. Day, J. Haslam (LLNL) and N. Yang (Sandia)

E1 Solid-State Joint General Session

Dielectric Science and Technology / Electronics and Photonics
Universal 14, 1st Floor, Expo Center

Session 1
Co-Chairs: K. Sundaram and R. Todi

10:00 **983** Thermal Oxide Grown on High Index Silicon Wafers - R. Rodriguez, F. De la Hidalga, A. Torres (Instituto Nacional de Astrfisica Optica y Electronica) and D. Kendall (STAR MEGA)

10:20 **984** Minimizing Material Loss and Surface Roughness during the Thermal Annealing of Al Implants in SiC - D. Meyer, G. Ritter and U. Keim (Centrotherm)

10:40 **985** Effective Charge Density (Neff) in MOS Structures Fabricated on High Index Silicon Wafers. - R. Rodriguez, F. De la Hidalga, A. Torres (Instituto Nacional de Astrfisica Optica y Electronica) and D. Kendall (STAR MEGA)

11:00 **986** Effects of Annealing Condition on Low-k a-SiOC:H Thin Films - J. Heo and H. Kim (Seoul National University)

11:20 **987** Silicon Pillar Fabricated for SGT with Varying the Content of O_2 in Cl_2/O_2 Gases by Using ECR Plasma Etching - T. Hidaka, H. Amikawa, H. Nakamura and F. Masuoka (Tohoku university)

Session 2
Co-Chairs: S. Seal and R. Rodriguez

14:00 **988** Integrated Precision Polysilicon Resistors - J. M. Towner and J. J. Naughton (AMI Semiconductor)

14:20 **989** Influence of Interface Recombination in Light Emission from Lateral Si-Based Light Emitting Devices - T. Hoang, P. LeMinh, J. Holleman (University of Twente) and J. Schmitz (MESA+ Institute for Nanotechnology, University of Twente)

14:40 **990** Mechanical and Dielectric Properties of Pure-Silica-Zeolite Low-k Materials - C. M. Lew, Z. Li, M. Johnson, M. Sun (University of California, Riverside), E. Ryan (Advanced Micro Devices, Inc.), D. Earl (Rice University), W. Maichen (Teradyne, Inc.), J. Martin (Advanced Micro Devices, Inc.), S. Li, J. Wang (University of California, Riverside), M. Deem (Rice University), M. Davis (California Institute of Technology) and Y. Yan (University of California, Riverside)

15:00 **991** Loading Effects in the Selective Epitaxial Growth of n-Type Doped SiGe-Structures with LPCVD - M. W. Schindler, O. Senftleben, I. Eisele (University of the German Federal Armed Forces Munich) and W. Taylor (Freescale Semiconductor Inc.)

15:20 **992** A Novel Technique for Measurement of Thermodynamic and Transport Properties of Materials during Chemical, Phase and Structural Transformations in a Wide Range of Temperatures - E. Litovsk y, V. Issoupov, S. Horodetsky, J. Kleiman (Integrity Testing Laboratory Inc.) and S. Stromness (INCO Technical Services Ltd.)

Session 3
Co-Chairs: V. Desai and K. Sundaram

16:00 **993** Concept and Realization of the Formation of Metastable Tetragonal $(Zr_{1-x}Ce_x)O_2$ Nanocrystals in Aqueous Solutions - M. Yoshimura, A. Ahniyaz, T. Watanabe, N. Sakamoto and T. Taniguchi (Tokyo Institute of Technology)

16:40 **994** Modeling and Mechanical Testing of Micro-Tubular SOFC - N. M. Sammes, W. McPhee, A. Mohammadi, J. Tang (University of Connecticut), M. Awano (National Insutitute of Advanced Industrial Science and Technolog (AIST)) and A. L. Smirnova (University of Connecticut)

17:00 **995** Zirconia and Ceria Based Electrolyte Materials for Microtubular SOFCs - J. Pusz, A. L. Smirnova, N. M. Sammes (The University of Connecticut), O. Vasyliev (Frantcevych Institute for Problems of Materials Science) and M. Awano (National Insutitute of Advanced Industrial Science and Technolog (AIST))

17:20 **996** Parameters Influencing the Corrosion Behavior of Brazed Material AA4343/AA3003/AA4343 in Neutral Media - N. Pebere (CIRIMAT), S. Tierce, C. Blanc (CIRIMAT/UMR CNRS 5085), C. Casenave (VALEO), G. Mankowski (CIRIMAT/UMR CNRS 5085) and H. Robidou (VALEO)

E4 High Dielectric Constant Gate Stacks 4

Dielectric Science and Technology / Electronics and Photonics
Universal 9, 1st Floor, Expo Center

Physical/Chemical Characterization
Co-Chairs: H. Iwai and C. Hwang

08:00 **1101** Analysis of Electronic Structure of High-k Films using STEM-EELS - N. Ikarashi, K. Manabe, K. Takahashi and M. Saitoh (NEC Corporation)

08:30 **1102** Advanced Nano-Analysis of High-k Dielectric Stacks and Associated Materials - M. MacKenzie, A. Craven (University of Glasgow), D. McComb (Imperial College London), S. De Gendt (IMEC and KULeuven), F. Docherty (University of Glasgow), C. McGilvery (Imperial College London) and S. McFadzean (University of Glasgow)

09:00 **1103** Metal/High-k Interface Interactions Upon High Temperature Annealing - Are They Cause of Workfunction Changes - T. Conard, T. Schram (IMEC), A. Akheyar (Infineon), K. Arstila (IMEC and KULeuven), G. Zschaetzsch, W. Vandervorst and S. S. degendt (IMEC)

09:20 **1104** Depth Profiling of Chemical and Electronic Structures and Defects of Ultrathin HfSiON on Si(100) - S. Miyazaki (Hiroshima University)

Joint E3/E4 Session on ALD High-k (Other) Applications
Co-Chairs: A. Londergan and D. Landheer

10:10 **1105** ALD Options for Si-Integrated High-Density Capacitors in Portable Devices - F. Roozeboom (Philips Research), J. Klootwijk (Philips), J. Verhoeven, E. van den Heuvel, W. Dekkers (Philips Research), S. Heil, H. van Hemmen, R. van de Sanden (Eindhoven University of Technology) and E. Kessels (TU Eindhoven)

10:40 **1106** Thermal and Remote Plasma ALD of Al_2O_3 for Trench Capacitors - H. van Hemmen, S. Heil (Eindhoven University of Technology), J. Klootwijk (Philips), F. Roozeboom (Philips Research), C. Hodson (Oxford Instruments Plasma Technology), R. van de Sanden (Eindhoven University of Technology) and E. Kessels (TU Eindhoven)

11:00 **1107** Structural and Chemical Investigation of Annealed Al_2O_3 Films for Interpoly Dielectric Applications in Flash Memories - M. Alessandri, R. Piagge, M. Caniatti, A. Del Vitto (STMicroelectronics), C. Wiemer (CNR-INFM Laboratorio MDM), G. Pavia, S. Alberici, E. Bellandi and A. Nale (STMicroelectronics)

11:20 **1108** Nanocrystalline Indium Tin Oxide Embedded Zirconium-doped Hafnium Oxide for Nonvolatile Memory Applications - A. Birge, C. Lin and Y. Kuo (Texas A&M University)

11:40 **1109** Cyclic Plasma-Enhanced Chemical Vapor Deposition of $Ge_2Sb_2Te_5$ Films using Metal-Organic Sources for Phase Change RAM - B. Choi, C. Hwang (Seoul National University), J. Lee, J. Jeong (Quros Co.), Y. Kim and S. Hong (Hynix)

Reliability Issues
Co-Chairs: D. Misra and X. Garros

14:00 **1110** Threshold Voltage Instability and Low Frequency Noise in Hafnium-Based Gate Dielectrics - F. Crupi (University of Calabria)

14:30 **1111** NBTI Effects in pMOSFETS with TiN/Hf-Silicate Based Gate Stacks - N. A. Chowdhury and D. Misra (New Jersey Institute of Technology)

14:50 **1112** Improvement in NBTI of Metal Gate pMOSFETs with Sub-1nm EOT HfSiON Gate Dielectric by $Ar/N_2/H_2(D_2)$ Plasma Nitridation - S. Inumiya, T. Aoyama and Y. Nara (Semiconductor Leading Edge Technologies, Inc.)

15:10 **1113** Charge Trapping Characteristics of W-La_2O_{3-n}Si Mis Capacitors After Post-Metallization Annealing PMA in N_2 - J. Molina, K. Tachi, K. Kakushima, P. Ahmet, K. Tsutsui, N. Sugii (Tokyo Institute of Technology), T. Hattori (FCRC, Tokyo Institute of Technology; ARL, Musashi Institute of Technology) and I. Hiroshi (Tokyo Institute of Technology)

15:30 **1114** Reliability and Stability Issues for Lanthanum Silicate as a High-k Dielectric - D. Lichtenwalner, J. Jur and A. Kingon (North Carolina State University)

15:50 **1115** Mixed Oxide High-k Gate Dielectrics - Interface Layer Structure, Breakdown Mechanism, and Memories - Y. Kuo (Texas A&M University)

16:20 Session Concluding Remarks (20 Minutes)

Modelling
Co-Chairs: M. Houssa and Y. Kuo

16:50 **1116** Electronic Structure of Defects in Dielectrics of Technological Interest with and Without Electronic Correlation - V. Fiorentini (Universita' di Cagliari), A. Filippetti (SLACS-CNR, University of Cagliari, Italy) and G. Lopez (SLACS-CNR, Uni Cagliari)

17:20 **1117** Theoretical Insigths into the High-k Dielectrics on Silicon - J. L. Gavartin, D. Munoz Ramo and A. Shluger (University College London)

17:50 **1118** Electronic Structure and Dielectric Properties of $CaCu_3Ti_4O_{12}$ Revisited - P. Alippi (CNR), V. Fiorentini (Universita' di Cagliari) and A. Filippetti (SLACS-CNR, University of Cagliari, Italy)

18:10 **1119** Numerical Analysis of Gate Stacks - M. Karner (Technische Universitat Wien), S. Holzer (Institute for Microelectronics, TU Vienna), M. Vasicek, W. Goes (Technische Universitat Wien), M. Wagner (TU Vienna), H. Kosina (Technische Universitat Wien) and S. Selberherr (TU Wien)

18:30 **1120** Dielectric Properties of High-k Materials: a Theoretical View - V. Fiorentini (Universita' di Cagliari), P. Delugas (IMEC vzw), A. Filippetti (SLACS-CNR, University of Cagliari, Italy) and G. Pourtois (IMEC, Leuven, Belgium)

18:50 Session Concluding Remarks (20 Minutes)

E6 Bioelectronics, Biointerfaces, and Biomedical Applications 2

Dielectric Science and Technology / Sensor

Universal 21, 1st Floor, Expo Center

Nanochannels and Microfluidic Systems
Co-Chairs: J. Ruehe and A. Offenhaeusser

08:00 **1191** Biomolecular Interaction Profiling in Serum Samples Using Surface Plasmon Resonance Imaging - R. B. Schasfoort, B. Beusink (University of Twente), A. Lokate (Radboud University Nijmegen), G. Besselink (University of Twente) and G. Pruijn (Radboud University Nijmegen)

08:40 **1192** Silicon Nanowires: A Novel Platform for EWOD Actuation and Matrix-Free Mass Spectrometry Analysis - R. Boukherroub (Interdisciplinary Research Institute (IRI)), N. Verplanck (IEMN), Y. Coffinier, G. Piret (Institut de Recherche Interdisciplinaire), V. Thomy (IEMN), I. Fournier, M. Salzet (USTL) and J. Camart (IEMN)

09:00 **1193** Smart Nanoporous Membranes - S. Smirnov (New Mexico State University), I. Vlassiouk and P. Takmakov (NMSU)

09:20 Intermission (20 Minutes)

09:40 **1194** Nanofluidic Channels as Advanced Molecular Sieves: Continuous-Flow DNA and Protein Separation - J. Han, P. Mao and J. Fu (MIT)

10:20 **1195** BioMEMS and Bionanotechnology: Interfacing Life Sciences and Engineering at the Micro and Nanoscale - R. Bashir, D. Akin and L. Yang (Purdue University)

11:00 **1196** Surface Tension Effects in Nanochannels: Capillary Filling and Negative Pressure - N. R. Tas (MESA+ Institute for Nanotechnology, university of Twente), J. Haneveld, H. Jansen and M. Elwenspoek (MESA+, University of Twente)

11:40 **1197** Design and Fabrication of pH Sensitive Field-Effect Transistor for Microfluidics with Integral Reference Electrode - B. J. Polk (National Institute of Standards and Technology)

Universal 17, 1st Floor, Expo Center

Frontiers in Biosensors - Joint Session with J1
Co-Chairs: C. Kranz and Y.-L. Chang

14:00 **2094** Nanomechanical Chemistry; Elucidating the Molecular Origins of Surface Stress - M. Watari (University College London) and R. McKendry (LCN and Medicine)

14:40 **2095** A Multiplexing Immunoassay Based on Magnetic Sorting and Electrochemical Detection of Conjugated Particles - P. Hesketh, Z. Peng (Georgia Institute of Technology) and K. Kellar (National Center for Infectious Diseases)

15:00 **2096** High Index Contrast Photonic Waveguide Components for Biological Sensing - D. Xu, A. Densmore, J. Lapointe, P. Waldron, P. Cheben, A. Delage, B. Lamontagne (Institute for Microstructural Sciences), S. Janz (National Research Council Canada), J. Schmid and E. Post (Institute for Microstructural Sciences)

15:20 Intermission (20 Minutes)

15:40 **2097** From Synapse to Brain Maps: Are We There Yet? - B. Biswal (UMDNJ)

16:20 **2098** Carbon Nanotube Network: A Powerful Platform for Label-Free Biological Detection - Y. Chang, E. Tu, M. Briman, K. Joshi, J. Gabriel and C. Valcke (Nanomix)

16:40 **2099** Current-Voltage Characteristics of Gap Electrodes with lambda DNA Molecules on SiO_2/Si Substrate after Elongating Treatment - M. Morita, K. Hashimoto, T. Hanada, Y. Ochi, T. Hirokane, S. Kawakami, S. Uchiyama, K. Fukui, K. Arima and J. Uchikoshi (Osaka University)

E7 High Purity Silicon 9

Electronics and Photonics

Universal 13, 1st Floor, Expo Center

Characterization and Lifetime Analysis I
Co-Chairs: M. Watanabe and G. Rozgonyi

10:00 **1231** Infrared Absorption Spectroscopy of Complexes in Low Carbon Concentration, Low Electron Dosage Irradiated CZ Silicon Crystal - N. Inoue (Osaka Prefecture University), S. Yamazaki, Y. Goto, T. Kushida (Toyota Motor Co.) and T. Sugiyama (Toyota Central R&D Labs. Inc.)

10:40 **1232** Some Recent Advances in Contactless Silicon Characterization - D. Schroder (Arizona State University)

11:20 **1233** Comparative Study of Carrier Lifetime Variation with Doping in Si and Ge - J. Vanhellemont (Ghent University) and E. Gaubas (Vilnius University)

11:40 **1234** Impact of Halo Implantation on the Lifetime Assessment in Partially Depleted SOI Transistors - M. Galeti (University of Sao Paulo), J. A. Martino (University of Sao Paulo/Centro Universitario da FEI), E. R. Simoen and C. L. Claeys (IMEC)

Characterization and Lifetime II
Co-Chairs: D. Schroder and E. Simoen

14:00 **1235** Delineation of Crystalline Defects by Preferential Etching: Still more Alchemy than Science? - B. O. Kolbesen (Johann Wolfgang Goethe-University)

14:40 **1236** Withdrawn

15:00 **1237** Hierarchy of Tools for the Characterization of Performance Limiting Defects in PV and IC Materials - G. Rozgonyi (NC State University) and M. Wagener (NC State U)

15:40 Intermission (20 Minutes)

16:00 **1238** Observation of Vacancy in High Purity Silicon Crystal Using Low-Temperature Ultrasonic Measurements - T. Goto (Niigata University), H. Yamada-Kaneta (Fujitsu Laboratories Ltd.), Y. Saito, Y. Nemoto, K. Sato (Graduate School of Science and Technology, Niigata University), K. Kakimoto (Research Institute for Applied Mechanics, Kyushu University) and S. Nakamura (Center for Low Temperature Science, Tohoku University)

16:40 **1239** DLTS Study of Room-Temperature Defect Annealing in N-Type High-Purity FZ Si - J. Bleka, E. Monakhov (University of Oslo), B. Avset (The Norwegian Radiation Protection Authority) and B. Svensson (Department of Physics, University of Oslo)

E8 Integrated Optoelectronics 3

Electronics and Photonics / Dielectric Science and Technology

Universal 16, 1st Floor, Expo Center

Novel Structures and Analysis
Co-Chairs: F. Karouta and M. Gal

10:00 **1270** On Excitons in Zinc Oxide Functional Thin Films and Carbon Nanotubes - M. Willander (Linkoping University)

10:30 **1271** Optical Self-Trapping and Related Phenomena in Photochemical Systems - K. Saravanamuttu (McMaster University)

11:00 **1272** Estimation of Strain by Analysis of the Degree of Polarization of Luminescence - D. T. Cassidy (McMaster University)

11:30 **1273** Erbium-Doped Chalcogenide Glass Photonics: Recent Advances in Materials Research - S. Kasap, C. Koughia (University of Saskatchewan) and R. DeCorby (University of Alberta)

12:00 **1274** Prevention of Sticking in MEMS Devices by Electrodeposition - T. Sakata, H. Ishii, N. Sato, K. Kuwabara, T. Shimamura (NTT), K. Kudou and K. Machida (NTT Advanced Technology Corp.)

Silicon Photonics
Co-Chairs: S. Kasap and D. Cassidy

14:30 **1275** Porous Silicon Based Graded Refractive Index Optical Devices - M. Gal and S. Ilyas (University of NSW)

15:00 **1276** Photonic Bandgap Analysis and Fabrication of 2D and 3D- Photonic Crystals by Electrochemical Etching of Silicon - L. F. Marsal (University Rovira i Virgili)

15:30 **1277** Silicon Photonics for Microcantilever-Based Chemical and Biological Sensors - G. P. Nordin, J. Noh, Y. Qian and S. Kim (Brigham Young University)

16:00 **1278** Electroluminescence from the Si/Ge Based Metal-Oxide-Semiconductor Tunneling Diodes - M. Liao, M. Liao, C. Lin, C. Lee, T. Cheng, T. Guo and C. Liu (National Taiwan University)

16:30 **1279** Engineered Effective Mediums and Nanodevices from Geometrical Atomic Self-Assembly - K. Robbie, J. Yang and T. Brown (Queen's University)

E10 Wide Bandgap Semiconductor Materials and Devices 7

Electronics and Photonics / Sensor

Universal 4, 1st Floor, Expo Center

Substrates & Growth
Co-Chairs: E. Stokes and J. Bardwell

08:00 **1308** Bulk GaN Crystal Growth by the High Pressure Ammonothermal Method - M. D'Evelyn, H. Hong, D. Park, H. Lu, M. Peterson, B. Badding, R. Melkote (GE Global Research), P. Perlin, M. Lesczynski, S. Porowski (TopGaN) and R. Molnar (Lincoln Labs, MIT)

08:30 **1309** Native AlN Substrates for High Performance AlGaN/AlN Device Applications - J. A. Smart, W. Liu, S. Schujman, K. Morgan, R. Bondokov and L. Schowalter (Crystal IS, Inc)

09:00 **1310** Recent Achievements of the GaN Epitaxy by MBE on Silicon and Engineering Substrates - J. Thuret (PicoGiga Inc), P. Bove and H. Lahreche (Picogiga)

09:30 **1311** Heteroepitaxial Growth of 3C-SiC on Silicon-Porous Silicon-Silicon (SPS) Substrates - A. Severino, G. D`Arrigo (CNR-IMM), S. Leone, M. Mauceri, G. Abbondanza (Epitaxial Technology Center), A. Terrasi (University of Catania) and F. La Via (CNR-IMM)

09:50 **1312** Light Enhanced MOCVD Growth of GaN - A. Escobosa, V. Sanchez-R and V. Elyukhin (CINVESTAV-IPN)

10:10 Intermission (20 Minutes)

Light Emitting Diodes
Co-Chairs: D. Merfeld and P. Shen

10:30 **1313** High-Power and High-Efficiency Light-Emitting Diodes - N. F. Gardner (Philips Lumileds Lighting Company)

11:00 **1314** Carrier Lifetimes in GaN Revealed by Studying Photoluminescence Decay in Time and Frequency Domains - G. Tamulaitis, J. Mickevicius, P. Vitta, A. Zukauskas (Vilnius University), M. Shur (Rensselaer Polytechnic Institute, Troy, NY, US), K. Liu (Rensselaer Polytechnic Institute), Q. Fareed, J. Zhang and R. Gaska (Sensor Electronic Technology, Inc.)

11:30 **1315** Development of Yellow and White LEDs Using InGaN-based Multi-Quantum well Structures - S. M. Bedair (NC State University), P. Barletta (UNC Charlotte), A. Berkman, A. Emara, M. Reed and N. A. EL-Masry (North Carolina State University)

11:50 **1316** CdZnO/ZnO Heterostructures for UV-Visible Light Emitters - A. V. Osinsky (SVT Asociates), J. Dong, B. Hertog, A. M. Dabiran (SVT Associates, Inc.), P. Chow (SVT Asociates), W. Schoenfeld (University of Central Florida), S. J. Pearton (Materials Science and Engineering, University of Florida), D. Look (Wright State University) and A. Cartwright (University at Buffalo)

12:10 **1317** Recent Progress in the Development of Quantum Dot Light Emitting Diodes - J. Pagan (University of North Carolina-Charlotte), E. B. Stokes (University of North Carolina at Charlotte) and K. N. Patel (University of North Carolina-Charlotte)

Electronic Devices
Co-Chairs: J. Han and R. Fitch

14:00 **1318** Novel Thermally Stable Contacts to GaN - L. Stafford, R. Khanna, L. Voss, S. J. Pearton and F. Ren (University of Florida)

14:30 **1319** GaN-Based Devices for Reliable Operation at Very High Temperatures - A. M. Dabiran (SVT Associates, Inc.), A. V. Osinsky, A. Wowchak, P. Chow (SVT Asociates), S. J. Pearton, R. Khanna (Materials Science and Engineering, University of Florida), I. Kravchenko and F. Ren (University of Florida)

15:00 **1320** Low-Dark-Current SiC Avalanche Photodiodes - J. C. Campbell, X. Guo (University of Virginia), A. Beck (University of Texas), H. Liu and D. McIntosh (University of Virginia)

15:30 **1321** 1500V SiC DIMOSFET Development - J. B. Tucker, K. Matocha, R. Beaupre and V. Tilak (GE Global Research)

16:00 **1322** The Effect of Surface Cleaning on Current Collapse in AlGaN/GaN HEMTs - J. Bardwell, S. Haffouz (Institute for Microstructural Sciences), R. McKinnon (National Reserach Council of Canada), C. Storey, H. Tang, G. Sproule, D. Roth and R. Wang (Institute for Microstructural Sciences)

16:20 **1323** Wide Bandgap Devices with Non-Ohmic Contacts - G. Simin (University of South Carolina)

E12 Semiconductor Wafer Bonding 9: Science, Technology, and Applications

Electronics and Photonics

Universal 22, 1st Floor, Expo Center

Wafer Bonding for Advanced Device Applications II
Co-Chairs: M. Orlowski and S. Bengtsson

10:00 **1369** Thin Film Transfer for the Fabrication of Multiple Gate MOS Transistors - J. Raskin (Universite Catholique de Louvain)

10:40 **1370** Triple Stack Bonding for High Voltage Si Devices - K. D. Hobart, F. Kub, B. Phlips, J. Kurfess (Naval Research Laboratory) and J. Neilson (JMSN)

11:00 **1371** Fabrication Techniques for Thin-Film Silicon Layer Transfer for Flexible Substrates and 3D Structures - S. Holl, R. Varasala, H. Jawanda, C. Colinge (CSUS), K. D. Hobart and F. Kub (Naval Research Laboratory)

11:20 **1372** Si-Based Resonant Tunneling Devices Using UHV Wafer Bonding - M. Kim, T. Lee, J. Kim, R. Wallace and B. Gnade (University of Texas at Dallas)

11:40 **1373** Silicon Wafer Bonding for use in Fuel Cells - S. Petrovic (Arizona State University)

Interfacial Properties
Co-Chairs: A. Sanz-Velasco and H. Moriceau

14:00 **1374** Rough Surface Adhesion Mechanisms for Wafer Bonding - F. Rieutord (CEA Grenoble), H. Moriceau (CEA DRT LETI DIHS/LTFC), R. Beneyton (CEA-DRT-LETI) and L. Capello (CEA)

14:40 **1375** Relation Between Electrical and Mechanical Characteristics of Low-Temperature Bonded Si/Si Interfaces - B. Raeissi, A. Sanz-Velasco and O. Engstrom (Chalmers University of Technology)

15:00 **1376** Quantitative Model-Based Interpretation of Experimentally Measured Nanoscale Stress Sources at Wafer Bonded Interfaces - G. Horn, H. Johnson (University of Illinois at Urbana-Champaign), T. Mackin (California Polytechnic State University) and J. Lesniak (Stress Photonics)

15:20 **1377** Effect of Surface Treatments on Si-Si Wafer Bonding: Bonding Void Decrease - R. Beneyton (CEA-DRT-LETI), F. Fournel (CEA-DRT-Leti), F. Rieutord (CEA Grenoble), C. Morales and H. Moriceau (CEA DRT LETI DIHS/LTFC)

15:40 Intermission (20 Minutes)

16:00 **1378** Non-Destructive Strength Characterization of Full-Wafer Bonds: A Modified Blister Test Method Enables a Controlled Crack Formation at the Bond Interface - M. Rabold, A. Doll, F. Goldschmidtboing and P. Woias (University of Freiburg - IMTEK)

16:20 **1379** Controlled Silicon Surface Periodic Nanopatterning by Direct Wafer Bonding - A. Bavard, J. Meziere, F. Fournel (CEA-DRT-Leti), A. Pascale, P. Gentile and J. Eymery (CEA-Grenoble DRFMC/SP2M)

16:40 **1380** Comparision of the Mechanical Properties of Low Temperature Bonded Test Samples - J. Bagdahn (Fraunhofer Institute for Mechanics of Materials), M. Bernasch and M. Wiemer (Fraunhofer Institute)

17:00 **1381** Direct Wafer Bonding Enhanced by Ductile Layers Inserted Near the Interface - B. Olbrechts, B. Lejeune, Y. Bertholet, T. Pardoen and J. Raskin (Universite Catholique de Louvain)

E13 SiGe and Germanium: Materials, Processing, and Devices

Electronics and Photonics

Galactic 1, Conference Center, Sunrise

Ge and GaAs on Si
Co-Chairs: K. Saraswat and M. Meuris

08:00 **1460** Epitaxial Growth of GaAs/Ge Interfaces - E. Fitzgerald (Massachusettes Institute of Technology)

08:30 **1461** Some Insights into the Relaxation Mechanisms of Germanium Growing on (001) Si by Ultrahigh Vacuum Chemical Vapor Deposition - D. Bouchier (CNRS-Universite Paris Sud), V. Yam, M. Halbwax (Universite Paris Sud), L. Nguyen (VAST), D. Debarre (CNRS) and F. Fossard (Institut d 'Electronique Fondamentale)

09:00 **1462** Selective Epitaxial Growth of GaAs on Ge Substrates with a SiO_2 Pattern - G. Brammertz (IMEC vzw), M. R. Caymax (Imec), Y. Mols, S. Degroote, M. Leys, J. Van Steenbergen and G. Winderickx (IMEC vzw)

09:20 **1463** Kinetics of Selective Epitaxial Growth of Si and Relaxed Ge by Ultrahigh Vacuum Chemical Vapor Deposition in Si(001) Windows - F. Fossard (Institut d 'Electronique Fondamentale), M. Halbwax, V. Yam (Universite Paris Sud), H. Nguyen, V. Mathet, D. Cammilleri, D. Debarre, J. Boulmer (Inst itut d 'Electronique Fondamentale) and D. Bouchier (CNRS-Universite Paris Sud)

09:40 **1464** In Situ Phosphorus Doping of Germanium by APCVD - G. Dilliway (IMEC), R. van den BOOM (IMEC, University of Applied Sciences), R. Bonzom, F. Leys (IMEC), B. Van Daele (IMEC), B. Parmentier (MEC), T. Clarysse (IMEC), E. R. Simoen, R. Loo, M. M. Meuris, W. Vandervorst and M. R. Caymax (Imec)

SiGe & Ge Processing I
Co-Chairs: H. Rucker and C. - W. Liu

10:15 **1465** Low Temperature Crystallization of a-SiGe on Insulating Films for Thin Film Transistor Application - M. Miyao, H. Kanno, I. Tsunoda and T. Sadoh (Kyushu University)

10:45 **1466** Isotropic Etching of Si1-xGex Buried Layers Selectively to Si for the Realization of Advanced Devices - S. Borel (CEA - Leti), V. Caubet, A. Cherif, C. Arvet (STMicroelectronics), C. Vizioz (CEA - Leti), J. Hartmann (CEA-LETI) and G. Rabille (STMicroelectronics)

11:15 **1467** Nickel Selective Etching Studies for Self-Aligned Silicide Process in Ge-Based Devices - V. Carron, G. Rolland and S. Minoret (CEA-LETI)

11:35 **1468** Diode Analysis of Electrically Active Defects in Recessed SiGe Source/Drain Diodes - E. R. Simoen, M. Bargallo, G. Eneman, P. verheyen, C. L. Claeys, A. Benedetti, H. Bender, K. De Meyer (IMEC), R. Schreutelkamp, L. Washington and F. Nouri (Applied Materials Inc)

11:55 **1469** A Study of Boron Implantation into High Ge Content SiGe Alloys - R. Wittmann (TU Wien), S. Uppal (University of Newcastle upon Tyne), A. Hoessinger, J. Cervenka and S. Selberherr (TU Wien)

Ge FETs and e-SiGe Devices
Chair: T. Ernst

13:15 **1470** Selectively Formed High Mobility Strained Ge PMOSFETs for High Performance CMOS - H. Shang (IBM)

13:45 **1471** Very High Performance, Ultrathin, Strained-Ge Channel, Heterostructure FETs with High Mobility and Low BTBT Leakage - T. Krishnamohan, D. Kim, Y. Nishi and K. Saraswat (Stanford University)

14:05 **1472** The Combination of Embedded SiGe S/D and Metal Gate Options for High Performance pMOS Transistors - P. verheyen, S. Severi, G. Eneman, R. Loo, D. Shamiryan, R. rooyackers, M. Demand, A. Veloso, A. Lauwers, K. De Meyer, P. Absil, M. Jurczak and S. Biesemans (IMEC)

14:35 **1473** Sidewall Dislocations in SiGe Layers Embedded in Source/Drain Areas of MOSFETs and Their Impact on the Device Performance - T. Kammler, I. Peidous (AMD) and A. Wei (AMD Saxony)

14:55 **1474** Effectiveness of Embedded-SiGe in Super-Critically-Thick Strained-SOI - A. Wei (AMD Saxony), T. Kammler (AMD) and I. Cayrefourcq (SOITEC)

SiGe & Ge Optoelectronics
Co-Chairs: K. Wada and L. Colace

15:30 **1475** III-V/Si Device Integration Via Metamorphic SiGe Substrates - J. A. Carlin (The Ohio State University), C. Andre (Akso Nobel Polymer Chemicals LLC), O. Kwon (Lumileds), E. Fitzgerald (Massachusettes Institute of Technology), J. Boeckl (AFRL/MLPS) and S. Ringel (The Ohio State University)

16:00 **1476** Stimulated THz Emission of Strained p-Ge and SiGe/Si Quantum-Well Structures Doped with Shallow Acceptors. - M. S. Kagan (Institute of Radio Engineering and Electronics of RAS), I. Altukhov, V. Sinis, E. Chirkova, S. Paprotskiy (Institute of Radio Engineering and Electronics of RAS, Moscow, Russia), I. Yassievich, M. Odnoblyudov, A. Prokofiev (A.F. Ioffe Physico-Technical Institute of RAS, St. Petersburg, Russia) and J. Kolodzey (University of Delaware, Newark, DE, USA)

16:30 **1477** Silicon-Germanium Saturable Absorber Mirrors for Ultra-Short Pulse Generation - F. X. Kaertner, H. Byun, F. Grawert, J. Gopinath, H. Shen, E. Ippen, S. Akiyama, J. Liu, K. Wada (MIT) and L. Kimerling (Massachusetts Institute of Technology)

17:00 **1478** Germanium Photodetectors for Photonics on CMOS - J. Fedeli, J. Damlencourt, L. el Melhaoui, Y. le Cunff, V. Mazzochi (CEA-LETI), L. Vivien, D. Marris Morini (IEF, Universite Paris Sud), M. Rouviere (ST Microelectronics), D. Pascal, X. Le Roux, E. Cassan and S. Laval (IEF, Universite Paris Sud)

17:20 **1479** Polycrystalline Germanium on Silicon for Near Infrared Detectors - L. Colace, G. Masini and G. Assanto (University of Roma Tre)

Workshop on Germanium for CMOS
Chair: M. Caymax

19:20 **1480** Key Issues for the Development of a Ge CMOS Device in an Advanced IC Circuit - M. M. Meuris (IMEC)

19:40 **1481** Review of Some Critical Aspects of Ge and GeOI Substrates - L. Clavelier (CEA - LETI), C. Le Royer (CEA-LETI) and Y. Morand (STMicroelectronics)

20:00 **1482** Substrate Engineering for Germanium-Based CMOS Technology - S. W. Bedell (IBM Research), K. Fogel, A. Reznicek, J. Ott and D. Sadana (IBM)

20:20 **1483** Germanium MOSFETs for Nanoelectronics - K. Saraswat (Stanford University)

20:40 **1484** Prospects and Critical Issues on Ge MOS Technologies - S. Takagi (The University of Tokyo), N. Taoka (MIRAI-AIST), S. Nakaharai, K. Ikeda, T. Tezuka, Y. Yamashita, Y. Moriyama (MIRAI-ASET), T. Maeda (National Institute of Advanced Industrial Science and Technology (AIST)) and N. Sugiyama (MIRAI-ASET)

E15 Thin Film Transistors 8 (TFT8)

Electronics and Photonics

Universal 19, 1st Floor, Expo Center

Non-Silicon TFTs
Co-Chairs: Y. Yamamoto and A. Nathan

08:30 **1593** Organic Thin Film Transistors and Contact-Related Effects - D. J. Gundlach (NIST)

09:00 **1594** Hole Mobility in Pentacene Field-Effect Thin Film Transistors - H. Kwok (University of Victoria)

09:20 **1595** Effects of Pentacene Active Film Thickness on the Threshold Voltage of Pentacene Thin Film Transistors - R. Garcia (URV), B. Iniguez (Universitat Rovira i Virgili), M. J. Deen (McMaster University), J. Puigdollers, C. Voz (Universitat Politecnica de Catalunya) and M. Estrada (CINVESTAV-IPN)

09:40 **1596** Integrated Circuits Based on Amorphous Indium-Gallium-Zinc-Oxide-Channel Thin-Film Transistors - M. Ofuji, K. Abe, N. Kaji, R. Hayashi, M. Sano, H. Kumomi (Canon Inc.), K. Nomura (ERATO-SORST, Tokyo Inst. of Tech.), T. Kamiya (Tokyo Institute of Technology) and H. Hosono (ERATO-SORST, Tokyo Inst. of Tech.)

10:00 **1597** All-Solution-Processed Organic Thin Film Transistors Fabricated by Non-Piezoelectric Inkjet Printing - I. Takasu, K. Sugi, Y. Nomura, H. Nakao, K. Mori, I. Amemiya and S. Uchikoga (Toshiba Corporation)

10:20 Intermission (20 Minutes)

10:40 **1598** Recent Progress in Amorphous Oxide Semiconductors and Thin Film Transistors - T. Kamiya (Tokyo Institute of Technology), K. Nomura and H. Hosono (ERATO-SORST, Tokyo Inst. of Tech.)

11:10 **1599** Thin-Film Transistors in Disordered Semiconductors for High Performance Macroelectronic Circuits. - F. Balon and J. Shannon (Advanced Technology Institute)

Non LCD Applications
Co-Chairs: D. Gundlach and H. Hosono

14:00 **1600** Artificial Retina using Thin-Film Photodiode and Thin-Film Transistor - M. Kimura, T. Shima and T. Yamashita (Ryukoku University)

14:30 **1601** Non-volatile Amorphous Silicon Thin Film Transistor Memories with the a-Si: H Embedded Gate Dielectric Structure - H. Nominanda and Y. Kuo (Texas A&M University)

14:50 **1602** Sensitivity of Suspended-Gate Polysilicon TFTs to Charge Variation and Application to DNA Recognition - T. Mohammed-Brahim, F. Bendriaa, F. Le Bihan, A. Salaun and O. Bonnaud (University Rennes 1)

15:10 **1603** The Boron Carbide Transistor: A New Neutron Detector - K. A. Nelson (Univ. of Nebraska and Nebraska Wesleyan), I. Sabirianov and J. I. Brand (University of Nebraska-Lincoln)

15:30 Intermission (20 Minutes)

15:50 **1604** Process Technologies for High-Resolution AM-PLED Displays on Flexible Metal Foil Substrates - T. Chuang, M. Troccoli, P. Kuo, A. Jamshidi, M. Hatalis, J. Spirko, K. Klier, I. Biaggio (Lehigh University), A. Voutsas, T. Afentakis (Sharp Laboratories of America Camas, WA) and J. Hartzell (Sharp Labs of America)

16:10 **1605** Uniform OLED-Pixels Using Microcrystalline Silicon TFTs for Active-Matrix Addressing - T. Mohammed-Brahim, A. Gaillard, R. Rogel, S. Crand (University Rennes 1), C. Prat and P. Leroy (Thomson R&D)

16:30 **1606** Elimination of an OLED Current Error Caused by the Hysteresis Phenomenon of a-Si TFT for AMOLED - J. Lee, S. Park and M. Han (Seoul National Univ.)

16:50 Concluding Remarks (10 Minutes)

F3 Magnetic Materials Processes, and Devices 9

Electrodeposition

Universal 10, 1st Floor, Expo Center

Sensors and MEMS
Co-Chairs: Y. Kitamoto and C. Bonhote

08:00 **1681** Advances in Magnetic Micro Thin-Film Transducers - H. H. Gatzen (Hanover University)

08:40 **1682** Magnetoelectronical Sensors for Mechanical Measurements - E. Quandt (Center of Advanced Europaen Studies and Research (CAESAR))

09:20 **1683** A Concept for a Toolbox for Modular Magnetic Microsensors - H. H. Gatzen and S. Hansen (Hanover University)

09:40 Intermission (20 Minutes)

Hard Magnets and Patterned Media
Co-Chairs: G. Zangari and T. Osaka

10:00 **1684** Design and Fabrication of High Anisotropy Nanoscale Patterned Magnetic Recording Medium for Data Storage Applications - D. Litvinov, V. Parekh, C. E, D. Smith, A. Ruiz, P. Ruchhoeft, J. Rantschler (University of Houston) and S. Khizroev (Florida International University)

10:40 **1685** Binary Platinum Alloys by Underpotential Codeposition of the Reactive Metal - J. J. Mallett, U. Bertocci, E. Svedberg, A. Shapiro, J. Bonevich, W. Egelhoff and T. Mofatt (NIST)

11:20 **1686** Direct Synthesis of Ferromagnetic Fe-Pt Nanoparticles By Using a High-Pressure Chemical Solution Route with Microwave Irradiation - Y. Kitamoto (Tokyo Institute of Technology)

Co-Chairs: H. Gatzen and G. Zangari

15:00 **1687** Electrodeposited Fe-Pt Films and Multilayers - K. Leistner, S. Fahler, H. Schlorb and L. Schultz (IFW Dresden)

15:40 **1688** Co-Pt Thin Films for Magnetic Recording by ECD from Acidic Electrolytes - S. Franz, M. Bestetti and P. Cavallotti (Politecnico di Milano)

16:00 **1689** Electrodeposition of FePt Embedded into Nanohole Structures for Magnetic Recording Media - T. Nakamura (Canon Inc.), S. Ichihara (Canon Research Center) and T. Den (Canon Inc.)

16:40 **1690** Anisotropy and Coercivity of Electrodeposited Co-Pt Films on Oriented Ruthenium - G. Zangari, X. Xu and G. Pattanaik (University of Virginia)

17:20 **1691** Electrodeposition of Magnetic Co-Pd and Fe-Pd Alloys - F. M. Takata (Instituto Tecnologico de Aeronautica), G. Pattanaik (University of Virginia), P. Sumodjo (Universidade de Sao Paulo) and G. Zangari (University of Virginia)

17:40 **1692** Sputter-Deposited $SmCo_5$ Thin Films with Perpendicular Magnetic Anisotropy for High Density Magnetic Recording Media - J. Sayama, Y. Yamashita, T. Asahi and T. Osaka (Waseda University)

F4 Molecular Structure of the Solid-Liquid Interface and Its Relationship to Electrodeposition 5

Electrodeposition

Universal 11, 1st Floor, Expo Center

Co-Chairs: R. Alkire and D. Kolb

08:00 **1718** Anion Adsorption Induced Surface Reconstruction - L. Tang and K. Sieradzki (Arizona State University)

08:20 **1719** Pt{111} Electrocapillarity: A Direct Measure of the pzc and Its Application to Oxygen Reduction - C. Friesen and T. Heaton (Arizona State University)

08:40 **1720** Perchlorate Anion Adsorption on Cu(111) - K. Sieradzki (Arizona State University), N. Vasiljevic (Sandia National Laboratories) and N. Dimitrov (SUNY Binghamton)

09:00 **1721** Locally Resolved Tunneling Spectroscopy at Solid / Liquid Interfaces - W. Schindler and P. Hugelmann (TUM)

09:20 **1722** Study of Adsorption and Oxidation of Thiocyanate in the Interface Metal / Solution by EQCM and EIS - O. I. Gonzalez Pena (CIDETEQ), R. Antano Lopez and Y. Meas Vong (CIDETEQ, S. A.)

09:40 Intermission (20 Minutes)

10:00 **1723** Effect of Additives on Deposition: Spectroscopic and STM Measurements - A. A. Gewirth, S. Bae and Z. Schultz (University of Illinois)

10:20 **1724** Electrodeposition of Zinc in the Presence of Quaternary Ammonium Compounds in Alkaline Electrolytes - J. L. ortiz-aparicio (CIDETEQ), Y. Meas (Centro de Investigacion y Desarrollo Tecnologico en electroquimica), G. Trejo (Centro de Investigacion y Desarrollo Tecnologico en Electroquimica) and R. Ortega (Centro de Investigacion y Desarrollo Tecnologico en Electroquimica)

10:40 **1725** Supporting Influence of Thymine in Different Adsorption States on UPD Processes - C. donner (Free University of Berlin), A. Vollmer (BESSY Berlin) and E. Avci (Free University)

11:00 **1726** Application of SAM for Electroless Deposition onto Silicon Oxide and /or Polymer Substrates - T. Osaka, M. Yoshino and M. Hasegawa (Waseda University)

11:20 **1727** Electrodeposition of Au Monolayer Mediated by Self-Assembled Monolayers: As Probed by In Situ Scanning Tunneling Microscopy - S. Yau (National Central University), Y. Yang and Y. Lee (National Chenkung University)

11:40 **1728** The Metallization of Organic Monolayers: Rh, Pd and Pt on 4-mercaptopyridine SAMs - D. M. Kolb, M. Kayser, H. Boyen (University of Ulm), V. Ivanova (CEA - GRENOBLE), M. Manolova and P. Ziemann (University of Ulm)

Co-Chairs: R. Alkire and D. Kolb

14:00 **1729** 2006 Electrodeposition Research Award - Superconformal Film Growth: Mechanism and Quantification - T. Moffat, D. Wheeler, S. Kim and D. Josell (NIST)

15:00 **1730** Microscopic Properties of Electrode Surfaces Derived from Density Functional Theory Calculations - A. Gross (Ulm University)

15:20 **1731** Growth of Confined CdS by Combining Microcontact Printing and ECALE Techniques - M. Foresti (University of Florence), M. Cavallini (CNR-ISMN), F. Loglio, M. Innocenti (University of Florence), M. Facchini (CNR-ISMN), E. Salvietti and G. Pezzatini (University of Florence)

15:40 Intermission (20 Minutes)

16:00 **1732** The Role of the Critical Micelle Concentration in the Electrodeposition of Nanostructured Zinc Oxide Films Under Utilization of Amphiphilic Molecules - T. Oekermann, C. Boeckler, A. Feldhoff and M. Wark (University of Hannover)

16:20 **1733** Electrodeposition of Gold on Directionally Solidified Eutectics - A. Hassel and B. Bello Rodriguez (Max-Planck-Institut Fuer Eisenforschung)

F5 Nanostructured Metal Oxides: Processing and Applications

Nanotechnology / High Temperature Materials / Electrodeposition / Physical and Analytical Electrochemistry / Sensor

Universal 12, 1st Floor, Expo Center

Chemical Processing of Nanostructured Oxides
Co-Chairs: E. Traversa and G. Oskam

08:20 **1745** Chemical Nanotechnology: From Molecules to Applications - S. Mathur (Leibniz-Institute of New Materials - INM)

09:00 **1746** Preparation of $BaTiO_3$ Nanopowders and Sintering to Dense Nanocrystalline Ceramics - P. Nanni (University of Genoa), M. Buscaglia and V. Buscaglia (IENI - CNR(Italy))

09:40 Intermission (20 Minutes)

Nanoparticles
Co-Chairs: P. Nanni and G. Hunter

10:00 **1747** Synthesis of ZnO Nanoparticles - G. Oskam (Cinvestav-Merida)

10:20 **1748** High Quality Monodispersed Oxide Nanoparticles Prepared by the Liquid Phase Deposition Method in Aqueous Polymer Solution - S. Deki, A. Nakata and M. Mizuhata (Kobe University)

10:40 **1749** Controlling Phase Content in Sol-Gel Synthesized Titanium Dioxide Nanoparticles - R. L. Penn (University of Minnesota) and S. Isley (Chemistry -U of MN)

11:00 **1750** Synthesis of Anatase, Rutile and Brookite Nanoparticles - D. Reyes Coronado and G. Oskam (Cinvestav-Merida)

11:20 **1751** Electrodeposited Gamma-Fe_2O_3 Nanoparticles - H. Park, S. Kim (Gwangju Institute of Science and Technology), P. Ayala (UCR), J. Kim (Gwangju Institute of Science and Technology), A. Mulchandani, M. Deshusses (UCR), H. Choi (Gwangju Institute of Science and Technology) and N. V. Myung (University of California-Riverside)

11:40 **1752** Advances in Line Profile Analysis for the Study of Nanocrystalline Systems - P. Scardi and M. Leoni (University of Trento)

Nanostructured Thin Films
Co-Chairs: M. Sunkara and G. Oskam

15:00 **1753** Physical Properties of Ultra-Thin Films and Heterostructures Based on Materials with Strong Electronic Correlation Deposited by Pulsed Laser Deposition with In-Situ Reflection High Energy Electron Diffraction - A. Tebano (Rome), C. Aruta (INFM-CNR), P. Medaglia and G. Balestrino (University of Rome "Tor Vergata")

15:40 **1754** Characteristics of Ru-Ti-O Thin Films Prepared by Atomic Layer Deposition for Inkjet Heater Applications - S. Kwon, S. Kwon (Korea Advanced Institute of Science and Technology), S. Jung, S. Kim (Korea Advanced Institute of Science and Technology,), J. Min (Digital Printing Division, Samsung Electronics co., LTD) and S. Kang (Korea Advanced Institute of Science and Technology)

16:00 **1755** Synthesis and Characterization of Functional Nanostructured Metal Oxide Thin Films - L. Chow (University of Central Florida), S. Shishiyanu, O. Lupan and T. Shishiyanu (Technical University of Moldova)

16:20 **1756** Nano-Structured Ceramics by Gas-Phase Reaction - C. Carney and S. Akbar (The Ohio State University)

Nanocomposites and Nanoporous Materials
Co-Chairs: R. Lee Penn and B. Wei

16:40 **1757** Growth of Metal Organic Frameworks onto Microcantilever Substrate Materials - R. Shediac, E. Lai, C. Bauer, B. Simmons, R. Stumpf (Sandia National Laboratories), A. Choudhury, P. Hesketh (Georgia Institute of Technology) and M. Allendorf (Sandia National Laboratories)

17:00 **1758** Alumina Porous Membranes Obtained by One-Step Anodizing Process in H_2SO_4 for MEMS Packaging - R. Hellin Rico (IMEC), J. Celis (Katholieke Universiteit Leuven), B. Du Bois (Interuniversity Microelectronics Centre (IMEC)), C. Van Hoof (IMEC, Katholieke Universiteit Leuven, Dept. ESAT), A. Witvrouw, K. Baert and W. Ruythooren (IMEC)

17:20 **1759** Hydrothermal Synthesis and Electrochemical Properties of Metal Oxide /CNT Nanocomposites - J. Kim, M. Rao and K. Kim (Yonsei University)

17:40 **1760** Electrodeposition of Cu/Alumina and Ni/Alumina Nanocomposites - A. Bund and D. Thiemig (TU Dresden)

G1 Industrial and Environmental Electrochemistry

Industrial Electrolysis and Electrochemical Engineering

Universal 6, 1st Floor, Expo Center

Solid (Soil) Treatment and Electrodeposition
Co-Chairs: Y. Meas and D. Mah

08:00 **1800** Dynamic Chemical Plating of NiB-Graphite and NiB-PTFE Composites - G. Stremsdoerfer, H. Omidvar (Ecole Centrale de Lyon) and Y. Meas (Centro de Investigacion y Desarrollo Tecnologico en Electroquimica)

08:20 **1801** Precipitation of Calcium Carbonate on a Steel Cathode - A. Peraza Barrios, T. W. Chapman (CIDETEQ) and Y. Meas (Centro de Investigacion y Desarrollo Tecnologico en Electroquimica)

08:40 **1802** Electrochemical Recovery of Ag from Industrial Tiosulfate Solutions on Flat Electrodes - A. Melo-Lopez, V. Reyes-Cruz and M. Veloz (Universidad Autonoma del Estado de Hidalgo)

09:00 **1803** Silver Electrodeposition on Activated Carbon for Antibacterial Purposes - N. Casillas, H. Ortiz-Ibarra, S. Gomez-Salazar, V. Soto, M. Barcena-Soto and R. Torres-Vitela (Universidad de Guadalajara)

09:20 **1804** Analysis of the Use of Copper Electrode in a Filter-Press Electrochemical Reactor for the Electrochemical Reduction of Cr(VI). - G. Velasco (Universidad de Guanajuato), I. Rodriguez (Universidad Autonoma de San Luis Potosi) and S. Gutierrez (Universidad de Guanajuato)

09:40 **1805** Designing Pd-on-Metal and Pd-on-Oxides Nanoparticle Catalysts for Chlorinated Solvents in Contaminated Water - C. Dozier (Florida A&M University), D. Waryoba (Florida State University), P. Kalu and E. E. Kalu (FAMU-FSU COE)

10:00 Intermission (20 Minutes)

Other Process
Co-Chairs: D. Mah and Y. Meas

10:20 **1806** Model Experiments for Environmental Electrochemistry - J. G. Ibanez (Universidad Iberoamericana), N. Casillas, M. Barcena-Soto, S. Barba-Gonzalez and K. A. Rosas-Torres (Universidad de Guadalajara)

10:40 **1807** Studies on Sodium Borohydride for Energy Systems - C. Sequeira (IST), T. Pardal (OMNIDEA, Lda.), D. Santos, J. Alves (Instituto Superior Tecnico), J. Condeco, M. W. Franco, M. Goncalves (OMNIDEA, Lda.) and S. Gama (Instituto Superior Tecnico)

11:00 **1808** Electrochemical Syntheses of Sodium Percarbonate in Aqueous Solution - E. J. Ruiz (CIDETEQ), Y. Meas (Centro de Investigacion y Desarrollo Tecnologico en electroquimica), R. Ortega (Centro de Investigacion y Desarrollo Tecnologico en Electroquimica) and J. Jorado (CIDETEQ)

I3 Electrochemical Surface Science: Recent Advances in the Study of the Electrode-Electrolyte Interface

Physical and Analytical Electrochemistry
Universal 18, 1st Floor, Expo Center

Adsorbate Self-Assembly
Chair: L-J. Wan

08:00 **1942** Viologens on Anion-Modified Copper Surfaces: Self-Assembled Structures and Corrosion Inhibition - K. R. Wandelt, D. Pham, C. Zoerlein, K. Gentz, S. Kossmann, B. Kirschner (University of Bonn) and P. Broekmann (Institute of Physical Chemistry)

08:30 **1943** The Reproducible Preparation of Alkanethiolate Monolayers on Gold: The Importance of Mass Transfer During Self-Assembly - M. D. Porter, G. Edwards, A. Bergren (Iowa State University) and E. Cox (IMRE)

09:00 **1944** Alkanethiolate Monolayers on Au(111): Self-Assembly, Surface Structures, Defects and Dynamics - R. C. Salvarezza (INIFTA)

09:30 **1945** Potential-Induced Structural Change in a Self-Assembled Monolayer of 4-Methylbenzenethiol on Au(111) - E. Borguet and K. Seo (Temple University)

09:50 **1946** Self-Assembling of Aromatic Compounds on Metals - M. Lopez Teijelo, F. Gutierrez, M. Alassia and V. Brunetti (Universidad Nacional de Cordoba)

10:10 Intermission (20 Minutes)

10:30 **1947** Coronene-Iodine Coadsorbed Adlayers on Au(111) Surfaces Promoted by Electrochemical Potential Control - M. Kunitake (Kumamoto University)

10:50 **1948** Structural Analysis of Poly[M(salen)] Modified Electrodes by XAS - R. Hillman, J. Tedim (University of Leicester), R. Bessada, C. Freire (University of Porto), M. Skopek and S. Gurman (University of Leicester)

11:10 **1949** Characterization of Electrochemical Biointerface Based on Adsorption of DNA Base Derivatives and Oligonucleotides - T. sawaguchi, S. Yoshimoto, S. Yabuki and O. Niwa (National Institute of Advanced Industrial Science and Technology)

11:40 **1950** Supramolecular Self-Assemblies at Au(111) Surface in Solution: Studies by Scanning Tunneling Microscopy - L. Wan (Chinese Academy of Sciences)

Molecular Chemisorption
Chair: A. Carrasquillo, Jr.

14:00 **1951** Functional Electrode Surfaces for Protein Electrochemistry - I. Taniguchi (Kumamoto University)

14:30 **1952** X-ray Scattering Studies of CO Layers on Pt in Electrolyte and in Gas - H. You (Argonne National Laboratory), A. Menzel (BESY, Germany), K. Chang and V. Komanicky (ANL)

15:00 **1953** On the Adsorption State of Methanol, Formaldehyde, and Formic Acid on Pt(111) and Pt(100) Electrodes: as Probed by In Situ Scanning Tunneling Microscopy - S. Yau (National Central University)

15:30 Intermission (10 Minutes)

15:40 **1954** Adlayers of Benzene-Derivatives on Rh and Pt(111) Studied by UHV and UHV-EC Combined Systems - J. Inukai (Yamanashi University, Japan), M. Wakisaka (University of Yamanashi) and K. Itaya (Tohoku University)

16:10 **1955** Atomic Surface Structure and Adsorption of Camphor and Thiourea on Bi(111) Electrode Surface - S. Kallip, V. Grozovski, H. Kasuk (University of Tartu) and E. Lust (Institute of Physical Chemistry)

16:30 **1956** Hydrogen-Assisted and CO-Assisted Reductive Desorption of Hydroquinone-Derived Adlayers from Pt(111) Single Crystal Electrodes - A. Carrasquillo Jr. (University of Puerto Rico), M. Rodriguez-Lopez (Pontifical Catholic University of Puerto Rico), E. Herrero, J. M. Feliu (Universidad de Alicante), P. Tunon (University of Oviedo, Spain) and A. Aldaz (Universidad de Alicante)

I4 Molten Salts 15, in Memory of Robert Osteryoung

Physical and Analytical Electrochemistry / Electrodeposition / High Temperature Materials / Battery / Energy Technology

Galactic 7, Conference Center, Sunrise

Power Applications of Molten Salts and Ionic Liquids
Co-Chairs: W. Henderson, R. Mantz and T. Nohira

08:00 **2024** Effect of Azolium Ionic Liquid Compositions with and without Organic Solvent on Performance of Lithium and Lithium-Ion Cells - J. Caja, T. J. Dunstan (Electrochemical Systems, Inc.), M. May, H. Krall (Wright State University) and V. Katovic (WSU)

08:20 **2025** Preparation, Characterization, and Transport Properties of Li^+ -Conducting Ionic Liquids - M. Watanabe, M. Watanabe, Y. Kazue, H. Tokuda, S. Seki (Yokohama National University) and H. Lee (Korea Institute of Science & Technology)

08:40 **2026** Ionic Melt Electroltyes for Lithium Battery Applictions - S. Creager, B. Hallac, O. Geiculescu, R. Rajagopal, M. Herath and D. DesMarteau (Clemson University)

09:00 **2027** Understanding Lithium Cation Environment and Transport in Imidazolium and Pyrrolidinum-Based Ionic Liquids - O. Borodin (University of Utah) and G. Smith (Univeristy of Utah)

09:20 **2028** Temperate Molten Salts for Thermal Batteries - J. S. Wilkes (US Air Force Academy), D. Pickett, Z. Johnson, B. Burns, S. Preston (Electroenergy Inc.) and R. Guidotti (Sierra Nevada Consulting Inc.)

09:40 Intermission (20 Minutes)

10:00 **2029** Room Temperature Ionic Liquids as Electrolyte for Fuel Cell Applications - E. Wallnofer,(Graz University of Technology, Austria), W. R. Baumgartner (CD-Laboratory for Fuel Cell Systems), T. Schaffer (Graz University of Technology, CD-Laboratory of Fuel Cell Systems) and V. Hacker (Institute for Chemistry and Technology of Inorganic Materials)

10:20 **2030** Protic Ionic Liquids as Proton Conducting Electrolyte under Anhydrous Condition - H. Nakamoto, S. Imabayashi and M. Watanabe (Yokohama National University)

10:40 **2031** Ionic Liquid Fluorohydrogenates and Their Applications - R. Hagiwara, T. Nohira, T. Shimada, T. Fujinaga and S. Konno (Kyoto University)

11:00 **2032** Bronsted Acidic Room-Temperature Ionic Liquids Based on Dendrimers and Amides - S. Dai (Oak Ridge National Laboratory)

11:20 **2033** Dependence of Oxygen Reduction Reaction on Temperature in $(Li/Na/La)CO_3$ - S. Mitsushima, S. Okuno, N. Kamiya and K. Ota (Yokohama National University)

11:40 **2034** Screening and Properties of New Materials for MCFC Application - M. Cassir, A. Ringuede and V. Albin (ENSCP)

Power Applications of Molten Salts and Ionic Liquids
Co-Chairs: G. Stafford and C. Hussey

14:00 **2035** Ionic Liquid for Battery, Super Capacitor and Electrochromic Devices - K. Zaghib (Hydro-Quebec), P. Charest, M. Dontigny, A. Guerfi and M. Petitclerc (Hydro-Quebec)

14:20 **2036** Design of Solid-State Dye Sensitized Solar Cells: Utilization of Fast Charge Transport for Iodine/Iodide Redox Couple in Ionic Liquids - T. Katakabe, R. Kawano (Yokohama National University), H. Matsui, N. Tanabe (Fujikura Ltd) and M. Watanabe (Yokohama National University)

14:40 Intermission (20 Minutes)

Electrodeposition from Ambient Temperature Ionic Liquids
Co-Chairs: G. Stafford, C. Hussey and K. Murase

15:00 **2037** Progress in Surface Finishing with Lewis Acidic Room-Temperature Chloroaluminate Ionic Liquids - T. Tsuda, C. Hussey (The University of Mississippi) and G. R. Stafford (NIST)

15:40 **2038** Practical Aluminum Plating from a Room Temperature Ionic Liquid - M. T. Carter and G. Bourgon (Eltron Research, Inc.)

16:00 **2039** In Situ Stress Measurements During Aluminum Deposition from AlCl3-EtMeImCl - G. R. Stafford (NIST), O. E. Kongstein and E. Sandnes (The Norwegian University of Science and Technology)

16:20 **2040** Electrodeposition of Nano Sn Particles in Room Temperature Molten Salts and Their Electrochemical Performance in Lithium Battery Application - D. Zhu (The University of Hong Kong) and Y. Fung (Department of Chemistry, The University of Hong Kong)

16:40 **2041** Electrodeposition of In-Sn Alloys in EMI-BF4-Cl Ambient Temperature Melts with Current Pulses - M. Noda, M. Matsunage (Kyushu Institute of Technology) and M. Morimitsu (Doshisha University)

17:00 **2042** Nickel Electrodeposition from a Room Temperature Eutectic Melt - A. Bund and E. Zschippang (TU Dresden)

Star 7/8, Conference Center, Sunrise

Max Bredig Award Dinner
Co-Chairs: C. Hussey and P. Trulove

19:00 Mixer

19:30 Dinner

20:30 **2043** Molten Salts and Ionic Liquids - Are They Not the Same Thing? - J. S. Wilkes (US Air Force Academy)

I5 Supramolecular Electrochemistry

Physical and Analytical Electrochemistry / Fullerenes, Nanotubes, and Carbon Nanostructures

Universal 3, 1st Floor, Expo Center

Session 1
Co-Chairs: F. D'Souza and A. Kaifer

08:45 Introductory Remarks (15 Minutes)

09:00 **2072** Sensitized Solar Cells based on Hexagonal Dyes of Terpyridine-Ruthenium(II): Effect of the Electropolymerization of Dyes during their Performance in Solar Cells - J. Manriquez (Centro de Investigacion y Desarrollo Tecnologico en Electroquimica (CIDETEQ)), S. Hwang, T. Cho, C. Moorefield, G. Newkome (The University of Akron) and L. Godinez (Centro de Investigación y Desarrollo Tecnologico en Electroquimica (CIDETEQ))

09:30 **2073** Electrochemical and Physical Study of Copper Coated Carbon Nanotubes - A. Martinez (Universidad Autonoma de Baja California) and R. Machorro (UNAM)

10:00 **2074** Preparation of Carbon-Fiber Electrodes Modified with Platinum Nanoparticles Encapsulated in PAMAM Dendrimers - J. G. Ledesma, I. Escalante (Centro de Investigacion y Desarrollo Tecnologico en Electroquimica), T. W. Chapman (CIDETEQ), F. Rodriguez (Centro de Investigacion y Desarrollo Tecnologico en Electroquimica, CIDETEQ) and L. Godinez (Centro de Investigacion y Desarrollo Tecnologico en Electroquimica (CIDETEQ))

10:30 Intermission (15 Minutes)

10:45 **2075** Electrochemical Properties of Various Enzyme / Electrode Material Interfaces for Biofuel Cell Application - L. De Silva Munoz and R. Basseguy (Laboratoire de Genie Chimique (UMR 5503))

11:15 **2076** Reduction of $PtCl_{62}$- and $PtCl_{42}$- in Polyaniline: Oxidation of Methanol at Morphologically Different Composites - D. W. Hatchett and J. Kinyanjui (Univesity of Nevada, Las Vegas)

11:45 **2077** DNA-Wrapped Carbon Nanotubes Assembled on Gold Substrates - G. Sanchez-Pomales, N. Rivera-Velez and C. Cabrera (University of Puerto Rico, Rio Piedras)

Session 2
Co-Chairs: L. Godinez and A. Kaifer

14:00 **2078** Oxidation-Based, Redox-Dependent Hydrogen Bonding Utilizing Dimethylamino-Substituted Diarylureas - D. K. Smith and J. Woods (San Diego State University)

14:30 **2079** Preparation of Electrodes Modified with Nanocomposites of PAMAM Dendrimers and Inorganic Nanoelectrocatalysts: A Study Focused on Sensing Molecules with Biological Importance - E. Bustos (Centro de Investigacion y Desarrollo Tecnologico en Electroquimica, CIDETEQ, S. C.), M. Garcia (Instituto de Investigaciones Cientificas, IIC. Universidad de Guanajuato.), T. W. Chapman (CIDETEQ), E. Juaristi (Centro de Investigacion y de Estudios Avanzados del Instituto Politecnico Nacional, CINVESTAV) and L. Godinez (Centro de Investigacion y Desarrollo Tecnologico en Electroquimica (CIDETEQ))

15:00 **2080** Photochromic and Electrochromic N-Salicyldene (anil) Functionalized Carbazole and bis EDOT-Carbazole. - I. Fabre-Francke (CEA), K. Nakatani (PPSM, UMR CNRS 853, ENS Cachan) and S. Sadki (CEA, UMR 5819)

15:30 Intermission (30 Minutes)

16:00 **2081** Competitive Complexing of Supramolecular Additives with Anions and Neutral Solvent Species Verified by Spectrosopic Techniques - M. Siekierski, M. Kalita, A. Plewa, Z. Zukowska and A. Solgala (Warsaw University of Technology)

16:30 **2082** Effect of the Synthesis Method of a Poly 5 Aphen Membrane on the Chemical Response of Adrenaline in the Presence of Ascorbic Acid - J. Cobos-Murcia, S. Corona-Avendano (Universidad Autonoma Metropolitana), M. Ramirez-Silva, M. Palomar-Pardave (Universidad Autonoma Metropolitana), M. Romero-Romo (Universidad Autonoma Metropoltana. Unidad Azcapotzalco) and L. Galicia-Luis (Universidad Autonoma Metropolitana)

17:00 **2083** Oxoporphyrinogens as Anion Binding Agents: Spectroscopic and Electrochemical Investigations - F. D'Souza, A. Schmacher, P. Karr, M. Zandler (Wichita State University), K. Ariga (National Institute for Materials Science) and J. Hill (National Institute for Materials Science)

J1 Biomedical and Clinical Sensors

Sensor

Universal 17, 1st Floor, Expo Center

Biomedical Sensors
Co-Chairs: C. Kranz and Y.-L. Chang

08:15 Introductory Remarks (5 Minutes)

08:20 **2085** Microelectrochemical Detection of Transmitter Release from Living Cells - W. W. Schuhmann, S. Isik, K. Eckhard, J. Castillo and A. Blochl (Ruhr-Universitat Bochum)

09:00 **2086** An Electrochemical Multi-Analyte Sensor Array for Implantation to Detect Physiologically Relevant Analytes - B. L. Clark, A. Mugweru and M. Pishko (Pennsylvania State University)

09:20 **2087** The Effect of Botulinum Neurotoxin A on Cellular Metabolism As Measured Using Multianalyte Microphysiometry - R. M. Snider (Vanderbilt University), S. Eklund (Louisiana Tech University), R. Thompson (Edgewood Chemical and Biological Center), J. Wikswo (Vanderbilt Institute for Integrative Biosystems Research and Education) and D. Cliffel (Vanderbilt University)

09:40 Intermission (20 Minutes)

10:00 **2088** Laterally Resolved Detection of Biomedically and Biologically Relevant Analytes - C. Kranz, J. Masson, J. Wiedemair (Georgia Institute of Technology), E. Gauda (The Johns Hopkins University), D. Eaton (Emory University) and B. Mizaikoff (Georgia Institute of Technology)

10:20 **2089** Small Volume Detection of Plasmodium Falciparum Using a 50 Micrometer Diameter Cavity with Self-contained Electrochemistry - Z. P. Aguilar (Vegrandis, LLC)

10:40 **2090** Characterization and Stability of Enzyme-Immobilized Polymer-Stabilized Nanocomposite Particles - D. Foxx (Florida A&M University), C. Davy, M. Daniel (Florida State University), P. Kalu and E. E. Kalu (FAMU-FSU COE)

11:00 **2091** Label-Free DNA Detection of Hepatitis C Virus (HCV-1) - C. D. Riccardi, J. Kowalik, M. Josowicz (Georgia Institute of Technology), H. Yamanaka (Unesp-Universidade Estadual Paulista), B. Mizaikoff and C. Kranz (Georgia Institute of Technology)

11:20 **2092** Fabrication of Multi-Channel Needle Type Biosensors Using Electrodeposition Procedure - M. Yasuzawa, H. Takaoka, S. Furukawa, K. Moriyama, M. Yamamoto (University of Tokushima) and S. Imai (Toyo Precision Parts MFG)

11:40 **2093** Capturing Biomolecules with Templated Membranes: Toward Rational Design of Molecularly Imprinted Polymers - B. Mizaikoff, S. Wei (Georgia Institute of Technology) and M. Jakusch (Austrian Research Centers)

Frontiers in Biosensors - Joint Session with E6
Co-Chairs: C. Kranz and Y.-L. Chang

14:00 **2094** Nanomechanical Chemistry; Elucidating the Molecular Origins of Surface Stress - M. Watari (University College London) and R. McKendry (LCN and Medicine)

14:40 **2095** A Multiplexing Immunoassay Based on Magnetic Sorting and Electrochemical Detection of Conjugated Particles - P. Hesketh, Z. Peng (Georgia Institute of Technology) and K. Kellar (National Center for Infectious Diseases)

15:00 **2096** High Index Contrast Photonic Waveguide Components for Biological Sensing - D. Xu, A. Densmore, J. Lapointe, P. Waldron, P. Cheben, A. Delage, B. Lamontagne (Institute for Microstructural Sciences), S. Janz (Natio nal Research Council Canada), J. Schmid and E. Post (Institute for Microstructural Sciences)

15:20 Intermission (20 Minutes)

15:40 **2097** From Synapse to Brain Maps: Are We There Yet? - B. Biswal (UMDNJ)

16:20 **2098** Carbon Nanotube Network: A Powerful Platform for Label-Free Biological Detection - Y. Chang, E. Tu, M. Briman, K. Joshi, J. Gabriel and C. Valcke (Nanomix)

16:40 **2099** Current-Voltage Characteristics of Gap Electrodes with lambda DNA Molecules on SiO_2/Si Substrate after Elongating Treatment - M. Morita, K. Hashimoto, T. Hanada, Y. Ochi, T. Hirokane, S. Kawakami, S. Uchiyama, K. Fukui, K. Arima and J. Uchikoshi (Osaka University)

J3 Microfabricated and Nanofabricated Systems MEMS/NEMS 7

Sensor / Dielectric Science and Technology / Electronics and Photonics

Universal 5, 1st Floor, Expo Center

Microfabrication and MEMS
Co-Chairs: P. Hesketh and J. Davidson

08:40 Introductory Remarks (10 Minutes)

08:50 **2139** Surface and Materials Issues for High Reliability MEMS - R. Maboudian (UC Berkeley)

09:40 **2140** Non-Volatile Solid-Electrolyte Memory Devices: Electronic versus Optical Latent Image Formation in Silver Halides - M. Tabib-Azar and Y. Xie (Case Western Reserve University)

10:00 Intermission (20 Minutes)

10:20 **2141** High-Rate Anisotropic Silicon Etching with the Expanding Thermal Plasma Technique - M. A. Blauw (Eindhoven University of Technology), P. Van Lankvelt (Philips Research Eindhoven), F. Roozeboom (Philips Research), E. Kessels (TU Eindhoven) and R. van de Sanden (Eindhoven University of Technology)

10:40 **2142** Exposure of Thick Polymethylglutarimide Films for Structural MEMS - I. G. Foulds, R. W. Johnstone, S. H. Tsang and M. Parameswaran (Simon Fraser University)

11:00 **2143** Novel Electrochemical Patterning Method of Silicon Carbide - G. A. D'Arrigo, V. Raineri, S. di franco and C. Spinella (cnr-imm)

11:20 **2144** Diamond/Carbon Field Emission Based Structures for Sensors and MEMS - J. L. Davidson, W. Kang, Y. Wong and K. Subramamium (Vanderbilt University)

11:40 **2145** Control of Residual Stress in Large-scale LPCVD SiC Films for MEMS and NEMS Applications - C. S. Roper (UC Berkeley), R. T. Howe (Stanford University) and R. Maboudian (UC Berkeley)

Microactuators and Microfluidic Devices
Co-Chairs: R. Maboudian and J. Li

14:00 **2146** Electrodeposited Micro-Actuators A Simple Tool for Impedance-Based Sensing - E. T. Enikov (University of Arizona)

14:40 **2147** Scalable Microfabricated High Torque Mechanical Micromotors - M. Tabib-Azar and L. You (Case Western Reserve University)

15:00 **2148** MEMS Capacitive Switch Fabrication using Photodefinable Metal Oxide Dielectrics - C. Henderson, M. Romeo, G. Wang and J. Papapolymerou (Georgia Institute of Technology)

15:20 **2149** Micromechatronical Challenges Miniaturizing Valves - E. Kallenbach (Steinbeis Transfer Center Mechatronic Ilmenau), M. Kallenbach (Technical University of Ilmenau) and V. Zoeppig (Steinbeis Transfer Center Mechatronic Ilmenau)

15:40 Intermission (20 Minutes)

16:00 **2150** Metal-Catalyzed Carbon Nanotube Piezoresistors with Very Large Longitudinal Piezoresistivity - M. Tabib-Azar, Y. Xie and R. Wang (Case Western Reserve University)

16:20 **2151** Pushing Capillary Electrophoresis in Chip Format into the Low Cost Region - W. E. Hoffmann, H. Muhlberger, H. Demattio (Research Center Karlsruhe), B. Gas (Charles University Prague) and A. Guber (Research Center Karlsruhe)

16:40 **2152** Easy Fabrication of Microfluidic Device Using Photosensitive Sheet - T. Ito (Kanagawa Industrial Technology Center), K. Maruyama (Keio University), S. Ohya (Kanagawa Industrial Research Center) and K. Suzuki (Keio University)

17:00 **2153** Integrated Electrical Sensor Arrays in Microfluidic Networks - M. C. Cole and P. J. Kenis (University of Illinois at Urbana-Champaign)

17:20 **2154** Photodefinable Sacrificial Polycarbonate Materials & Methods for MEMS & Microfluidic Device Fabrication - C. Henderson and Y. Hua (Georgia Institute of Technology)

17:40 **2155** Characterization of a Polymer-Based Microfluidic System for Electrophysiological Studies - E. Moss, N. Reddy and A. Frazier (Georgia Institute of Technology)

Thursday, November 2

0930h.....Coffee Break, *Lobby, 1st Floor, Expo Center and Registration Area, Conference Center, Sunrise*

2000h.....Cena Baile Dinner & Dance Party, *Moon Light Terrace, Sunrise; Universal Ballroom in the event of rain.*

B1 Electrochemical Capacitors and High Power Batteries

Battery / Energy Technology / Physical and Analytical Electrochemistry

Universal 8, 1st Floor, Expo Center

High Rate Electrodes
Co-Chairs: N. Dudney and R. Brodd

08:30 **165** Electromagnetic Non-Destrictive Testing of Zinc-Silver Cells - E. Shembel, V. Redko, V. Khandetskyy, V. Redko (Inter-Intel, Inc.), D. Reisner, J. Dai (US Nanocorp, Inc.) and P. Singh (Villanova Univ)

09:00 **166** Development of Lightweight Lead Acid Batteries - E. Lara-Curzio (Oak Ridge National Laboratory), K. An, B. Armstrong, F. Baker (ORNL), N. J. Dudney (Oak Ridge National Laboratory) and G. Kirby (ORNL)

09:30 **167** Evaluation of Power Capabilities and Energy Efficiencies of Lithium Ion Batteries - Z. Mao (ConocoPhillips Company)

10:00 **168** High-Rate Capability of New Three Dimensional Nickel Substrate for HEV Ni/MH Battery - M. Yao, T. Iwaki, S. Tanase, T. Sakai (National Institute of Advanced Industrial Science and Technology), K. Okuno, M. Kato, K. Harada and J. Park (Sumitomo Electric Industries, LTD.)

10:30 **169** Alkaline Fuel Cell, Saturated by CO_2 - E. Maya Visuet (Facultad de Quimica, UNAM)

B3 Lithium-Ion Batteries

Battery / Energy Technology

Galactic 2, Conference Center, Sunrise

Alternatives
Co-Chairs: Y. Shao-Horn and K. Zaghib

08:00 **332** Downtown Lofts vs. Suburban Sprawl: A Rational Approach for Fabricating 3-D Battery Architectures From the Drywall Up - J. C. Lytle, J. W. Long (Naval Research Laboratory), C. Rhodes (Lynntech), K. Pettigrew, R. Stroud and D. Rolison (Naval Research Laboratory)

08:30 **333** Dispenser Direct Write Printing of Thick Film Lithium Ion Polymer Microbatteries - D. Steingart, C. Ho, J. Salminen, J. Evans and P. Wright (UC Berkeley)

08:50 **334** A New Kind of All-Solid-State Thin-Film-Type Lithium-Ion Battery with In-Situ Formed Electrode Active Material - Y. Iriyama, C. Yada, T. Abe, Z. Ogumi (Kyoto University) and K. Kikuchi (The University of Shiga Prefecture)

09:10 **335** On the Mg Trapping Mechanism in Electrodes Comprising Chevrel Phases - D. Aurbach, A. Mitelman, E. Levi and E. Lancry (Bar-Ilan University)

09:30 **336** Optimizing Performance of Electrochemical Actuators Based on Rechargeable Lithium Battery Technology - T. Chin, Y. Koyama and Y. Chiang (Massachusetts Institute of Technology)

09:50 Intermission (20 Minutes)

10:10 **337** The Study of Electronically Conducting Polymers with Highly Reversible p- & n-Doping - D. Aurbach and M. D. Levi (Bar-Ilan University)

10:30 **338** Novel Organosulfur Compounds with Conducting Polymer Pi -Backbones as High Energy Cathodes for Lithium-Ion Rechargeable Batteries - Y. Kiya, J. Henderson, G. Hutchison and H. D. Abruna (Cornell University)

10:50 **339** Combinatorial Study of LiF:Ni Nanocomposites for Positive Electrode Materials in Li-Ion Batteries - P. Liao (Room 218), J. Dahn and R. Mar (Dalhousie University)

11:10 **340** Mixed Conducting Nanocomposites: Enabling the Electrochemical Properties of CuF_2 - G. Amatucci, F. Badway (Rutgers, The State University of New Jersey), A. Mansour (Naval Surface Warfare Center Carderock), J. Al-Sharab (Rutgers, the State University of New Jersey), W. Yoon (Brookhaven National Laboratory), F. Cosandey and N. Pereira (Rutgers, the State University of New Jersey)

11:30 **341** Electrochemically-Actuated Morphing Helicopter Blade - F. Tubilla, S. Hall, K. Song, T. Chin, G. Baetz and Y. Chiang (Massachusetts Institute of Technology)

11:50 **342** Improving Capacity and Thermal Degradation Characteristics of Li/$(CF_x)_n$ Cells using Anion Binding Agent in the Electrolyte - G. Nagasubramanian (Sandia National Laboratories) and D. H. Doughty (Sandia National Labs.)

Cathodes II
Co-Chairs: Y. K. Sun and L. Dupont

14:00 **343** The Structural Complexity of Lithium-Rich $Li_{1+x}(Mn_{0.5}Ni_{0.5})_{1-x}O_2$ and $Li_{1+x}(Mn_{0.33}Ni_{0.33}Co_{0.33})_{1-x}O_2$ Electrodes for Lithium Batteries - M. Thackeray, S. Kang, C. Johnson, J. Vaughey (Argonne National Laboratory) and S. Hackney (Michigan Technological University)

14:30 **344** Overlithiated $Li[Li_x(Ni_zCo_{1-2z}Mn_z)_{1-x}]O_2$ (0.1 < or Equal to z < or Equal to 0.4) Prepared by Spray Drying Method - J. Kim and N. Kumagai (IWATE University)

14:50 **345** Electrochemical Properties of $Li(Li_{x/3}Mn_{2x/3}Co_{1-x})O_2$ (0 < or Equal to x < or Equal to 1) Solid Solutions Prepared by Poly-Vinyl Alcohol (PVA) Method - N. Kumagai, J. Kim and T. Syo (IWATE University)

15:10 **346** Electrochemical Features of Li-Ni-Mn-Co Oxides - C. M. Julien, A. Abdel-Ghany (University P & M Curie), K. Zaghib (Institut de Recherche d'Hydro-Quebec (IREQ)), A. Mauger (CNRS), F. Gendron (University P & M Curie), A. EID and A. Hashem (National Research Center)

15:30 **347** High Capacity, Surface Modified Layered $xLi[Mn_{0.5-y}Ni_{0.5-y}Co_{2y}]O_2 \cdot (1-x)Li_2MnO_3$ Cathodes - A. Manthiram and Y. Wu (University of Texas at Austin)

15:50 Intermission (20 Minutes)

16:10 **348** Structural Changes of Layered O_3 $Li_xNi_{0.5}Mn_{0.5}O_2$: An Electron Diffraction Study - Y. Shao-Horn (MIT), H. H. Li (Massachusetts Institute of Technology), S. Kumar (M.I.T.), J. Breger and C. Grey (SUNY Stony Brook)

16:40 **349** Recent Developments in Transmission Electron Microscopy Techniques to the Characterization of Cycled Li-Ion Electrode Materials - L. Dupont (Universite de Picardie Jules Verne), L. Laffont, V. Bodenez (LRCS) and J. Tarascon (Universite de Universite de Picardie Jules Verne)

17:10 **350** Ab-Initio and Experimental Study on Structural Transitions and Thermal Disorder of $LiNi_{0.5}Mn_{0.5}O_2$ - Y. Hinuma, Y. Meng, K. Kang and G. Ceder (Massachusetts Institute of Technology)

17:30 **351** Degradation of Lithium Ion Batteries Using $LiNiO_2$-Based Cathodes and Change in Local Structure of Positive Materials - T. Sasaki, K. Horibuchi, H. Kondo, Y. Itou, C. Okuda, O. Hiruta, Y. Takeuchi (Toyota Central R&D Labs., Inc.), K. Tatsumi, S. Muto (Nagoya University) and Y. Ukyo (Toyota Central R&D Labs., Inc.)

17:50 **352** Synthesis and Characterization of $Li[(Ni_{0.8}Co_{0.1}Mn_{0.1})_{0.8}(Ni_{0.5}Mn_{0.5})_{0.2}]O_2$ with the Microscale Core-Shell Structure as the Positive Electrode Material for Lithium Batteries - Y. Sun (Hanyan g University), S. Myung (VK Corporation), B. Park and S. Woo (Hanyang University)

B4 Metal/Air and Metal/Water Batteries

Battery / Energy Technology

Universal 7, 1st Floor, Expo Center

Co-Chairs: J. J. Xu and K. M. Abraham

08:00 **388** A Brief History of Non-Aqueous Metal-Air Batteries - K. M. Abraham (E-KEM Sciences)

08:30 **389** The Development of High Energy Density Lithium/Air and Lithium/Water Batteries with No Self-Discharge - S. J. Visco, E. Nimon and B. Katz (PolyPlus Battery Company)

09:00 **390** Novel Polymer Electrolytes Based on Ionic Liquids and their Application to Solid-State Thin-Film Li-Air Batteries - H. Ye and J. J. Xu (Rutgers, the State University of New Jersey)

09:20 **391** Lithium-Air Cells with High Capacity Cathodes - A. Dobley, C. Morein and R. Roark (Yardney / Lithion Inc.)

09:40 Intermission (20 Minutes)

10:00 **392** Intrinsic Borohydride Fuel Cell/Metal-Air Battery Hybrid Power Sources - C. Wang, J. Hong, B. Fang and K. Currie (Tennessee Technological University)

10:30 **393** A Regenerative Zinc Air Fuel Cell System - S. Smedley (Electrochemical Technology Development Ltd) and G. X. Zhang (Teck Cominco)

11:00 **394** Recent Progress in Silver-Zinc Batteries - W. Hago, M. Benz, H. Li, I. Villegas, J. Nelson, T. Renken and L. Li (Zinc Matrix Power)

B5 Organic Photovoltaics

New Technology / Energy Technology / Fullerenes, Nanotubes, and Carbon Nanostructures

Universal 17, 1st Floor, Expo Center

Organic PVs
Co-Chairs: T. Fuller and K. Rajeshwar

08:15 **398** Extending the Spectral Response of Dye-Sensitized and Organic Solar Cells - A. Zaban, E. Koren (Bar-Ilan University), I. Lubomirsky and D. Cahen (Weizmann Institute of Science)

08:50 **399** Highly Efficient Solid State Dye-Sensitized TiO_2 Solar Cells Using Novel Donor Antenna Dyes - M. Thelakkat, C. S. Karthikeyan and K. Peter (University of Bayreuth)

09:15 **400** Improvements of Photo Rechargeable Dye Sensitized Cell (Photocapacitor) and Module Application - K. Teshima (Peccell Technologies, Inc.), J. Suzuki (Graduate School of Engineering, Toin University of Yokohama), T. Murakami (Ecole Polytechnique Federale de Lausanne) and T. Miyasaka (Toin University of Yokohama)

09:40 Intermission (20 Minutes)

10:00 **401** Charge-Separation and Exciton-Migration Processes in Organic Semiconductors for Solar Cell Applications: A Molecular Viewpoint - J. Bredas (Georgia Tech)

10:45 **402** Semiconductor Oxides as Electron Acceptors in Hybrid Organic-Inorganic Solar Cells - M. Lira-Cantu (Instituto de Ciencia de Materiales de Barcelona), F. Krebs, K. Norrman and J. Andreasen (RISO National Laboratory)

11:10 **403** Comparative Studies of Donor-Acceptor Block Copolymers in Nanostructured Bulk Heterojunction Solar Cells - M. Sommer, S. Lindner and M. Thelakkat (University of Bayreuth)

11:35 **404** Morphology and Charge Transport in Dendrimer-Based Organic Photovoltaic Devices - S. E. Shaheen, N. Kopidakis, W. Mitchell, M. Kose (National Renewable Energy Laboratory), W. Rance (Colorado School of Mines), D. Ginley and G. Rumbles (National Renewable Energy Laboratory)

12:00 Intermission (60 Minutes)

13:00 Intermission (60 Minutes)

14:00 **405** Excitonic Solar Cells: Exciton Formation, Doping, and Carrier Transport in Organic Photovoltaic Cells - B. Gregg (National Renewable Energy Laboratory)

14:35 **406** Photovoltaic and Alphavoltaic Devices from Heteroisomers of Boron Carbide Cage Molecules - M. L. Natta (University of Nebraska-Lincoln), N. Boag (University of Salford) and J. I. Brand (University of Nebraska-Lincoln)

15:00 **407** Low-Temperature Preparation of Photo- and Counter-Electrode Porous Materials for Plastic Dye-Sensitized Solar Cells - T. Miyasaka, M. Ikegami, Y. Kijitori (Toin University of Yokohama), K. Kobayashi and T. Muto (Musashi Institute of Technology)

15:25 Intermission (10 Minutes)

15:35 **408** Charge Photogeneration in Donor and Acceptor Conjugated Polymers and their Blends - V. Cimrova, D. Vyprachticky (Institute of Macromolecular Chemistry) and H. Horhold (Universitat Jena)

16:00 **409** Growth of Modified ZnO Nanostructures for Organic Photovoltaic Devices - D. Ginley (National Renewable Energy Laboratory), M. White (NREL), S. E. Shaheen, N. Kopidakis (National Renewable Energy Laboratory), W. Rance (Colorado School of Mines), G. Rumbles (National Renewable Energy Laboratory), D. Olson, J. Voigt, Y. Lee, P. Clem and J. Hsu (SNL)

16:25 **410** Photocurrent Generation Mechanism of Cyanine Dye in Near-IR Region - K. Takechi, P. Sudeep and P. Kamat (University of Notre Dame)

B6 Proton Exchange Membrane Fuel Cells 6

Energy Technology / Physical and Analytical Electrochemistry / Battery / Industrial Electrolysis and Electrochemical Engineering

Galactic 4, Conference Center, Sunrise

High Temperature Materials
Co-Chairs: O. Baturina and C. Bock

08:00 **592** Role of Binders in High Temperature PEMFC Electrode - J. O. Park, S. Hong, T. Kim, K. Kwon, S. Suh, M. Cho and D. Yoo (Samsung Advanced Institute of Technology)

08:20 **593** A High Performance Pt-Free Anode for Intermediate-Temperature Fuel Cells - P. Heo, M. Nagao, M. Sano and T. Hibino (Nagoya University)

08:40 **594** Fabrication and Properties of High Temperature Protonic Conductors -J. Martinez, M. Lopez-Robledo, A. Ramirez-de-Arellano-Lopez, C. Real-Perez (Universidad de Sevilla), J. Pena-Torre (Universidad de Zaragoza), R. Merino-Rubio (Instituto de Ciencia de Materiales de Aragon, Spain) and A. Sayir (NASA Glenn Research Center, USA)

09:00 **595** Metal Carbide-Based Hydrodesulfurization Catalysts as Sulfur-Tolerant Electrocatalysts for PEMFC Anodes - J. Pietron, C. Laberty (Naval Research Laboratory), D. Gatewood (The George Washington University) and K. Swider-Lyons (Naval Research Laboratory)

09:20 **596** Fabrication of Silicon Based Fuel Cell Electrodes by Selective Plasma Etching - J. A. Brito-Neto (Tokyo University of Science - Faculty of Science and Technology), S. Araki, S. Shirako and M. Hayase (Tokyo University of Science - Faculty of Science and Technology - Department of Mechanical Engineering)

Galactic 8, Conference Center, Sunrise

Durability - Fuel Starvation and Start/Stop Degradation
Co-Chairs: T. Jarvi and M. Perry

08:00 **597** Systems Strategies to Mitigate Carbon Corrosion in Fuel Cells - M. L. Perry, T. Patterson and C. Reiser (UTC Power)

08:40 **598** The Impact of Carbon Stability on PEM Fuel Cell Startup and Shutdown Voltage Degradation - P. T. Yu (General Motors), W. Gu (Fuel Cell Activities, General Motors), R. Makharia (General Motors Fuel Cell Activities), F. T. Wagner (General Motors) and H. A. Gasteiger (General Motors Fuel Cell Activities)

09:20 **599** CFD Modelling of Fuel Starvation and Carbon Corrosion in a PEM Fuel Cell - S. Kumar (Ballard Power Systems)

09:40 Intermission (20 Minutes)

10:00 **600** Electrocatalytic Corrosion of Carbon Support in PEMFC at Fuel Starvation - W. R. Baumgartner, W. R. Baumgartner (CD-Laboratory for Fuel Cell Systems), E. Wallnofer (Graz University of Technology, Austria), T. Schaffer (Graz University of Technology, CD-Laboratory of Fuel Cell Systems), V. Hacker (Institute for Chemistry and Technology of Inorganic Materials), V. Peinecke and P. Prenninger (AVL List GmbH)

10:20 **601** Effect of Anode Catalyst Suport on Degradation of MEA Caused by Hydrogen Starvation Operation in PEFC - Y. Takagi, Y. Sato and Z. Wang (Musashi Inst. of Tech.)

10:40 **602** Stop-Start and High-Current Durability Testing of Nanostructured Thin Film Catalysts for PEM Fuel Cells - M. K. Debe, A. Steinbach and K. Noda (3M)

11:00 **603** Effect of Shut off Sequence of Hydrogen and Air on Performance Degradation in PEFC - Y. Takagi and Y. Takakuwa (Musashi Inst. of Tech.)

11:20 **604** Durability and Reliability in High-Temperature Reformed Hydrogen PEFCs - T. J. Schmidt (PEMEAS GmbH) and J. Baurmeister (PEMEAS)

11:40 **605** Performance Characteristics of a Polymer Electrolyte Fuel Cell with the Anodic Supply Mode - Y. Lee, Y. Kim, J. Kim and J. Chung (Korea University)

Galactic 5, Conference Center, Sunrise

Stack and System Tools/Diagnostics
Co-Chairs: T. Nguyen and T. Fuller

08:05 **606** What is Learned Beyond the Scale of Single Cells? - F. N. Buchi (Electrochemistry laboratory), S. Freunberger and M. Santis (Paul Scherrer Institut)

08:40 **607** Plate in-Plane Electrical Resistance Impact to Stack Performance - G. Wang, M. Ramani and C. Eldrid (Plug Power Inc.)

09:00 **608** Microfluidic Tools for Assessing the Multiphase Properties of Water in PEM Gas Diffusion Electrodes - J. Fairweather, P. Cheung (University of Washington) and J. St-Pierre (University of South Carolina)

09:20 **609** The Use of Limiting Current to Determine Transport Resistance in PEM Fuel Cells - D. R. Baker (General Motors R&D Center), C. Wieser (GM Fuel Cell Activities, Adam Opel AG), K. Neyerlin and M. Murphy (General Motors Fuel Cell Activities)

09:40 Intermission (20 Minutes)

10:00 **610** Experimental Investigation of the Water Cross over in a PEM Fuel Cell Operating Under Sub Saturated Conditions - J. Stumper (Ballard Power Systems), X. Bi and P. Sauriol (University of British Columbia)

10:20 **611** Integrated Flow Visualization and Current Mapping of a PEM Fuel Cell - J. Stumper and A. Roshanzamir (Ballard Power Systems)

10:40 **612** Oscillations in the Gas Channels - The Forgotten Player in Impedance Spectroscopy in Polymer Electrolyte Fuel Cells (PEFCs) A. Exploring the Wave - I. A. Schneider, D. Kramer, A. Wokaun and G. Scherer (Paul Scherrer Institut)

11:00 **613** Nanoscale Electrocatalytic Current Imaging of Proton Exchange Membrane Fuel Cells Using Conducting AFM - S. Buratto, D. Bussian, J. R. O'Dea and H. Metiu (University of California, Santa Barbara)

11:20 **614** On a New Laboratory Tool to Study the Real-Time Dynamics of Water in the PEM of a Running Fuel Cell - V. Rossi-Albertini (CNR), B. Paci, A. Generosi, D. Bailo and V. Severi (ISM-CNR)

11:40 **615** Interpretation of Low-Frequency Inductive Loops in PEM Fuel Cell Impedance Data - M. E. Orazem and S. K. Roy (University of Florida)

Galactic 4, Conference Center, Sunrise

Alternative Fuel FCs
Co-Chairs: C. Lamy and E. Gonzalez

10:00 **616** Ethanol Oxidation on Pt-Sn Electrocatalysts Supported on Carbon Prepared by Reduction with Formic Acid - E. R. Gonzalez, F. Colmati and E. Antolini (Instituto de Quimica de Sao Carlos-USP)

10:20 **617** Withdrawn

10:40 **618** PEM Fuel Cell Durability With Transportation Transient Operation - R. Borup, J. Davey, F. Garzon, D. Wood, P. Welch (Los Alamos National Lab) and K. More (Oak Ridge National Lab)

11:00 **619** Palladium-Platinum Alloys Anode Catalysts for Direct Formic Acid Fuel Cell - S. Blair (Tekion Inc.), D. Lycke and C. A. Iordache (Tekion (Canada) Inc)

11:20 **620** Utilization and Transport in Mediated Enzyme Electrodes with Multiscale Supports - S. Calabrese Barton, Y. Sun, B. Chandra and J. Hone (Columbia University)

11:40 **621** Development of Electrocatalysts for the Solid Alkaline Membrane Fuel Cell (SAMFC) - C. Lamy (Universty Poitiers - CNRS), L. Demarconnay, C. Coutanceau and J. Leger (University of Poitiers - CNRS)

DMFCs
Co-Chairs: J. Weidner and C. Bock

14:00 **622** A Conductive Nb-Doped Titania Supported Electrocatalyst for use in DMFC's Synthesized at Low Temperature - B. L. Garcia, R. Fuentes and J. Weidner (University of South Carolina)

14:20 **623** Preparation of Carbon Supported Ru-Se Based Catalysts and their Electrochemical Performance in DMFC Cathodes - S. Fiechter (Hahn Meitner Institute), P. Bogdanoff, G. Zehl, I. Dorbandt, G. Schmithals (HMI-Berlin) and K. Wippermann (FZJ-Julich)

14:40 **624** Direct Methanol Fuel Cell with Extended Reaction Zone Anode - A. G. Bauer (University of BC), E. Gyenge and C. Oloman (University of BC)

15:00 **625** Free Convection Direct Methanol Fuel Cells Powered by Electroosmotic Pumps - C. Buie, D. Kim, S. Litster and J. G. Santiago (Stanford University)

15:20 **626** Composite Polymer Electrolyte for Direct Ethanol Fuel Cell Application. - A. Di Blasi, V. Baglio, A. Stassi, C. D'Urso, V. Antonucci and A. Arico' (CNR ITAE)

15:40 **627** Electrocatalytic Oxygen Reduction at Methanol-Tolerant Modified Electrodes - E. E. Kalu (FAMU-FSU COE), D. Waryoba (Florida State University) and P. Kalu (FAMU-FSU COE)

Galactic 5, Conference Center, Sunrise

Cell and Stack Concepts
Co-Chairs: V. Ramani and T. Nguyen

14:00 **628** Performance & System Impacts of Open Flowfield PEMFCs - A. Toro, J. Cross and A. Maggiore (Nuvera)

14:30 **629** Evaporatively Cooled PEM Fuel Cell Stack and System - M. L. Perry, J. P. Meyers, R. Darling, C. Evans and R. Balliet (UTC Power)

14:50 **630** Elucidation of PEMFC Electrocatalyst-Layer Surface and Interfacial Phenomena via Neutron Reflectivity - D. Wood, J. Chlistunoff, E. Watkins (Los Alamos National Laboratory), P. Atanassov (University of New Mexico) and R. Borup (Los Alamos National Lab)

15:10 **631** Developments for Metal-Carbon Hybrid Bipolar Plates for Polymer Electrolyte Fuel Cell - D. Yin and T. Itoh (Tohoku University)

15:30 Intermission (20 Minutes)

15:50 **632** Water Management by Materials Design and Engineering - T. V. Nguyen (University of Kansas)

16:10 **633** Toward Electroosmotic Flow-Driven Air Pumps for Miniaturized PEM Fuel Cells - D. Kim, C. Buie and J. G. Santiago (Stanford University)

16:30 **634** Spiral-Wound PEM Fuel Cells for Portable Applications - M. C. Kimble, T. Blakley and K. Jayne (MicroCell Technologies, LLC)

16:50 **635** Two-Phase Flow in Small Channels and the Implications for PEM Fuel Cell Operation - J. Allen (Michigan Technological University)

17:10 **636** Optimization of Manifold Positions and Fuel Flow Direction in a DMFC Stack - S. Jeong (Samsung SDI), G. Roh, C. Shin, Y. Na, K. Lee and J. Suh (Samsung SDI Co., LTD.)

Galactic 8, Conference Center, Sunrise

Durability - Electrode Degradation
Co-Chairs: P. Yu and K. More

14:00 **637** Identifying Degradation Phenomena in PEM Fuel Cell MEAs Via Electron Microscopy - K. More (Oak Ridge National Lab), J. Bentley and K. Reeves (Oak Ridge National Laboratory)

14:40 **638** Degradation Investigation of PEMFC by Scanning Electron Microscopy and Direct Gas Mass Spectroscopy - Y. Fujii, S. Tsushima, K. Teranishi, K. Kawata, T. Nanjo and S. Hirai (Tokyo Institute of Technology)

15:00 **639** Characterization of the Structure Changes of Catalyst Layer in PEMFC Durability Operations - J. Li, P. He, K. Wang and S. Ye (Ballard Power Systems)

15:20 **640** Toward Understanding of Degradation of MEA Components for PEMFC Operated Under Elevated Temperature and Reduced Relative Humidity - T. Navessin, Z. Xie, K. Shi (National Research Council) and S. Holdcroft (Simon Fraser University)

15:40 Intermission (20 Minutes)

16:00 **641** PEMFC Component Characterization and Its Relationship to Mass-Transport Overpotentials during Long-Term Testing - D. Wood, J. Davey (Los Alamos National Lab), P. Atanassov (University of New Mexico) and R. Borup (Los Alamos National Lab)

16:20 **642** Evaluation of High Temperature Degradation of Pt/C Catalysts in PEM Fuel Cells - A. S. Arico (CNR-ITAE), A. Stassi (CNR ITAE), E. Modica, R. Ornelas, I. Gatto, E. Passalacqua (CNR-ITAE) and V. Antonucci (CNR ITAE)

16:40 **643** Degradation Rates of PEM Fuel Cells Running at Open Circuit Voltage - T. A. Aarhaug and A. Svensson (Sintef)

17:00 **644** CO-Air Bleed Interaction and MEA Performance Degradation Study in PEM Fuel Cells - B. Du, R. Pollard and J. Elter (Plug Power, Inc.)

Galactic 4, Conference Center, Sunrise

DMFCs
Co-Chairs: C. Bock and J. Zhang

16:00 **645** Nanostructured Materials for Direct Methanol Fuel Cells - B. Hwang (National Taiwan University of Science and Technology)

16:20 **646** Advanced Electrocatalyst and MEA Technologies to Boost DMFC Performance - H. Lei, P. Atanassova, Y. Sun and G. Rice (Cabot Corporation)

16:40 **647** A Novel Ir-based ORR Electrocatalyst with Methanol Tolerance for Direct Methanol Fuel Cells - K. Lee, L. Zhang and J. Zhang (NRC-IFCI)

17:00 **648** Formic Acid Tolerance on RuxSey During the Oxygen Reduction Reaction in Acid Medium - L. G. Arriaga (Institu te of Electrical Research), Y. Gochi (Centro de Investigacion en Materiales Avanzados, S.C.) and N. Alonso (Lab. Electrocatalyse, UMR-CNRS 6503)

C4 Pharmaco-Electrochemistry

New Technology

Universal 20, 1st Floor, Expo Center

Pharmaco Electrochemistry
Co-Chairs: A. Brett and L. Yudi

10:00 **750** Modifying the Reactivity of Reduced Intermediates of Quinones by Structural Changes and Intra and Inter Molecular Hydrogen Bonding - F. J. Gonzalez (Cinvestav)

10:50 **751** Intra vs Intermolecular Association Processes in the Radical Anions of b-Hydroxyquinones. Influence on the Structural Properties of the Radical Anion of Julgone. - C. E. Frontana (Universidad Autonoma Metropolitana - Iztapalapa), I. Gonzalez (Universidad Autonoma Metropolitana - Iztapalapa) and M. Gomez (Universidad Autonoma Metropolitana - Xochimilco)

11:15 **752** Tuning the Reactivity of Perezone by Structural Modifications. Effect of the p-p Interactions - C. E. Frontana (Universidad Autonoma Metropolitana - Iztapalapa), J. Bautista, M. Aguilar-Martinez, G. Cuevas (Universidad Nacional Autonoma de Mexico), I. Gonzalez-Martinez (Universidad Autonoma Metropolitana - Iztapalapa) and C. Reyes-Hernandez (Universidad Nacional Autonoma de Mexico)

11:40 **753** Heart Rate Variability Analysis and the Structural Health of the Heart - M. Urquidi-Macdonald (Penn State University)

12:05 Intermission (60 Minutes)

13:05 Intermission (30 Minutes)

13:35 **754** Conducting Polymers and Hydrogels for Electrochemically Controlled Drug Release Devices - S. Torresi (Universidade de Sao Paulo), L. Lira and R. Barthus (IQ/USP)

14:25 **755** Investigating DNA Damage Inhibition of Cytochrome P450 Metabolites in DNA Sensors by Antioxidants - D. O. Hull (University of Connecticut, Storrs), I. Jannson, J. Schenkman (University of Connecticut, Health Center, Farmington) and J. Rusling (University of Connecticut)

14:50 Intermission (10 Minutes)

15:00 **756** Coordinated Nanobiosensors for Enhanced Detection: Integration of Three Dimensional Structures to Toxicological Applications - J. Yeh, S. Du (University of Pittsburgh Medical School), T. Xia and A. Nels (University of California)

15:25 **757** The use of the Quartz Crystal Microbalance with Dissipation for the Design of Improved Metallophthalocyanine-Glucose Oxidase Composite Electrodes for Glucose Detection - J. L. Limson, R. Fogel, M. Philani and T. Nyokong (Rhodes University)

15:50 **758** Determination of Tryptophan and Histidine by Adsorptive Cathodic Stripping Voltammetry Using H-Point Standard Addition Method - R. Hajian and A. Ensafi (Isfahan University of Technology)

D4 Critical Factors in Localized Corrosion 5, a Symposium in Honor of Hugh S. Isaacs

Corrosion

Universal 1, 1st Floor, Expo Center

Dealloying
Chair: S. Virtanen

08:30 **918** Insights into the Parting Limit for De-Alloying from Reconsideration of Atomistic Considerations - R. Newman, D. Artymowicz (University of Toronto) and K. Sieradzki (Arizona State University)

08:50 **919** Further Insights into the Dealloying Critical Potential: Effect of Electrolyte Composition - B. D. Eichelberger and S. Corcoran (Virginia Tech)

Passive Film Thickness Effects
Chair: S. Virtanen

09:10 **920** The Influence of Irradiated Defect Structures on the Corrosion Behaviour of Nickel - O. von Trzebiatowski, T. Suter (EMPA) and S. Virtanen (University of Erlangen-Nuremberg)

09:30 **921** The Nature and Thiknesses of Passive Films on Interface Cu/ $NaOH^{+}$Alanine - E. V. Orlova (Voronezh State University) and N. Andreeva (Institute of Physical Chemistry)

09:50 Intermission (20 Minutes)

Novel Techniques
Co-Chairs: R. Newman and J. Scully

10:10 **922** Use of Coupled Multi-Electrode Arrays to Elucidate Propensity for Copper Pipe Pitting as a Function of Potable Water Chemistry - H. Cong, N. Budiansky (University of Virginia), H. Michels (Copper Developmnet Association Inc.) and J. Scully (University of Virginia)

10:30 **923** Imaging Localized Corrosion via AC-SECM and SECM-Integrated Stripping Voltammetry - A. Schulte (The University of the West Indies), D. Ruhlig, T. Erichsen (Ruhr Universitaet Bochum) and W. W. Schuhmann (Ruhr-Universitat Bochum)

10:50 **924** Studies of Electron Transfer at Aluminum and Aluminum Alloy Surfaces by Scanning Electrochemical Microscopy - D. E. Tallman (North Dakota State University), M. Jensen (Concordia College), T. Bjordahl and G. Bierwagen (North Dakota State University)

11:10 **925** Microgalvanic Coupling on Aluminium Alloys: Toward a Local Electrochemical Approach - R. Oltra (CNRS), N. Murer (CNRS - Universite de Bourgogne), V. Vignal (CNRS-Universite de Bourgogne), B. Vuillemin (CNRS Universite de Bourgogne), M. Benmalek and P. Litalien (ALCAN CRV)

11:30 **926** Effect of Mg Alloying Addition on Dissolution Behavior of Oxide Films in Al-Si-Mg Alloys - M. A. Pech-Canul (CINVESTAV-MERIDA), M. Pech-Canul (CINVESTAV-Saltillo) and M. Echeverria (CINVESTAV-Merida)

Impedance
Chair: F. Martin

14:00 **927** Comparison of the Electrochemical Behavior of Pure Al and Al 2024-T3 Alloy in Low Concentrated Chloride Media - H. G. de Melo (Sao Paulo University), N. Pebere (CIRIMAT/UMR - ENSIACET) and L. Morales Palomino (Sao Paulo University)

14:20 **928** Influence of pH, H_2S and Ferrous Ions on Localized Corrosion of Iron by Sulfate-Reducing Bacteria - L. A. Ocando, M. de Romero, O. T. de Rincon, O. Perez, E. Leon and L. Atencio (Universidad del Zulia)

14:40 **929** The Apparent CPE Behavior of a Disk Electrode with Faradaic Reactions - M. E. Orazem, V. Huang (University of Florida), V. Vivier (LISE (CNRS)), B. Tribollet (LISE-CNRS) and N. Pebere (CIRIMAT)

15:00 Intermission (20 Minutes)

Microstructural Effects and Corrosion Resistant Coatings for Steels and Iron
Co-Chairs: F. Martin and C. Jeffcoate

15:20 **930** Corrosion of the Braze Affected Zone in Stainless Steel - C. Jeffcoate and M. Pohlman (Honeywell International)

15:40 **931** The Effect of Magnesium Additions on the Microstructure and Cut Edge Corrosion Resistance of Z inc Aluminum Alloy Galvanized Steel - D. A. Worsley (Swansea University) and J. Elvins (Corus)

16:00 **932** Localized Corrosion Resistance of LTCSS-Carburized Materials to Seawater Immersion - F. J. Martin (SAIC), E. Lemieux (U. S. Naval Research Laboratory), T. Newbauer (SAIC/NRL Operations), R. Bayles, P. Natishan (U. S. Naval Research Laboratory), H. Khan, F. Ernst and A. Heuer (Case Western Reserve University)

16:20 **933** Macroscopic and Local Electrochemical Studies of Austempered Ductile Iron in Various Aqueous Solutions - H. Krawiec (AGH-University of Science and Technology), V. Vignal (CNRS-Universite de Bourgogne) and J. Banas (AGH-University of Science and Technology)

16:40 **934** Localized Corrosion of Chromium Coated Steel - X. Zhang (Netherlands Institute for Metals Research), P. Beentjes (Corus Group), A. Mol (TU Delft), H. Terryn (Vrije Universiteit Brussel) and J. de Wit (Delft University of Technology, The Netherlands)

17:00 **935** Electrochemical Behavior of AF1410 High-Strength Secondary Hardening Steel with/without Cd plating - Y. Yoon and D. Hansen (University of Dayton Research Institute)

E2 Advanced Gate Stack, Source/Drain, and Channel Engineering for Si-Based CMOS 2: New Materials, Processes, and Equipment

Electronics and Photonics / Dielectric Science and Technology / High Temperature Materials

Universal 3, 1st Floor, Expo Center

Advanced CMOS Channel Engineering: Strained Silicon and Germanium Channels
Co-Chairs: E. Bakkers and M. C. Ozturk

08:20 **1032** State-of-the-Art Characterisation for 65 nm CMOS Processes and Beyond - M. Hopstaken (Philips Semiconductors Crolles R&D), M. Juhel, J. Gonchond (ST Microelectronics), L. Kwakman (Philips Semiconductors Crolles R&D) and C. Wyon (CEA-LETI)

08:40 **1033** Fully Depleted Silicon-on-Insulator nMOSFETs with Tensile Strained High Carbon Content Si1-yCy Channel - F. Ducroquet (CEA-LETI/CNRS), J. Hartmann, C. Tabone, D. Lafond (CEA-LETI), C. VIZIOZ (CEA - Leti), T. P. Ernst and S. Deleonibus (CEA-LETI)

09:00 **1034** High Mobility Channels for Ultimate CMOS - D. Sadana (IBM)

09:30 **1035** Laser Spike Annealing of Strained Si/Strained $Si_{0.3}Ge_{0.7}$/ Relaxed $Si_{0.7}Ge_{0.3}$ Dual Channel High Mobility p-MOSFETs - C. Ni Chleirigh (MIT), X. Wang, G. Rimple (Ultratech, Inc.), Y. Wang (Ultratech, Inc), M. Canonico (Freescale Semiconductors Inc.), O. Olubuyide and J. Hoyt (MIT)

09:50 **1036** Dual Substrate Orientation Integration for High Performance (110) PMOS - G. Karve, W. Ted, D. Eades (Freescale), M. Sadaka (Coldwatt), G. Spencer, J. Hackenberg, J. Norbert, T. Kropewnicki, S. Zollner (Freescale), P. Beckage (AMD), J. Grant, R. Garcia, B. Nguyen, N. Cave, M. Hall, J. Cheek, S. Venkatesan (Freescale), C. Lin and I. Wu (Taiwan Semiconductor Manufacturing Co.)

10:10 Intermission (20 Minutes)

10:30 **1037** Current Challenges in Ge MOS Technology - A. Dimoulas (NCSR Demokritos), M. Houssa (IMEC), A. Ritenour (MIT, Cambridge, MA), J. Fompeyrine, W. Tsai, J. Seo (EPFL, Lausanne, Switzerland), Y. Panayiotatos, P. Tsipas (NCSR Demokritos), D. Brunco (IMEC vzw), M. R. Caymax (Imec), J. Locquet (IBM Research GmbH, Rueschlikon, Switzerland) and C. Dieker (EPFL, Lausanne, Switzerland)

11:00 **1038** Investigating Electronic and Chemical Properties of Ge/GeOxNy/HfO2 Gate Stacks : High-Resolution Photoelectron Spectroscopy Using Synchrotron Radiation - O. J. Renault (LETI-CEA), E. Martinez, L. Fourdrinier (CEA-Leti), L. Clavelier (CEA - LETI) and N. Barrett (CEA-DRECAM)

11:20 **1039** Point-Defect Generation in Ni-, Pd-, and Pt-Germanided Schottky Barriers on N-Type Germanium Substrates - E. R. Simoen, K. Opsomer, C. L. Claeys, K. Maex (IMEC), C. Detavernier (Ghent University), R. Van Meirhaeghe (University Ghent), S. Forment and P. Clauws (Ghent University)

Advanced CMOS Channel Engineering: 3-D Integration, Nanowires & Compound Semiconductors
Co-Chairs: D. Sadana and E. Gusev

14:00 **1040** Abstract withdrawn

14:20 **1041** Geometry Dependence of Poly-Si Oxidation and its Application to Self-Align, Maskless Process for Nano-scale Vertical CMOS Structur - H. Cho (Stanford University), P. Kapur (Electrical Engineering, Stanfrod University,CA), P. Kalavade (Intel Corporation) and K. Saraswat (Stanford University)

14:40 **1042** Epitaxial III-V Nanowires on Silicon for Vertical Devices - E. Bakkers (Philips Research Laboratories), M. Borgstrom, W. van den Einden, M. van Weert, A. Helman and M. Verheijen (Philips Research Labs)

15:10 **1043** Indium Antimonide Based Quantum Well FETs for Ultra-High Speed Electronics - T. Ashley, L. Buckle, M. Emeny, M. Fearn, D. Hayes, K. Hilton, R. Jefferies, T. Martin, T. Phillips, J. Powell, A. Tang, M. Uren, D. Wallis, P. Wilding (QinetiQ), S. Datta and R. Chau (Intel)

15:40 Intermission (20 Minutes)

16:00 **1044** III-V Compound Semiconductor MOSFET - M. Hong and J. Kwo (National Tsing Hua University)

16:30 **1045** Conductive AFM Measurements on Carbon Nanotubes and Application for CNTFET Characterization - L. Rispal, T. Ruland, Y. Stefanov, F. Wessely and U. Schwalke (Institute for Semiconductor Technology)

16:50 **1046** Electrical Characteristics of Ge-Nanocrystal Embedded MOS Capacitors for Non-Volatile-Memory Application - S. Choi (Samsung Electronics Co., LTD) , Y. Park, K. Cho, T. Kang, T. Kim (Samsung Electronics. Co., Ltd.), B. Park, K. Cho and S. Kim (Korea University)

E4 High Dielectric Constant Gate Stacks 4

Dielectric Science and Technology / Electronics and Photonics

Universal 9, 1st Floor, Expo Center

Gate Electrode Materials and Processing
Co-Chairs: S. Kar and C. Osburn

08:00 **1121** On the Issue of Work Function Tuning of Nickel Silicide Gates - N. Biswas, B. Lee (NCSU) and V. Misra (NC State University)

08:30 **1122** Composition Control of $TaSi_xN_y$ Thin Films by Chemical Vapor Deposition for Future n-MOSFET Metal Gate Electrode - Y. Sugita, T. Aoyama and Y. Nara (Semiconductor Leading Edge Technologies Inc.)

08:50 **1123** A Combinatorial Study of Metal Gate Electrodes on HfO_2 - M. L. Green, K. Chang (NIST), I. Takeuchi (University of Maryland) and T. Chikyow (NIMS (Japan))

09:20 **1124** Wide Controllability of Flatband Voltage in La_2O_3 Gate Stack Structures - Remarkable Advantages of La_2O_3 over HfO_2 - K. Ohmori (National Institute for Materials Science), P. Ahmet (Tokyo Institute of Technology), K. Shiraishi, K. Yamabe (University of Tsukuba), H. Watanabe (Dept. of Precision Science and Technology, Osaka University), Y. Akasaka (Selete), N. Umezawa, K. Nakajima, M. Yoshitake (National Institute for Materials Science), T. Nakayama (Chiba University), K. Chang (NIST), K. Kakushima (Tokyo Institute of Technology), Y. Nara (Semiconductor Leading Edge Technologies Inc.), M. L. Green (NIST), H. Iwai (FCRC, Tokyo Institute of Technology), K. Yamada (Waseda University) and T. Chikyow (NIMS (Japan))

09:50 Intermission (20 Minutes)

10:10 **1125** Advanced Metal Gate Electrode Options Compatible with ALD and AVD® $HfSiO_x$-Based Gate Dielectrics - Z. Karim (Aixtron-Genus), O. Biossiere, C. Lohe (Aixtron AG), Z. Zhang, W. Park (Aixtron-Genus), C. Manke, P. Baumann (Aixtron AG), J. Dalton, S. Ramanathan, J. Lindner and T. Seidel (Aixtron-Genus)

10:40 Session Concluding Remarks (20 Minutes)

High-k Processing
Co-Chairs: D. Misra and M. L. Green

11:00 **1126** Materials and Processes for High k Gate Stacks: Results from the FEP Transition Center - C. Osburn (NC State University), S. Campbell (University of Minnesota), A. Demkov (UT Austin), E. Eisenbraun (University of Albany-SUNY), E. Garfunkel, T. Gustafsson (Rutgers University), A. Kingon (NC State University), J. Lee (UT Austin), D. Lichtenwalner (North Carolina State University), G. Lucovsky (NC State University), T. Ma (Yale University), J. Maria, V. Misra, R. Nemanich, G. Parsons (NC State University), D. Schlom (Pennsylvania State University), S. Stemmer (UC Santa Barbara), R. Wallace (Universityof Texas at Dallas) and J. Whitten (NC State University)

11:40 **1127** Development of 300 mm MOCVD $HfSiO_x$ Process - X. Shi, M. Schaekers (IMEC), L. Date (AMAT), A. Rothschild, J. Everaert (IMEC), S. Van Elshocht (IMEC vzw) and E. Rosseel (IMEC)

12:00 **1128** Effect of Oxygen for Ultra-Thin La_2O_3 Film Deposition - K. Tachi (Tokyo Institute of Technology), H. Iwai (FCRC, Tokyo Institute of Technology), T. Hattori (FCRC, Tokyo Institute of Technology; ARL, Musashi Institute of Technology), N. Sugii, K. Tsutsui, P. Ahemt and K. Kakushima (Tokyo Institute of Technology)

High-k Materials
Co-Chairs: S. De Gendt and M. Allessandri

14:00 **1129** Factors Influencing Characteristics of Hafnium Based High-k Dielectrics - D. H. Triyoso (Freescale Semiconductor Inc.)

14:30 **1130** Alternative Gate Dielectric Materials - S. Van Elshocht (IMEC vzw), A. Hardy (University of Hasselt), S. De Gendt (IMEC and KULeuven), C. Adelmann, D. Brunco (IMEC vzw), M. R. Caymax, T. Conard (IMEC), P. Delugas (IMEC vzw), P. Lehnen (AIXTRON AG), D. Shamiryan (IMEC), R. Vos, T. Witters, P. Zimmerman (IMEC vzw), M. M. Meuris and M. Heyns (IMEC)

15:00 **1131** Ultra-Thin (EOT ~ 0.31nm) and Low Leakage Dielectrics of La-Aluminate Deposited Directly on Si Substrate - M. Suzuki (Toshiba corporation), M. Tomita (Advanced LSI Technology Laboratory, Corporate Research & Development Center, Toshiba Corporation), T. Yamaguchi, N. Fukushima (Corporate Research & Development Center, Toshiba Corporation), M. Koyama and A. Nishiyama (Toshiba Corporation)

15:30 **1132** La_2O_3 Gate Dielectric Thin Film with Sc_2O_3 Buffer Layer for High Temperature Annealing - Y. Shiino (FCRC, Tokyo Institute of Technology), K. Kakushima, P. Ahmet, K. Tsutsui, N. Sugii (Tokyo Institute of Technology), T. Hattori (FCRC, Tokyo Institute of Technology; ARL, Musashi Institute of Technology) and H. Iwai (FCRC, Tokyo Institute of Technology)

15:50 **1133** Laminated CeO_2/HfO_2 High-k Gate Dielectrics Grown by Pulsed Laser Deposition in Reducing Ambient - K. Karakaya, B. Barcones (University of Twente), A. Zinine (MESA+ Institute for Nanotechnology, University of Twente), C. Rittersma (Philips Semiconductors), P. Graat, J. van Berkum (Philips Research), M. Verheijen (Philips Research Labs), G. Rijnders and D. Blank (University of Twente)

16:10 **1134** Enhanced Dielectric Constant of HfO_2 and Al_2O_3 Thin-Films with Silver Nanoparticles - R. Ravindran, M. Othman, M. Yun (Univer rsity of Missouri-Columbia), N. Biswas (NCSU), N. Mehta (Texas Instruments, Dallas), S. Guha, K. Gangopadhyays and S. Gangopadhyay (University of Missouri-Columbia)

16:30 Session Concluding Remarks (30 Minutes)

17:00 Symposium Concluding Remarks (10 Minutes)

E6 Bioelectronics, Biointerfaces, and Biomedical Applications 2

Dielectric Science and Technology / Sensor

Universal 21, 1st Floor, Expo Center

Bioelectronics: Electronic Frontiers
Co-Chairs: R. Bashir and M. Lonergan

08:00 **1198** Atomic and Molecular Scale Electronic Transport - M. Reed (Yale)

08:40 **1199** Carbon to Replace Silicon as the Top Engineering Material? - M. Madou (UC Irvine)

09:20 **1200** Tailoring the Conductivity of TiO_2 Nanotube Layers - P. Schmuki (University of Erlangen)

09:40 Intermission (20 Minutes)

Bioelectronics: Electrochemical Frontiers
Co-Chairs: D. Landheer and M. J. Deen

10:00 **1201** Transduction of Double Layer Polarization Processes in Electrochemical Transistors - M. C. Lonergan and F. Lin (University of Oregon)

10:40 **1202** C-MEMS for on-Chip Miniaturized Energy Source - C. Wang, F. Jornet, G. Teixidor, R. Zaouk and M. Madou (University of California, Irvine)

11:20 **1203** Design and Optimization of Hybrid Power Systems for Fully Implantable Medical Devices - F. Albano, D. Blaauw, D. Sylvester and A. M. Sastry (University of Michigan)

11:40 **1204** Electrochemically Programmed Release of Biomolecules and Nanoparticles - P. C. Searson and P. Mali (Johns Hopkins University)

E7 High Purity Silicon 9

Electronics and Photonics

Universal 13, 1st Floor, Expo Center

Alternative Substrates and Devices
Co-Chairs: C. Claeys and R. Falster

08:20 **1240** SOI Material Readiness for 45 nm and Sub-45 nm Device Options - C. Maleville (SOITEC)

09:00 **1241** Fabrication of Directly Bonded Si Substrates with Hybrid Crystal Orientation for Advanced Bulk CMOS Technology - K. Bourdelle (Soitec)

09:20 **1242** From Smart-Cut to Soft-Cut: Mechanisms of Hydrogen Plasma Supported Layer Exfoliation in Silicon - R. Job, W. Duengen (University of Hagen), Y. Ma (IMEC) and J. Horstman (University of Dortmund)

09:40 Intermission (20 Minutes)

10:00 **1243** Regular Dislocation Networks in Silicon as a Tool for Novel Device Application - M. Kittler (IHP microelectronics), M. Reiche (Max-Planck-Institut f??r Mikrostrukturphysik) and X. Yu (IHP microelectronics)

10:40 **1244** Brother Silicon, Sister Germanium - J. Vanhellemont (Ghent University) and E. R. Simoen (IMEC)

11:20 **1245** Effect of Intrinsic Gettering on Semiconductor Device Performance in SOI Substrates - A. Nevin (X-Fab UK Ltd) and A. Hoelke (X-Fab)

11:40 **1246** New Silicon-Based Materials for Spintronics Prepared by High Temperature - Pressure Treatment of Si:Cr, Si:Mn and Si:V - A. Misiuk, A. Barcz (Institute of Electron Technology), W. Osinniy, J. Bak0Misiuk (Institute of Physics), L. Chow (University of Central Florida) and B. Suma (Institute of Electron Technology)

E9 Multifunctional Carbon Materials for Electrochemical and Electronic Applications

Physical and Analytical Electrochemistry / Fullerenes, Nanotubes, and Carbon Nanostructures / Dielectric Science and Technology / Energy Technology / Battery / Industrial Electrolysis and Electrochemical Engineering

Universal 15, 1st Floor, Expo Center

Powders, Nanotubes and Nanofibers
Chair: D. Scherson

08:00 **1285** Sorption Thermodynamics at Electrified Carbon Surfaces as Probed by Electrochemically Modulated Liquid Chromatography - M. D. Porter (Iowa State University), D. Keller (Netherlands Institute for Metals Research) and L. Ponton (Elon University)

08:20 **1286** The Dependence of the Electronic Conductivity of Carbon Molecular Sieve Electrodes on their Charging States. - D. Aurbach, E. Pollak, I. Genish, G. Salitra, A. Soffer and L. Klein (Bar-Ilan University)

08:40 **1287** Electrochemical Charging and Electrocatalytic Reactivity of Ultra-Thin Films of Conducting Polymer Supported Carbon Nanotubes and Particles - P. J. Kulesza, M. Skunik, B. Baranowska, M. Chojak, K. Miecznikowski, A. Kolary-Zurowska and B. Kowalewska (University of Warsaw)

09:00 **1288** Functionalization of Carbon Nanotubes and Carbon Nanofibers by Supercritical Fluid Method - R. C. Sekol, J. Kizuka and A. Taylor (University of Michigan)

09:20 **1289** Surface Porperties of Nanofiber Electrodes and Their Effect on DMFC Performance - T. D. Hall (University of Notre Dame), D. Firsich (Inorganic Specialist Inc.), D. Hill and A. Miller (University of Notre Dame)

09:40 **1290** Degradation Mechanisms of Powderous sp2 Carbon Electrocatalyst Support Materials and Development of Advanced sp3 Carbon Materials - G. M. Swain, A. Fisher, I. Sasaki and V. Swope (Michigan State University)

10:00 Intermission (20 Minutes)

Microelectrodes and Chemical Monitoring
Chair: R. McCreery

10:20 **1291** Fabrication and Characterisation of Diamond Ultramicroelectrodes of Diameter < 25 Microns for use in Electroanalysis, Sensing and Imaging Applications - K. B. Holt, D. Caruana (University College London), J. Foord and J. Hu (University of Oxford)

10:40 **1292** In Vitro Application of a Diamond-Based NeuroSensor - H. Martin, S. Xie, G. Shafer and C. Wilson (Case Western Reserve University)

11:00 **1293** Kinetics and Adsorption Sutdies of Biogenic Amine Neurotransmitters at Polycrystalline Diamond Microelectrodes - J. M. Halpern, S. Xie and H. Martin (Case Western Reserve University)

11:20 **1294** Carbon Microprobe with "Coral" Surface Morphology Developed for Electrochemical Sensing - J. L. Davidson, S. Raina, A. Bonds, M. Howell and W. Kang (Vanderbilt University)

11:40 **1281** Plasma Etch Process for Defining Patterns in Catalyst Metals Prior to Nanotube Growth - D. Weston (Motorola), W. Dauksher, E. Howard and R. Zhang (Motorola Labs)

Electron Transfer and Characterization of Modified Surfaces
Chair: M. Porter

14:00 **1295** Electron Transport and Redox Reactions in Carbon-based Molecular Electronic Junctions - R. L. McCreery, J. Wu, H. Yan and B. A ndrew (Ohio State University)

14:20 **1296** Evolution of Surface Terminations and Electrochemical Behaviors of Boron Doped Diamond Electrodes Induced by Controlled Anodic and Cathodic Pretreatements - N. Simon, H. Girard (ILV - Institut Lavoisier de Versailles), D. Ballutaud (GEMAC-CNRS), E. De la Rochefoucauld and A. Etcheberry (ILV - Institut Lavoisier de Versailles)

14:40 **1297** Fluorescence Labeling of Surface Species (FLOSS) As a Probe of Chemical Composition of the Interfaces of Complex Nanoporous Carbon Materials - E. Borguet, N. Dementev (Temple University) and R. Vidic (Pitt)

15:00 **1298** Characterization of Oxidized Reticulated Vitreous Carbon for Generation of H_2O_2 from Flowing Acid Solutions - T. Ohsaka, T. Ohsaka and M. Saleh (Tokyo Institute of technology)

15:20 Intermission (20 Minutes)

Charge Transfer at Thin Films
Chair: G. Swain

15:40 **1299** Jumctions of Tetrahedral Amorphous Carbon Containing Nitrogen (taC:N) on Semiconductors for Photoelectrochemical Solar Cells - D. Scherson, J. Wu and B. Miller (Case Western Reserve University)

16:00 **1300** Charge Transfer Between Fullerenes and Si Surfaces - T. Tada and T. Kanayama (AIST)

16:20 **1301** Metal Nanoparticle Arrays Self-Implanted in Synthetic Diamond Crystallites and Films - Y. Takasu, S. Konishi, T. Ohashi and W. Sugimoto (Shinshu University)

16:40 **1302** Fabrication and Electrochemical Properties of Carbon Nanotube Film Electrodes with Controlled Pore Size - J. Kim, K. Kim and K. Kim (Yonsei University)

E10 Wide Bandgap Semiconductor Materials and Devices 7

Electronics and Photonics / Sensor

Universal 4, 1st Floor, Expo Center

II-VI Materials
Co-Chairs: J. Bardwell and P. Shen

08:30 **1324** Multifunctional ZnO and Its Nanostructures for Device Applications - Y. Lu (Rutgers University)

09:00 **1325** Optical Characterization of ZnCdO Alloys Grown by Molecular-Beam Epitaxy - I. A. Buyanova, X. Wang, W. M. Chen (Linkoping university), M. Izadifard (Shahrood University of Technology), D. Norton, S. J. Pearton (University of Florida), A. V. Osinsky, J. Dong and A. M. Dabiran (SVT Associates, Inc.)

09:20 **1326** CdS Roughness by Anti-Stokes Raman Spectroscopy - J. Molina-Contreras (Instituto Tecnologico de Aguascalientes), C. Frausto-Reyes (Centro de Investigaciones en Optica A.C.), C. Medina-Gutierrrez (Universidad de Guadalajara, Unidad los Lagos) and S. Calixto (Centro de Investigaciones en Optica A.C.)

09:40 **1327** Electrochemical Deposition of ZnSe Thin Films on Copper - R. Kowalik, K. Fitzner and P. Zabinski (AGH University of Science and Technology)

10:00 Intermission (20 Minutes)

Emerging Materials
Co-Chairs: E. Stokes and D. Merfeld

10:20 **1328** Ferromagnetic Properties of GaGdN Co-Doped with Si - J. Hite, R. M. Frazier, R. P. Davies, G. T. Thaler, C. R. Abernathy, S. J. Pearton (University of Florida) and J. M. Zavada (Army Research Office)

10:50 **1329** Optical Properties of GaN Nanowhiskers Produced by Photoelectrochemical Etching - H. Ng, R. Geiss, A. Chowdhury, M. Sergent (Bell Labs, Lucent Technologies), S. Srinivasan and F. Ponce (Arizona State University)

11:10 **1330** Direction Dependent Homo-Epitaxial Growth and Properties of Gallium Nitride Nanowires - M. K. Sunkara, R. Makkena, H. Li and B. Alphenaar (University of Louisville)

11:30 **1331** Doped Wide Bandgap Materials and Devices from Semiconducting Boron Carbide - B. W. Montag (Univ. of Nebraska and Nebraska Wesleyang), N. Platt, N. Boag (University of Salford) and J. I. Brand (University of Nebraska-Lincoln)

11:50 **1332** Luminescence Properties of Dy Implanted AlN Thin Films - W. M. Jadwisienczak (Ohio University), H. Lozykowski (Ohio University, School of EECS), A. Bensaoula, C. Boney (University of Houston) and A. Anders (Lawrence Berkeley Laboratory, University of California Berkeley)

12:10 **1333** Temperature Dependence in Boron Carbide Diodes - O. Barrios Flores and J. I. Brand (University of Nebraska-Lincoln)

E11 Science and Technology of Dielectrics for Active and Passive Devices

Dielectric Science and Technology

Universal 16, 1st Floor, Expo Center

Light Emitting Structures
Co-Chairs: K. Worhoff and S. Janz

08:15 Introductory Remarks (5 Minutes)

08:20 **1339** Formation of and Light Emission from Si Nanocrystals Embedded in Amorphous Silicon Oxides - D. M. Comedi (CONICET), O. Zalloum, D. Blakie, J. Wojcik and P. Mascher (McMaster University)

09:00 **1340** Influence of Interface Recombination in Light Emission from Lateral Si-Based Light Emitting Devices - T. Hoang, P. LeMinh, J. Holleman (University of Twente) and J. Schmitz (MESA+ Institute for Nanotechnology, University of Twente)

09:20 **1341** Optimization of Low-Loss Al_2O_3 Waveguide Fabrication for Application in Active Integrated Optical Devices - K. Worhoff, F. Ay and M. Pollnau (University of Twente)

09:40 Intermission (20 Minutes)

Dielectric Materials for Photonic Devices
Co-Chairs: M. Charlton and D. Comedi

10:00 **1342** Dielectric Properties of $CaCu_3Ti_4O_{12}$ and Related Phases - D. C. Sinclair, M. Ferrarelli, A. West and M. Li (University of Sheffield)

10:40 **1343** Application of Positron Annihilation to the Study of Defects in Dielectric Films - Y. Kobayashi (National Institute of Advanced Industrial Science and Technology (AIST))

11:20 **1344** Azimuth Dependence of Light-Induced Ultrafast Insulator-to-Metal Phase Transition in VO_2 Thin Film - H. Liu, S. Lysenko (UPRM), V. Vikhnin (Ioffe Institute of Physics, Russia), A. Rua and F. Fernandez (UPRM)

11:40 **1345** Porogen Approach for the Fabrication of Carbon-Containing Nanoporous Silicon Oxide Films - T. Oka, K. Ito, C. He, T. Ohdaira, R. Suzuki and Y. Kobayashi (National Institute of Advanced Industrial Science and Technology (AIST))

Novel Device Technologies
Co-Chairs: Y. Kobayashi and D. Sinclair

14:00 **1346** Silicon Microphotonic Waveguide Technology for Sensing, Spectroscopy and Communications - S. Janz (National Research Council Canada)

14:40 **1347** Organising Light on the Nano-Scale: Surface Plasmon Engineering for Repeatable SERS Sensing and Applications for Trace Analyte Detection - M. D. Charlton (Mesophotonics Ltd), C. Netti, M. Zoorob (Mesophotonics Ltd 2 Venture Rd, Chilworth Science Park, Southampton UK), N. Perney and J. Baumberg (University of Southampton, UK)

15:20 Intermission (20 Minutes)

Processing and Heterogeneous Integration
Co-Chairs: D. Misra and P. Mascher

15:40 **1348** Thin Film III-V Devices Integrated on Silicon-on-Insulator Waveguide Circuits - G. Roelkens, J. Brouckaert, D. Van Thourhout and R. Baets (Ghent University)

16:00 **1349** Novel Low-Dielectric Constant Photodefinable Polyimides for Low-Temperature Polymer Processing - C. Henderson, M. Romeo, K. Yamanaka (Georgia Institute of Technology) and K. Maeda (Central Glass Co. Ltd.)

16:20 **1350** Reactive Ion Etching of Y_2O_3 Films Applying F-, Cl-and Cl/Br-Based Inductively Coupled Plasmas - K. Worhoff, J. Bradley, F. Ay and M. Pollnau (University of Twente)

16:40 **1351** Low Drive-Voltage and High-Bandwidth Electro-Optic Modulators Based on $BaTiO_3$ Thin-Film Waveguides - D. Sun (Changchun Institute of Optics) and X. Fu (Changchun University of Science and Technology)

17:20 Concluding Remarks (5 Minutes)

E12 Semiconductor Wafer Bonding 9: Science, Technology, and Applications

Electronics and Photonics

Universal 22, 1st Floor, Expo Center

Photonic Applications of Wafer Bonding
Co-Chairs: F. Rieutord and C. Colinge

09:00 **1382** Review of Compound Materials Bonding and Layer Transfer for Optoelectronic Applications - B. Faure (Soitec)

09:40 Intermission (20 Minutes)

10:00 **1383** Simple Technological Process for the Fabrication of Optical III-V Nanowires Integrated into a Benzocyclobutene Matrix - M. Carette, L. Denis, V. Jean-Pierre, B. Dorothee and D. Didier (CNRS UMR 8520)

10:20 **1384** Dislocation-Induced Light Emission - M. Reiche (Max-Planck-Institut fur Mikrostrukturphysik), M. Kittler (IHP Microelectronics), T. Wilhelm (MPI fur Mikrostrukturphysik), T. Arguirov (IHP/ BTU Joint Lab), W. Seifert and X. Yu (IHP Microelectronics)

10:40 **1385** Adhesive Bonding of III-V Dies to Processed SOI Using BCB for Photonic Applications - G. Roelkens, B. Batalliou, J. Brouckaert, F. Van Laere, D. Van Thourhout and R. Baets (Ghent University)

11:00 **1386** Wafer Bonding of CdZnTe / Si Structures - M. S. Goorsky and C. Miclaus (UCLA)

11:20 **1387** Enhance the Luminance Intensity of InGaN-GaN Light-Emitting Diode by Roughening both the p-GaN Surface and the Undoped-GaN Surface Using Wafer Bonding Methods - Y. S. Wu and W. Wei Chih (National Chiao Tung University)

Wafer Bonding for MEMS Applications
Co-Chairs: L. Di Cioccio and H. Baumgart

14:00 **1388** Wafer Bonding Technologies in Industrial MEMS Processing - Potentials and Challenges - R. Knechtel (X-FAB Semiconductor Foundries AG)

14:40 **1389** Low Temperature Plasma-Assisted-Wafer-Bonding for MEMS - A. Sanz-Velasco, M. Bring and P. Enoksson (Chalmers University of Technology)

15:20 **1390** Moisture Resisitant Nano Liter Packages Using Metallic Seal Wafer Bonding - W. H. Reinert, P. Merz and O. Schwarzelbach (Fraunhofer ISIT)

15:40 Intermission (20 Minutes)

16:00 **1391** Adhesive Wafer Bonding with SU-8 Intermediate Layers for Microfluidic Applications - V. Dragoi, G. Mittendorfer, C. Thanner, T. Matthias, T. Glinsner and P. Lindner (EV Group)

16:20 **1392** Anodic and Direct Bonding of Si and Glass - Similarities and Distinctions in Applications - M. Gabriel, V. Cetin (SUSS MicroTec Lithography GmbH), T. Ludewig (Fraunhofer Institut Photonische Mikrosysteme) and M. Eichler (Fraunhofer-Institut fur Schicht- und Oberflachentechnik)

E13 SiGe and Germanium: Materials, Processing, and Devices

Electronics and Photonics

Galactic 1, Conference Center, Sunrise

Advanced SiGe Deposition Processes
Co-Chairs: R. Loo and J.- M. Hartmann

08:00 **1485** Advanced Applications of Si and SiGe Epitaxy for Cutting Edge Integrated Circuit Technolgy - D. Sadana (IBM)

08:30 **1486** Development of High-Throughput Batch-Type Epitaxial Reactor - Y. Kunii (Hitachi Kokusai Elctric), Y. Inokuchi (Hitachi Kokusai Electric), J. Wang (Hitachi Kokusai. Electric), K. Yamamoto, A. Moriya, Y. Hashiba, H. Kurokawa (Hitachi Kokusai Elctric) and J. Murota (RIEC, Tohoku University)

09:00 **1487** The Deposition of Polycrystalline SiGe with Different Ge Precursors - X. Shi, M. Schaekers, F. Leys, R. Loo, M. R. Caymax, S. Brus, C. Zhao (IMEC), B. Lamare, E. Woelk and D. Shenai (Rohm & Haas Electronic Materials)

09:20 **1488** A Study on B Atomic Layer Formation for B-Doped $Si_{1-x}Ge_x(100)$ Epitaxial Growth Using Ultraclean LPCVD System - K. Ishibashi, M. Sakuraba, J. Murota (RIEC, Tohoku University), Y. Inokuchi (Hitachi Kokusai Electric), Y. Kunii and H. Kurokawa (Hitachi Kokusai Elctric)

09:40 **1489** The Utility of Novel Single-Source Germyl Silanes - M. D. Stephens, M. Pikulin and C. Ritter (Voltaix, Inc.)

SiGe HBT Applications
Co-Chairs: A. Chantre and M. Ostling

10:15 **1490** Integration of Photonic Detectors in Standard SiGe HBT BiCMOS - G. Meinhardt (Austriamicrosystems) and H. Zimmermann (EMST, Vienna University of Technology)

10:45 **1491** Issues and Opportunities for Complementary SiGe HBT Technology - J. Cressler (Georgia Tech)

11:15 **1492** Bandgap Engineering in SiGe:C HBTs For Power Amplifier Applications - S. Jouan, A. Talbot, S. Haendler, P. Mans, A. Perrotin and A. Monroy (STMicroelectronics)

11:35 **1493** Large-Signal Modeling of Proton Radiated SiGe Power HBTs - Z. Ma (Univ of Wisconsin), N. Jiang (University of Wisconsin-Madison), P. Ma and M. Racanelli (Jazz Semiconductor, Inc)

11:55 **1494** Temperature Scalable Modeling of SiGe HBT DC Currents Down to 43K - Z. Feng, G. Niu (Auburn University), C. Zhu (Georgia Institute of Technology) and J. Cressler (Georgia Tech)

12:15 **1495** A 20 GSample/s, 40 mW SiGe HBT Comparator for Ultra-High-Speed ADC - Y. Borokhovych and H. Gustat (IHP)

Si/SiGe Hetero-Layer FETs and Device Physics
Chair: K. Uchida

13:50 **1496** Nanoscaled MOSFET Transistors on Strained Si, SiGe, Ge Layers. Some Integration and Electrical Properties Features - T. P. Ernst, and F. Andrieu (CEA-LETI)

14:20 **1497** Influence of Strained $Si_{1-y}Ge_y$ Layer Thickness and Composition on Hole Mobility Enhancement in Heterostructure p-MOSFETs with Ge Contents y from 0.7 to 1.0 - C. Ni Chleirigh, O. Olubuyide and J. Hoyt (MIT)

14:40 **1498** Buried-Channel Field Effect Transistors of Triple SiGe Quantum Wells on SOI - K. Fujinaga (Hokkaido Institute of Technology)

15:00 **1499** Modeling of Si/SiGe Multifinger RF Power MODFET - H. Yuan, N. Jiang (University of Wisconsin-Madison), E. Croke (HRL Laboratories) and Z. Ma (Univ of Wisconsin)

15:20 **1500** Parasitic Electrostatic Capacitances in Si/SiGe n-HFET - M. Enciso (Instituto Politecnico Nacional), N. Zerounian (IEF - Universite Paris Sud 11), T. Hackbarth, H. Herzog (Daimlerchrysler) and F. Aniel (IEF)

15:40 **1501** Analysis of Gate Leakage in Strained Si MOSFETs - L. Yan, S. H. Olsen, M. Kanoun, M. Al-Araimi, R. Agaiby, G. Dalapati and A. O'Neill (University of Newcastle)

Substrate Technology
Co-Chairs: D. Houghton and I. Cayrefourcq

16:15 **1502** Ge Condensation Technologies for Advanced MOSFETs on SGOI and GOI Substrates - N. Sugiyama, T. Tezuka, T. Irisawa, K. Usuda, Y. Moriyama, S. Nakaharai, N. Hirashita (MIRAI-ASET) and S. Takagi (The University of Tokyo)

16:45 **1503** The Challenges of Ge-Condensation Technique - V. Terzieva, M. R. Caymax, L. Souriau and M. M. Meuris (IMEC)

17:05 **1504** Oxidation Saturation of SiGe Alloy on Silicon-on-Insulator Wafers - T. Shimura, M. Shimizu, S. Horiuchi, H. Watanabe and K. Yasutake (Osaka University)

17:25 **1505** Nucleation and Movement of Dislocations during Relaxation of He implanted Si_xGe_{1-x}/Si Heterostructures - M. Luysberg and N. Hueging (Research Centre Juelich)

17:55 **1506** From Thin Relaxed SiGe Buffer Layers to sSOI: Structural and Electrical Characterisation - S. Mantl, D. Buca, B. Hollander, H. Vissel, S. Feste, N. Wilk, H. Trinkaus (Forschungszentrum Juelich), M. Luysberg (Research Centre Juelich), R. Carius (Forschungszentrum Juelich), R. Loo, M. R. Caymax (Imec), H. Schafer (Infineon Munich, Germany), I. Radu (Max Planck Institute of Microstructure Physics), M. Reiche (Max-Planck-Institut fur Mikrostrukturphysik), S. Christiansen and U. Goesele (Max Planck Institute of Microstructure Physics)

18:15 **1507** Dislocation Pile-Up Characterization And Quantification Using Automated Room Temperature Photoluminescence Mapping - A. Buczkowski, N. Laurent, A. Shachaf, T. Walker, S. Hummel (Accent Optical Technologies), C. Berne and M. Kennard (Soitec)

F2 Electronics Packaging 2

Electrodeposition

Universal 19, 1st Floor, Expo Center

Solder Bump
Co-Chairs: T. Ritzdorf and V. M. Dubin

10:00 **1634** C_4NP-Next Generation Solder Bumping Tec hnology - P. A. Gruber, R. Budd, S. Buchwalter, D. Shih (IBM T.J. Watson Research Center), J. Busby, J. Garant, A. Giri, S. Knickerbocker, H. Longworth (IBM S&TG) and D. Naugle (IBM Systems & Technology Group)

10:40 **1635** Formation of AuSn Bumps for 3D Chip Stacking by Electrodeposition - B. Wu (Nexx Systems), A. Ruff (Cubic Wafer), J. Callahan (Cubic Wafer, Inc.), G. Hradil (Technic), A. Keigler, Z. Liu (Nexx Systems) and J. Trezza (Cubic Wafer)

11:00 **1636** Wafer Level Package Using Au-Sn Eutectic Bonding and Ni/Au-Sn Plated Metal Wall - Y. Kim, G. Jeong, J. Kim, S. Lim and S. Suh (Sungkyunkwan University)

11:20 **1637** Effects of Mass Transfer and Current Density on High Rate Binary Alloy Plating - M. L. Bernt, P. McHugh and G. Wilson (Semitool, Inc.)

11:40 **1638** Monitoring of Lead-Free Tin alloy Electrodeposition I. Tin/Silver - E. Shalyt, M. Pavlov and P. Bratin (ECI Technology)

Intermission

14:00 **1639** The Advances of Electroless Ni/Pd/Au Metal Stack as UBM for Flip Chip Technology - R. Preisser (Atotech Deutschland GmbH)

14:20 **1640** The Structures of Sn Whiskers on Sn Electroless Deposited Films - N. Okamoto, Y. Fujii (Osaka Prefecture University), H. Kurihara (Mitsui Mining and Smelting Co., LTD.) and K. Kondo (Osaka Prefecture University)

Three Dimensional Packaging and Advanced Packaging
Co-Chairs: B. Wu and P. A.Gruber

14:40 **1641** Challenges and Opportunities of Electrodeposition in Advanced Packaging - Y. Zhang (Cookson Electronics, Enthone, Inc)

15:20 Intermission (20 Minutes)

15:40 **1642** Studies on Through-Chip Via Filling for Wafer-Level 3D Packaging - D. Barkey (University of New Hampshire), J. Callahan (Cubic Wafer, Inc.), A. Keigler, Z. Liu (Nexx Systems), A. Ruff, J. Trezza (Cubic Wafer) and B. Wu (Nexx Systems)

16:00 **1643** Bottom-up Copper Deposition in Deep Trenches by Selective Accelerator Removal - M. Hayase and Y. Touke (Tokyo University of Science)

16:20 **1644** High Rate Copper Filling Within High Aspect Ratio Through Silicon Vias for 3-D Chip Stacking - C. D. Sharbono, B. Kim and T. Ritzdorf (Semitool Inc)

16:40 **1645** Electrically Mediated Copper Electrodeposition for Interconnect Packaging and High Density Interconnect Printed Circuit Board Applications - H. McCrabb, H. Garich and E. Taylor (Faraday Technology, Inc.)

17:00 **1646** Development and Characterization of Plating Cell Geometry for PCB and Packaging Applications. - H. Garich, L. Gebhart, E. Taylor, M. Inman and H. McCrabb (Faraday Technology, Inc.)

F3 Magnetic Materials, Processes, and Devices 9

Electrodeposition

Universal 10, 1st Floor, Expo Center

Novel Phenomena and Applications
Co-Chairs: E. Podlaha and W. Schwarzacher

08:20 **1693** Magnetization Processes in Thin-Film Nanostructures - D. Atkinson (Durham University)

09:00 **1694** Multisegment Magnetic Nanowires - P. C. Searson (Johns Hopkins University)

09:20 **1695** Magnetic Relaxation of Well-Separated and Agglomerated Magnetoferritin - W. Schwarzacher, A. Robinson, P. Southern, O. Kasyutich, A. Bewick and B. Warne (University of Bristol)

09:40 Intermission (20 Minutes)

10:00 **1696** Fabrication of Magnetic Quantum-Dot Cellular Automata - A. Imre (Argonne National Laboratory), L. Ji (University of Notre Dame, IN), G. Csaba (Technical University of Munich, Germany), A. Orlov, G. Bernstein and W. Porod (University of Notre Dame)

10:40 **1697** Metal Deposition Using Electrochemical ALD - J. L. Stickney (The University of Georgia), Y. Kim, D. Vairavapandian, C. Thambidurai, J. Kim and N. Jayaraju (University of Georgia)

11:00 **1698** CoFe, Fe and Co Nanoparticle Displacement with Cu Ions - E. J. Podlaha (Louisiana State University), Z. Guo (University of California at Los Angeles) and L. Henry (Southern University)

11:20 **1699** Electrodeposition and Electrochemical Etching of Au/CoAu Multilayered Nanowires - M. Guan and E. J. Podlaha (Louisiana State University)

11:40 **1700** Magnetic Abrasive Finishing By Use of Nano-Sized Diamond Dispersed Co-Ni Electroless Plated Plastic Balls and their Application to Post CMP Processes - S. Yoshihara, K. Hanzawa and T. Shirakashi (Utsunomiya University)

Electrodeposition in Spin Electronics
Co-Chairs: N. Myung and S. Brankovic

14:00 **1701** Electrodeposition as a Versatile Analytical and Preparation Tool - R. Schad (University of Alabama), C. Scheck (Columbia University), Y. Liu, S. Vutukuri, R. Hamner (University of Alabama), C. Kaiser (ELMOS Semiconductor AG) and G. Zangari (University of Virginia)

14:40 **1702** Epitaxial Electrodeposition of Fe_3O_4 Films on Low Index Gold Single Crystals by the Reduction of Fe(III)-Triethanolamine - J. A. Switzer (University of Missouri-Rolla), H. Kothari (Intel Corporation), S. Limmer, E. Bohannan and E. A. Kulp (University of Missouri-Rolla)

15:20 **1703** Magnetotransport Phenomena of Single Ferromagnetic Nanowire - N. V. Myung, B. Yoo, Y. Rheem, C. Hangarter and W. Beyermann (University of California at Riverside)

16:00 **1704** Cu_2O/Co/Si Electrodeposited Magnetic Metal Base Transistor - A. A. Pasa, R. G. Delatorre, M. Munford, R. Zandonay, V. Stenger (Universidade Federal de Santa Catarina), W. Schwarzacher (University of Bristol), M. Meruvia and I. Hummelgen (Universidade Federal do Parana)

16:20 **1705** A Novel Selective Freelayer Wet Etching Method for Magnetic Tunnel Junction-Based MRAM - E. J. O'Sullivan (IBM T.J. Watson Research Center)

17:00 **1706** Structural Study of CoFeB/MgO/CoFeB Magnetic Tunnel Junctions - K. Tsunekawa, Y. Nagamine, H. Maehara, T. Saruya, Y. Choi, D. Djayaprawira, N. Watanabe (Canon-ANELVA Corporation), T. Takeuchi and Y. Kitamoto (Tokyo Institute of Technology)

17:40 **1707** Fermi Level and Magnetic GaMnN Thin Films - N. A. EL-Masry, F. Arkun, A. Berkman (NC State University), J. M. Zavada (Army Research Office) and S. M. Bedair (NC State University)

F5 Nanostructured Metal Oxides: Processing and Applications

Nanotechnology / High Temperature Materials / Electrodeposition / Physical and Analytical Electrochemistry / Sensor

Universal 12, 1st Floor, Expo Center

Nanowires, Nanorods, and Nanotubes
Co-Chairs: S. Mathur and G. Oskam

08:00 **1761** A Scalable Method for the Synthesis of Metal Oxide Nanowires - M. K. Sunkara, S. Vaddiraju, J. Thangala, S. Gubbala, B. Deb, S. Desai and G. Sumanasekera (University of Louisville)

08:40 **1762** Controlled Synthesis of One-Dimensional Metal Oxide Nanostructures - X. A. Sun, R. Li, Y. Zhou, Y. Zhang (University of Western Ontario) and M. Cai (General Motors Research and Development Center)

09:00 **1763** Growth and Characterization of ZnO Nanorod Array Using a Low Temperature Method: Comparison of MOCVD with Solution Method - K. Yong, Y. Tak and D. Park (POSTECH)

09:20 **1764** Anodic Valve Metal Oxide Nanotubes - H. Tsuchiya (Osaka University), J. Macak, L. Taveria, A. Ghicov (University of Erlangen-Nuremberg) and P. Schmuki (University of Erlangen)

09:40 Intermission (20 Minutes)

Applications: Fuel Cells
Co-Chairs: E. Traversa and S. Licoccia

10:00 **1765** Influence of Sintering on Electrochemical Properties of Nanocrystalline Doped-Ceria - V. Esposito (Universite di Roma Tor Vergata), D. Zanetti De Florio (Instituto de Quimica, UNESP), F. Coral Fonseca, R. Muccillo (Instituto de Pesquisas Energeticas e Nucleares) and E. Traversa (University of Rome Tor Vergata)

10:40 **1766** Synthesis and Characterisation of Nanostructured Cerium - Gadolinium Based Electrolytes - J. Chavez-Carvayar, R. Vilchis-Morales, J. Santoyo-Salazar (Instituto de Investigaciones en Materiales-UNAM), A. Benitez Rico and E. Ruiz-Trejo (Facultad de Quimica-UNAM)

11:00 **1767** Structural Characterization and Transport Properties of a Novel Yttria-Zirconia-Alumina Tetragonal Phase - J. Chavez-Carvayar, J. Santoyo-Salazar, G. Gonzalez (Instituto de Investigaciones en Materiales-UNAM) and J. Tartaj (Instituto de Ceramica y Vidrio, CSIC)

11:20 **1768** $Pr_{0.8}Sr_{0.2}Co_{1-x}Fe_xO_3$ Nanocrystalline Powders: Electrochemical Characterization and Potential Application as Fuel Cell Electrodes - E. E. Magnone (The University of Tokyo), E. Traversa (University of Rome Tor Vergata) and M. Miyayama (The University of Tokyo)

11:40 **1769** Proton Conducting Composite Membranes from Polyether Ether Ketone and Hydrated Metal Oxides - A. D'Epifanio (University of Rome Tor Vergata), B. Mecheri (University of Rome), E. Traversa (University of Rome Tor Vergata,), M. Miyayama (Research Center for Advanced Science and Technology, The University of Tokyo) and S. Licoccia (University of Rome Tor Vergata)

Applications: Solid-State Ionic Devices
Co-Chairs: G. Hunter and E. Traversa

14:20 **1770** Nanostructured SnO_2: Microwave Synthesis and Electrochemical Properties as Lithium Battery Anode Materials - B. Wei, S. Venkatachalam, W. Burke and H. Zhu (Louisiana State University)

14:40 **1771** Nickel Oxide/Carbon Nanotube Nanocomposite Electrodes for Electrochemical Capacitors - K. Nam, C. Lee and K. Kim (Yonsei University)

15:00 **1772** Nanocomposite Counter-Electrode Materials for Electrochromic Windows - S. Lee, E. Tracy and R. Pitts (National Renewable Energy Lab)

15:20 **1773** Preparation and Anion Sensing Properties of Perovskite-Type Oxide Thick-Film via EPD Method - S. Takase, T. Inagaki and Y. Shimizu (Kyushu Institute of Technology)

15:40 **1774** Metal Oxide Nanostructures for Chemical Sensing Applications - G. Hunter, J. Xu, L. Evans (NASA Glenn Research Center), R. Vander Wal, G. Berger (USRA at NASA Glenn Research Center) and C. C. Liu (Case Western Reserve University)

I2 Electrochemistry at Liquid-Liquid Interfaces

Physical and Analytical Electrochemistry

Universal 11, 1st Floor, Expo Center

Liquid Interfaces 1
Co-Chairs: M. Mirkin and I. Benjamin

08:00 **1871** Liquid/Liquid Interfaces Supported on Porous Solid for Photo-Energy Conversion - H. H. Girault (EPFL), S. Tan and N. Eugster (EPFL-ISIC-LEPA)

08:40 **1872** Potential Controlled Assembly of Nanostructures at the Polarizable Liquid|Liquid Interfaces - D. J. Fermin (University of Berne), B. Su (EPFL ISIC LEPA) and H. H. Girault (EPFL)

09:20 **1873** Complexation of Metal Ions with Ligands in Hydrophobic Room-Temperature Ionic Liquids Studied by Boltammetry for Facilitated Ion Transfer Across the Ionic Liquid/Water Interface - N. Nishi, H. Murakami and T. Kakiuchi (Kyoto University)

09:40 Intermission (20 Minutes)

10:00 **1874** Coulometric Determination of Redox Inert Species Based on Ion Transfer at the Aqueous/Organic Interface, and Its Application to Electrolytic Solvent Extraction - S. Kihara (Kyoto Institute of Technology)

10:40 **1875** Electrochemical Attosyringe - F. Laforge, M. V. Mirkin (Queens College - CUNY) and S. Rotenberg (Queens College)

11:00 **1876** Voltammetry of Biological Polyions at Solid-Supported Liquid/Liquid Interfaces - S. Amemiya and J. Guo (University of Pittsburgh)

11:40 **1877** Bio- and Macro-Molecular Voltammetry at the Liquid-Liquid Interface: Analytical Opportunities - D. Arrigan (Tyndall National Institute)

Liquid Interfaces 2
Co-Chairs: H. H. Girault and S. Kihara

14:00 **1878** Ion Pairing of Phospholipids with Anions - V. Marecek, H. Janchenova, A. Lhotsky and K. Holub (J. Heyrovsky Institute AS CR)

14:40 **1879** Simple and Facilitated Ion Transfers at the Liquid-Liquid Interface - M. V. Mirkin, P. Sun and F. Laforge (Queens College - CUNY)

15:20 Intermission (20 Minutes)

15:40 **1880** pH Controlled Synthesis of Gold Nanoparticles Via Electrodeposition at Liquid-Liquid Interfaces - V. J. Cunnane, K. Lepkova, J. Clohessy and R. Knafe (University of Limerick)

16:20 **1881** Metal Deposition and Assembly at the Liquid/Liquid Interface - R. Dryfe (University of Manchester)

17:00 **1882** Thin-Layer Electrochemistry of Multi-Ferrocenyl Compounds: Unique Redox Behavior and Liquid/Liquid Interfacial Electron Transfer Kinetics - H. Yu and Y. Li (Simon Fraser University)

17:20 **1883** Design of Biphasic Systems for Ion Transfer through the Interface between Two Immiscible Electrolyte Solutions - M. V. Videa and J. Moran (Tecnologico de Monterrey)

17:40 **1884** SWV Study of the Ion Transfer and Temperature Dependence for Three Model Quaternary Ammonium Ions at the Water/ Nitrobenzene Interface for Analytical Applications - M. V. Videa and J. Rodriguez (Tecnologico de Monterrey)

I3 Electrochemical Surface Science: Recent Advances in the Study of the Electrode-Electrolyte Interface

Physical and Analytical Electrochemistry

Universal 18, 1st Floor, Expo Center

Electrocatalysis
Chair: M. P. Soriaga

08:00 **1957** The Different Roles of Defects in CO Oxidation, Methanol Oxidation, and Oxygen Reduction on Pt(111) in Alkaline Solutions - J. Spendelow, J. Goodpaster (University of Illinois, U-C), P. J. Kenis and A. Wieckowski (University of Illinois at Urbana-Champaign)

08:30 **1958** Investigation of Oxygen Reduction Reaction at Pt Single Crystal/Nafion Interfaces in PEMFCs - A. Dhanda, H. Pitsch (Stanford University) and R. Ohayre (Colorado School of Mines)

09:00 **1959** Dominant Factors in the ORR Performance of Pt-Transition Metal Binaries - L. Gancs, B. Hult (Northeastern University), A. F. Gulla (PEMEAS USA) and S. Mukerjee (Northeastern University)

09:30 Intermission (20 Minutes)

09:50 **1960** Withdrawn

10:20 **1961** Electrode Catalysts of PEFC Using Carbon Nanotube and Molybdenum Carbide - J. Nakamura, E. Yoo, T. Watanabe (University of Tsukuba), T. Okada (National Institute of Advanced Industrial Science and Technology), T. Matsumoto (Institute for Molecular Science) and J. Nakamura (University of Tsukuba)

10:50 **1962** Electrochemical Hydrogenation and Oxidation of Chemisorbed Aromatic Compounds. Studies by Electrochemistry, Scanning Tunneling Microscopy, Mass Spectrometry and Electron Spectroscopy - M. P. Soriaga, J. Sanabria-Chinchilla, X. Chen, J. Baricuatro (Texas A&M University), H. Baltruschat, R. Bussar, F. Hernandez (University of Bonn) and Y. Kim (University of Georgia)

I4 Molten Salts 15, in Memory of Robert Osteryoung

Physical and Analytical Electrochemistry / Electrodeposition / High Temperature Materials / Battery / Energy Technology

Galactic 7, Conference Center, Sunrise

Electrodeposition from Molten Salts and Ionic Liquids
Co-Chairs: G. Cheek, G. Haarberg and T. Tsuda

08:00 **2044** Electrochemical Reduction of Tantalum Compounds in Ambient Temperature Melts - Y. Furukawa, M. Matsunaga (Kyushu Institute of Technology) and M. Morimitsu (Doshisha University)

08:20 **2045** Electrochemical Studies of Magnesium Deposition in Ionic Liquids - G. T. cheek (US Naval Academy) and W. O'Grady (Naval Research Laboratory)

08:40 **2046** Fabrication of Porous Metal Surfaces from a ZnCl2-1-Ethyl-3-Methylimidazoliom Chloride Ionic Liquid - C. Tai and I. Sun (National Cheng Kung University)

09:00 **2047** Electrodeposition of Cobalt from an Imide-Type Room-Temperature Ionic Liquid - Y. Katayama, R. Fukui and T. Miura (Keio University)

09:20 **2048** The Bis((trifluoromethyl)sulfonyl)imide-Based Room Temperature Ionic Liquids Used for Several Electrochemical Applications - P. Chen (Kaohsiung Medical University)

09:40 Intermission (20 Minutes)

10:00 **2049** Electrochemical Alloying of Copper Substrate with Tin Using Ionic Liquid as an Electrolyte at Medium-Low Temperatures - K. Murase, R. Kurosaki, T. Katase, H. Sugimura and Y. Awakura (Kyoto University)

10:20 **2050** Electrodepositions of Molybdenum in LiTFSI-CsTFSI Melt at 150-200°C - B. Gao (The Institution of Nonferrous Metallurgy), T. Nohira and R. Hagiwara (Kyoto University)

10:40 **2051** Electrodeposition of Refractory Metals from Some $ZnCl_2$ Based Molten Salts at 150-250°C - T. Nohira, H. Nakajima, J. Shimano, K. Kitagawa, R. Hagiwara (Kyoto University), K. Nitta, S. Inazawa and K. Okada (Sumitomo Electric Industries, Ltd.)

11:00 **2052** Electrodeposition of Iron from Molten Mixed Chloride/Fluoride Electrolytes - G. Haarberg, E. Kvalheim (Norwegian University of Science and Technology), S. Rolseth (SINTEF), T. Murakami (Kyoto University), S. Pietrzyk (AGH University of Science and Technology) and S. Wang (Northeastern University)

11:20 **2053** Direct Reduction of Vanadium Oxide in Molten $CaCl_2$ - R. O. Suzuki (Hokkaido University,) and H. Ishikawa (Kyoto University)

11:40 **2054** Electrorefining of Silicon in Molten Calcium Chloride - O. E. Kongstein, S. Sultana and G. Haarberg (Norwegian University of Science and Technology)

Electrodeposition from Ionic Liquids
Co-Chairs: G. Stafford and M. Gaune-Escard

14:00 **2055** Phase Composition of the Cathodic Products Obtained in Alkali Chloride Melts Containing Potassium Monooxyfluoride Complexes of Tantalum - S. A. Kuznetsov (Institute of Chemistry) and M. Gaune-Escard (Ecole Polytechnique,)

14:20 **2056** Formation of Ni-Zr Alloys in Molten Fluorides - H. Groult (University Paris 6 - CNRS), A. Barhoun, H. El Ghallali (University Abdelmalek Essaadi), F. Lantelme and S. Borensztajn (University Paris 6)

14:40 **2057** Electrochemical Behavior of Iron in Molten KCl-NaCl at 700-750°C - D. Aurbach (Bar-Ilan University), A. Lugovskoy (Bar-Ilan University, College of Judea and Samaria), M. Zinigrad and D. Barda (College of Judea and Samaria)

15:00 **2058** Electrolysis of Consuming TiC_xO_y Anode in NaCl-KCl Molten Salt - H. Zhu (University of Science and Technology Beijing) and S. Jiao (University of Science and Technology)

15:20 Intermission (20 Minutes)

15:40 **2059** Anodic Behaviors of Noble Metals in Eutectic LiCl-KCl Melt - T. Takenaka and M. Kawakami (Toyohashi University of Technology)

16:00 **2060** The Electroforming of Niobium from Molten Salts and Enhance of the Structure of Electroformed Niobium Coating by Alloying with Zirconium - A. Smirnov, A. Shchetkovskiy and T. McKechnie (Plasma Processes Inc.)

J3 Microfabricated and Nanofabricated Systems MEMS/NEMS 7

Sensor / Dielectric Science and Technology / Electronics and Photonics

Universal 5, 1st Floor, Expo Center

Microsensors
Co-Chairs: M. Tabib-Azar and C. Roper

08:20 **2156** CMOS-Based Microsensors - O. Brand (Georgia Institute of Technology)

09:00 **2157** MEMS Arrayed Scanning Probes for Soft Nano-lithography - C. Liu (University of Illinois at Urbana) and S. Li (University of Illinois)

09:20 **2158** Low-Noise Chemical Detection with a Piezoresistive Microcantilever Array - P. Hesketh, A. Choudhury (Georgia Institute of Technology), Z. Hu and T. Thundat (Oak Ridge National Laboratories)

09:40 Intermission (20 Minutes)

10:00 **2159** Versatile MEMS Sensor Array Platform - J. R. Stetter (SRI International), G. Chung and W. Buttner (IIT)

10:40 **2160** A Wireless Portable Carbon Nanotube-Based Chemical Sensor System - J. Li (NASA Ames Research Center), Y. Lu (Eloret Corporate at NASA Ames Research Center), J. Calusdian, X. Yun (Naval Postgraduate School) and M. Meyyappan (NASA Ames Research Center)

11:00 **2161** Effect of Electrode Geometry on Response Time Modulation of Nano-Micro Integrated Room Sensor - S. Deshpande, P. Zhang, H. Cho and S. Seal (University of Central Florida)

11:20 **2162** A Carbon Nanotube Sensor Array for Sensitive Gas Discrimination Using Principal Component Analysis - Y. Lu (Eloret Corporate at NASA Ames Research Center) and J. Li (NASA Ames Research Center)

11:40 **2163** Arrayed Nanostructured Titania Functionalized For Hydrogen Sensing - A. J. Monkowski, A. R. Morrill and N. MacDonald (University of California, Santa Barbara)

J4 Physics and Chemistry of Luminescent Materials 15

Luminescence and Display Materials

Universal 6, 1st Floor, Expo Center

Photoionization, Quantum Efficiency of Luminescent Centers
Chair: K. Mishra

10:15 **2167** New Photon Upconversion Materials and Processes - H. Guedel (University of Bern)

10:55 **2168** On the Determination of the Photoionization Thresholds of Ce^{3+} Doped Cs_3LuCl_6, $Cs_2LiLuCl_6$ and Cs_2LiYCl_6 by Thermoluminescence - U. Happek (The University of Georgia), J. Grimm, H. Guedel (University of Bern) and J. Flaniken (UGA)

11:15 **2169** Spectroscopic and Kinetic Studies of Pr-doped Yttrium Silicate - J. Collins (Wheaton College), B. Di Bartolo (Boston College) and J. Tolson (Wheaton College)

11:35 **2170** On the Luminescence of Pr^{3+} in $LiLaP_4O_{12}$ - P. Schmidt (The University of Georgia), A. M. Srivastava (GE Global Research, Niskayuna), A. Setlur, H. Comanzo (GE Global Research Center), U. Happek, J. Hughes and M. Hannah (The University of Georgia)

11:55 **2171** The Potential for Divalent Rare Earth Spectroscopy (Beyond Eu^{2+}) in $S_2MgSi_2O_7$? - A. Setlur (GE Global Research Center), A. M. Srivastava (GE Global Research, Niskayuna), H. Comanzo (GE Global Research Center), J. Hughes, M. Hannah and U. Happek (The University of Georgia)

12:15 **2172** On the Thermal Quenching of Ce^{3+} Luminescence in $Sr_2(La,Gd)AlO_5$ with Cs_3MnCl_5 Structure - J. Hughes (The University of Georgia), A. M. Srivastava (GE Global Research, Niskayuna), A. Setlur, H. Comanzo (GE Global Research Center), U. Happek and M. Hannah (The University of Georgia)

12:35 **2173** On the Thermal Quenching of Ce^{3+} Luminescence in $Y_2O_2SO_4$ - A. M. Srivastava (GE Global Research, Niskayuna), A. Setlur, H. Comanzo (GE Global Research Center), J. Hughes, M. Hannah and U. Happek (The University of Georgia)

Luminescence in Nanomaterials and Semiconductors
Chair: U. Happek

14:00 **2174** Investigation of Luminescence from Dy^{3+} in AlN - K. Mishra (Osram Sylvania), B. Han (Central Research, Osram Sylvania), M. Raukas (Osram Sylvania), K. Klinedinst (Osram Sylvania Central Research), J. H. Tao and J. Talbot (University of California, San Diego)

14:20 **2175** Characteristic Photoluminescence on Anodic Oxide Zirconium - F. Trivinho-Strixino, E. Pereira (Universidade Federal de Sao Carlos) and F. Guimaraes (Universidade de Sao Paulo)

14:40 **2176** Synthesis of GaN, AlN, and GaAlN Powder via a Three-step Nitrate Conversion Process - J. H. Tao, J. Asis, J. Talbot (University of California, San Diego), B. Han (Central Research, Osram Sylvania), K. Klinedinst (Osram Sylvania Central Research) and K. Mishra (Osram Sylvania)

15:00 **2177** Blue and Red Luminescence Bands of Nanocrystalline Porous Silicon Induced by High-Pressure Water Vapor Annealing - B. Gelloz and N. Koshida (Tokyo University A&T)

15:20 Intermission (20 Minutes)

15:40 **2178** Luminescence from ZnO: Nanoparticle Emission and Sensitization - D. Bera, L. Qian, J. Bang (University of Florida), H. Yang (Hongik University) and P. Holloway (University of Florida)

16:00 **2179** Zinc Oxide and Eu-Doped ZnO Nanocrystalline Luminescent Powders and Thin Films - G. A. Hirata (CCMC-UNAM)

Friday, November 3

0930h.....Coffee Break, *Lobby, 1st Floor, Expo Center and Registration Area, Conference Center, Sunrise*

B3 Lithium-Ion Batteries

Battery / Energy Technology

Galactic 2, Conference Center, Sunrise

Cathodes III
Co-Chairs: K. M. Abraham and G. G. Amatucci

08:00 **353** Changes in the Mechanism of Lithium Extraction by Metal Substitution in High-Voltage Spinel Electrodes - J. L. Tirado, R. Alcantara, P. Lavela, B. Leon and C. Perez Vicente (Universidad de Cordoba)

08:30 **354** High Voltage Nickel Manganese Spinels for Li-Ion Batteries - S. Patoux, H. Lignier, L. Sannier, C. Bourbon, S. Jouanneau and F. LeCras (CEA)

08:50 **355** Electronic Conductivity, Lithium Diffusion and Particle Size Effect on the Rate Capability of Fd_{3m} and P4332 $LiMn_{1.5+x}Ni_{0.5-x}O_4$ - M. Kunduraci and G. Amatucci (Rutgers, The State University of New Jersey)

09:10 **356** Lithium Aluminum Manganese Oxide (LAMO) for Long-Life Lithium Batteries - K. Ariyoshi, H. Wakabayashi (Osaka City University), E. Iwata, M. Kuniyoshi (TOSOH Coporation) and T. Ohzuku (Osaka City University)

09:30 Intermission (20 Minutes)

09:50 **357** X-Ray Absorption Spectroscopic Study on the Cathode Materials for Li Rechargeable Batteries during Electrochemical Cycling - W. Yoon (Brookhaven National Laboratory), K. Chung (Korea Institute of Science and Technology), X. Yang and J. McBreen (Brookhaven National Laboratory)

10:20 **358** High Temperature and High Voltage Stability of Lithiated Metal Oxide Cathodes: A Comparative Study - R. Yazami (CNRS-CALTECH), Y. Ozawa (CalTech-CNRS) and B. Fultx (California Institute of Technology)

10:50 **359** Significant Improvement of AlF_3-Coated $LiCoO_2$Cathode in High Voltage Cycling - Y. Sun, J. Han (Hanyang University), S. Myung (VK corporation), S. Cho and S. Lee (Hanyang University)

11:10 **360** A Comparative Study of the Electrochemical Behavior, Ageing, and Li^+ Diffusion Characteristics of Electrodes Comprising Micro- or Nano-Particles of $LiNi_{0.5}Mn_{1.5}O_4$ and $LiNi_{0.5}Mn_{0.5}O_2$, for 4.5 - 5 Volt Li-ion Cells - D. Aurbach, Y. Talyossef, R. Lavi, G. Salitra, B. Markovsky (Bar-Ilan University), D. Kovacheva and M. Gorova (Institute of General and Inorganic Chemistry, BAS)

11:30 **361** Improved Thermal Stability of Mg Substituted $LiCoO_2$ Charged Cathode for Li-Ion Battery - J. Kim, S. Hur, R. Yin, D. Hwang and Y. Park (Samsung SDI Corporate R&D Center)

11:50 **362** A Study on the $LiMn_2O_4$ Cathodes with Mesh-Like Structures for Li Secondary Batteries - M. Park, D. Chung, B. Shin and S. Joo (Seoul National University)

Li-ion Batteries II
Co-Chairs: Y. K. Sun and J. Long

14:00 **363** Formation Cycling of Lithium Ion Cells - D. P. Abraham and S. Kang (Argonne National Laboratory)

14:50 **364** Online Estimation of the State of Charge of a Lithium Ion Cell - S. Santhanagopalan and R. White (University of South Carolina)

15:10 **365** Fundamental Investigation of Inter-Particle Contact in Porous Composite Cathodes - D. R. Wheeler, J. Harb, D. Stephenson, I. Thorat and E. Hartman (Brigham Young University)

15:30 **366** Corrosion of Aluminum Current Collectors of Cycle-Life Tested Li-Ion Batteries - T. M. Devine (University of California) and T. Cohen-Hyams (Lawrence Berkeley National Laboratory)

15:50 Intermission (20 Minutes)

16:10 **367** Unconventional Approaches to Rechargeable Lithium Batteries - A. Debart, G. Armstrong, J. Bao, F. Jiao, K. Shaju (University of St Andrews), M. Holzapfel (Paul Scherrer Institute), T. Ogasawara (Mobile Energy Co., Sanyo Electric Co., Ltd), P. Novak (Paul Scherrer Institut) and P. Bruce (University of St Andrews)

16:40 **368** Packing, Intercalation and Compression: Determination of Operating Stresses in Composite Li Cathodes - Y. Chen, C. Wang, X. Zhang, W. Shyy and A. Sastry (University of Michigan)

17:00 **369** Structure/Property Relationships of Battery Composite Electrodes - Electrochemistry and Materials Science - S. J. Babinec, H. Tang, G. Meyers and A. Talik (The Dow Chemical Company)

17:20 **370** Modeling Parametric Uncertainty Using Polynomial Chaos Theory - S. Santhanagopalan and R. White (University of South Carolina)

17:40 **371** Evaluation of Commercial $LiFePO_4$ Cells Using Incremental Capacity Analysis - B. Liaw and M. Dubarry (University of Hawaii)

J3 SiGe and Germanium: Materials, Processing, and Devices

Electronics and Photonics

Galactic 1, Conference Center, Sunrise

SiGe and Ge Processing II
Co-Chairs: B. Tillack and M. Miyao

08:00 **1508** Dopant Diffusion in SiGeC Alloys - H. Rucker, B. Heinemann, R. Kurps and Y. Yamamoto (IHP)

08:30 **1509** Thin Germanium-Carbon Layers on Silicon for MOS Applications - S. K. Banerjee, D. Q. Kelly, I. Wiedmann, D. Garcia-Gutierrez and M. Jose-Yacaman (University of Texas at Austin)

09:00 **1510** Thermal Redistribution of Oxygen and Carbon in Sub-50 NM Strained Layers of Boron Doped SiGeC - D. Enicks (ATMEL Corp.) and G. Oleszek (University of Colorado at Colorado Springs)

09:20 **1511** Ge Diffusion in Strained Si / Relaxed SiGe Heterostrucutures - Y. Bogumilowicz, J. Barnes, P. Holliger, D. Rouchon (CEA-LETI), N. Daval (SOITEC), J. Hartmann (CEA-LETI), A. Abbadie, F. Lal lemand, E. Guiot, T. Akatsu (SOITEC), C. Deguet and N. Kernevez (CEA-LETI)

09:40 **1512** Characterization of Ge Implanted with Ni and Hf Ions - S. Sioncke, E. R. Simoen, T. Janssens, M. M. Meuris, P. Mertens (Imec), S. Forment, P. Clauws (Ghent University) and A. Theuwis (Umicore)

Emerging Materials, Devices, and Applications
Co-Chairs: A. Reznicek and M. Reiche

10:15 **1513** Integration of SiGe to MEMS Applications - M. Reiche (Max-Planck-Institut fur Mikrostrukturphysik)

10:45 **1514** Study of Poly-SiGe Structural Properties for Modularly Integrated MEMS - C. W. Low, T. King Liu (University of California at Berkeley) and R. T. Howe (Stanford University)

11:05 **1515** Silicon-Carbon Source/Drain: Selective Epitaxy, Process Integration, and Transistor Strain Engineering - Y. Yeo (National University of Singapore)

11:35 **1516** Power Output Improvement of SiGe Thermoelectric Generators - M. Wagner (TU Vienna), G. Span (Span and Mayrhofer KEG), S. Holzer, O. Triebl and T. Grasser (Institute for Microelectronics, TU Vienna)

11:55 **1517** SiGe and Ge Cryogenic Power Transistors - R. R. Ward, W. Dawson, L. Zhu, R. Kirschman (GPD Optoelectronics Corp.), G. Niu, M. Nelms (Auburn University), O. Mueller (LTE- Low Temperature Electronics), M. Hennessy, E. Mueller (MTECH Laboratories LLC), R. Patterson, J. Dickman (NASA Glenn Research Center) and A. Hammoud (QSS Group Inc.)

12:15 **1518** Halide Passivation of Germanium Nanowires - H. Jagannathan, J. Kim, M. Deal, M. Kelly and Y. Nishi (Stanford University)

Surface Treatment and MIS Characterization
Co-Chairs: M. Heyns and S. Miyazaki

13:50 **1519** Study of the Surface Cleaning of GOI and SGOI Substrates for Ge Epitaxial Growth - Y. Moriyama, N. Hirashita (MIRAI-ASET), E. Toyoda (Toshiba Ceramics), K. Usuda, S. Nakaharai, N. Sugiyama (MIRAI-ASET) and S. Takagi (The University of Tokyo)

14:10 **1520** Germanium Surface Cleaning with Hydrochloric Acid - J. Kim, J. McVittie, K. Saraswat and Y. Nishi (Stanford University)

14:30 **1521** Scanning Tunneling Microscopy Study on the Reaction of Oxygen with Clean Ge(001) Surfaces - A. Sakai, Y. Wakazono, O. Nakatsuka, S. Zaima and M. Ogawa (Nagoya University)

14:50 **1522** Atomic-Order Thermal Nitridation of $Si_{1-x}Ge_x$(100) at Low Temperatures by NH_3 - N. Akiyama, M. Sakuraba and J. Murota (RIEC, Tohoku University)

15:10 **1523** Characterization of Strained Si/SiGe with Pulsed MOS Capacitor and Gate Oxide Integrity Measurements - J. Liao and D. Schroder (Arizona State University)

15:30 **1524** Comparison of Electrical and Structural Properties of HfO_2 Thin Films on Strained and Relaxed $Si_{1-x}Ge_x$ - T. Park, J. Kim, J. Jang and C. Hwang (Seoul National University)

15:50 **1525** Dielectric Relaxation and Defect Generation Under Pulsed and Constant Voltage Stressing of Ultrathin TiO_2 Films on Strained-$Si/Si_{0.8}Ge_{0.2}$ - M. K. Bera (Indian Institute of Technology, Kharagpur, India), S. Saha (Vidyasagar University, India.) and C. Maiti (Indian Institute of Technology, India)

F2 Electronics Packaging 2

Electrodeposition

Universal 19, 1st Floor, Expo Center

Electronics Packaging
Co-Chairs: Y. Zhang and D. P. Barkey

08:00 **1647** Advances in Plating for Sub-50 nm On-Chip Interconnects - V. M. Dubin, R. N. Akolkar, C. Cheng, R. Chebiam, A. Fajardo and J. Plombon (Intel Corporation)

08:40 **1648** Electroless Co-Based Self-Aligned Copper Capping Layers: Growth Mechanism, Microstructure and Barrier Properties - S. Olivier (CEA), T. Decorps (ST Microelectronics) and P. Haumesser (CEA)

09:00 **1649** New Heterostructures and 3D Devices Obtained at CEA/LETI by the Direct Bonding and Thinning Method - L. Di Cioccio (CEA)

09:20 **1650** Electrochemical Micromachining of Patterned Aluminum Films by Porous-type Anodization - D. A. Brevnov (University of New Mexico)

Copper Damascene
Co-Chairs: D. P. Barkey and K. Kondo

09:40 Intermission (20 Minutes)

10:00 **1651** A Comparison of Mercapto-Containing Accelerator Properties - S. T. Mayer, T. Majid, E. Webb and M. Rea (Novellus Systems)

10:20 **1652** A Microfluidic Device for Measuring Adsorption and Desorption Kinetics of Additives used in Direct Metallization Processes - M. J. Willey and A. West (Columbia University)

10:40 **1653** Acceleration Comples Formation with Current Wave Form by Rotating Ring Disk Electrode - T. Nakamura, N. Okamoto and K. Kondo (Osaka Prefecture University)

11:00 **1654** Voltammetric Study of the Adsorption and Inhibiting Effect of PEG and Cl- on Copper Deposition - M. E. Huerta Garrido and M. Pritzker (University of Waterloo)

11:20 **1655** The Advanced Monitoring of Constituents in Copper Damascene Electroplating Baths - M. Pavlov, E. Shalyt and P. Bratin (ECI Technology)

11:40 **1656** Modeling Copper Planarization under Mass Transport Controlled Dissolution - U. Landau, U. Landau (Case Western Reserve University) and E. Malyshev (L-Chem, Inc.)

I2 Electrochemistry at Liquid-Liquid Interfaces

Physical and Analytical Electrochemistry

Universal 11, 1st Floor, Expo Center

Liquid Interfaces 3
Co-Chairs: P. Vanysek and V. Marecek

08:00 **1885** Recent Molecular Insight into the Structure of the Liquid/Liquid Interface - I. Benjamin (University of California Santa Cruz)

08:40 **1886** Electrowetting with an Interface Between Two Immiscible Electrolytic Solutions - C. W. Monroe (Imperial College London), L. Daikhin, M. Urbakh (Tel Aviv University) and A. Kornyshev (Imperial College London)

09:40 Intermission (20 Minutes)

10:00 **1887** Distribution of Ions Near the Liquid-Liquid Interface - P. Vanysek (Northern Illinois University), G. Luo (Oakridge National Laboratory), S. Malkova, J. Yoon, B. Hou (UIC), D. Schultz, B. Lin, M. Meron (Center for Advanced Radiation Sources, University of Chicago), I. Benjamin (University of California Santa Cruz) and M. Schlossman (UIC)

10:40 **1888** Ion Transfers at Micro Liquid/Liquid Interfaces - Z. Ding, S. Lanjwani and A. Benvidi (The University of Western Ontario)

11:20 **1889** Solvation of Lithium Salts in Wet Nitrobenzene - G. Moakes, L. Gelbaum, J. Leisen (Georgia Institute of Technology), V. Marecek (J. Heyrovsky Institute AS CR) and J. Janata (Georgia Institute of Technology)

11:40 **1890** Ion Transport Across a Bilayer Lipid Membrane Facilitated by Gramicidin - Effect of Counter Anions on the Cation Transport - O. Shirai (Kyoto University), Y. Yoshida, S. Kihara (Kyoto Institute of Technology), T. Ohnuki (Japan Atomic Energy Agency) and K. Kano (Kyoto University)

I4 Molten Salts 15, in Memory of Robert Osteryoung

Physical and Analytical Electrochemistry / Electrodeposition / High Temperature Materials / Battery / Energy Technology

Galactic 7, Conference Center, Sunrise

Investigations of Lanthanides and Actinides in Molten Salts and Ionic Liquids
Co-Chairs: D. Costa and T. Griffiths

08:00 **2061** Actinide and Lanthanide Electrochemical Studies in Room Temperature Ionic Liquids - M. E. Stoll, W. Oldham and D. Costa (Los Alamos National Laboratory)

08:20 **2062** Revival of Halide Salts as High-Temperature Heat-Transfer Media: Key Technical and Scientific Issues - D. F. Williams (Oak Ridge National Laboratory)

08:40 **2063** Characterizing Global Properties of Lanthanide Halide Systems: Thermodynamics and Transport Properties of the $CeBr_3$ -MBr Binary Systems - M. Gaune-Escard (Ecole Polytechnique,), L. Rycerz, E. Ingier-Stocka (Wroclaw University of Technology, Poland) and S. Gadzuric (Ecole Polytechnique, Marseille, France & University of Novi Sad, Serbia)

09:00 **2064** CEMOS (Catalyst Enhanced Molten Salt Oxidation) for Complete and Continuous Pyrochemical Reprocessing of Spent Nuclear Fuel: An Overview of a Viable New Technology for Next Generation Nuclear Reactors - T. Griffiths (Redston Trevor Consulting, Ltd.) and V. A. Volkovich (Ural State Technical University - UPI)

09:20 **2065** Study of Chlorine - Oxygen Exchange Reaction in Molten NaCl-$_2$CsCl - A. Osipenko and A. Mayorshin (Research Institute of Atomic Reactors)

09:40 Intermission (20 Minutes)

Electrochemistry and Properties of Molten Salts and Ionic Liquids
Co-Chairs: D. Costa and T. Griffiths

10:00 **2066** Thermal Cycling of Epoxy Coatings using Room Temperature Ionic Liquids - B. hinderliter, K. Allahar, G. Bierwagen and S. Croll (North Dakota State University)

10:20 **2067** Specific Adsorption of Cl-Ions at the Polarized Interfaces Between Water and a Hydrophobic Room-Temperature Ionic - R. Ishimatsu, N. Nishi and T. Kakiuchi (Kyoto university)

10:40 **2068** Redox Behavior of Polyaniline in an Room Temperature Ionic Liquid - R. Torresi (Universidade de Sao Paulo), F. F. Bazito (IQ-USP), L. Sil-Veira and S. Torresi (Universidade de Sao Paulo)

11:00 **2069** Corrosion Behavior of Alloys Fe-Al Immersed in a Eutectic of KCl-LiCl - J. I. Barraza Fierro (Mexican National University), M. Espinosa Medina (Instituto Mexicano del Petroleo) and E. Sosa Hernandez (Oil Mexican Institute)

11:20 **2070** The Anode Process on Porous Graphite in Mixed Chloride-Oxide Melts - E. Sandnes (The Norwegian University of Science and Technology), A. Kisza, J. Kazmierczak (University of Wroclaw, Poland), G. Haarberg and R. Tunold (The Norwegian University of Science and Technology)

11:40 **2071** Measurement and Thermodynamic Analysis of NiF_2/Ni Electrode Potential in a Dehydrated Melt of $NH_4F{\cdot}2HF$ - A. Tasaka, E. Morimoto, A. Mimoto, A. Inoue and M. Inaba (Doshisha University)

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Luminescence and Display Materials

Universal 6, 1st Floor, Expo Center

Upconversion and Energy Transfer
Chair: A. Setlur

08:00 **2180** Energy Transfer in KY_3F_{10} Phosphor - P. K. Nammalwar (GE ITC Pvt Ltd), A. M. Srivastava (GE Global Research, Niskayuna), R. Hanumantha, A. Sounderraj, S. Venugopal and G. Chandran (GE ITC Pvt Ltd, Bangalore India)

08:20 **2181** Melt Synthesis of Complex Double Oxides for Phosphors - M. Yoshimura, T. Ishigaki, E. Nishimura, K. Seki and T. Watanabe (Tokyo Institute of Technology)

08:40 **2182** Poly[methyl(phenyl)silanediyl] Modification with Luminophores - D. Vyprachticky and V. Cimrova (Institute of Macromolecular Chemistry)

09:00 Intermission (20 Minutes)

09:20 **2183** Eu-Mn Energy Transfer in Halophosphates - U. Happek (The University of Georgia), A. M. Srivastava (GE Global Research, Niskayuna), A. Setlur and H. Comanzo (GE Global Research Center)

09:40 **2184** Incorporation of Si-N into Garnet Hosts and Its Effect on Ce^{3+} Luminescence - A. Setlur, W. Heward (GE Global Research Center), A. M. Srivastava (GE Global Research, Niskayuna), H. Comanzo (GE Global Research Center), U. Happek and J. Hughes (The University of Georgia)

10:00 **2185** Studies on Metal Oxide Composite Particles for Improved Lighting Efficiency - R. Partch and T. Tannahill (Clarkson University)