Monday, October 8

07:30h............ Professional Development Series: Great Minds Do Not Think Alike

08:45h............ Professional Development Series: Resume/On-Line Profile Writing and Strategies for Cultivating and Maintaining Professional Contacts

09:30h............ Technical Session Coffee Break

12:00h............ ECS Transactions Tutorial Session for Authors

13:00h............ Technical Exhibit

13:00h............ Professional Development Series: Career Fair

14:00h............ Professional Development Series: Resume Workshop

14:05h............ ECS Edward Goodrich Acheson Award Lecture: “Plasmas for Thin Film Processing and Surface Modification” by Dennis W. Hess

14:45h............ ECS Charles W. Tobias Young Investigator Award Lecture: “Past, Current, and Future Research in Polymer Electrolyte Fuel Cells” by Bryan S. Pivovar

15:25h............ ECS Charles W. Tobias Young Investigator Award Lecture: “Machanochemistry at Oxide Thin Film Interfaces’ by Bilge Yildiz

17:00h............ PRIIME 2012 Lecture: “Cell Bioelectrochemistry and Biomagnet” by Tadashi Matsunaga

18:00h............ Monday Evening Mixer, Technical Exhibit, and Student Poster Session

18:00h............ Professional Development Series: Career Fair

Special Lectures
All Divisions
Kalakaua Ballroom B, Level 4, Hawaii Convention Center

Award Presentations – 14:00 – 16:10

14:00  Introductory Remarks (5 Minutes)

14:05  1 (Edward Goodrich Acheson Award Presentation) Plasmas for Thin Film Processing and Surface Modification D. Hess (Georgia Institute of Technology)

14:45  2a (Charles W. Tobias Young Investigator Award Presentation) Past, Current, and Future Research in Polymer Electrolyte Fuel Cells B. S. Pivovar (National Renewable Energy Laboratory)

15:25  2b (Charles W. Tobias Young Investigator Award Presentation) Machanochemistry at Oxide Thin Film Interfaces B. Yildiz (Massachusetts Institute of Technology)

16:05  Concluding Remarks (5 Minutes)

• 17 Control Method for the Amount of Cu Site on the ZnS Stratified Photocatalysts – Y. Kajino (Tohoku University), H. Takahashi, and K. Tohji (Tohoku University)

• 18 Synthesis of Cu Supported Stratified Photocatalysts and Its Application for the CO₂ Conversion into Alcohol – Y. Kajino (Tohoku University), H. Takahashi, and K. Tohji (Tohoku University)

• 19 Improvement of Efficiency of Photo-Excited Electrons Transfer from Thin Film Consisted by the Semiconductor Particles on Electrode Surface to Developing Electrons Pathway – T. Mabuchi, T. Hayashi, H. Takahashi, and K. Tohji (Tohoku University)

• 20 Relation between the Condition of Pd and Te Metal Complexes in the Aqueous Solution and Reduction Mechanism of PdₓTeᵧ Alloy – T. Mabuchi, S. Yokoyama, H. Takahashi, and K. Tohji (Tohoku University)

• 21 Oxidation of Bulk Amorphous NiₓTi₁₋ₓZr₂₀S𝑖₂S₆ Coating – S. Kim, S. Bong, M. Kim, and D. Lee (Sungkyunkwan University)


• 23 Single-Crystal Field-Effect Transistors of 21DNTT Derivatives – A. Maeda, T. Arakawa (Tohoku University), M. Tsutsui, K. Okamoto (Ushio Chemix Corporation), and Y. Kunugi (Tohoku University)

• 24 Conductivity of Ceria Based Composite Electrolytes for Intermediate-Temperature-Solid Oxide Fuel Cells – S. Baek, T. Lee, and J. Park (Sejong University)

• 25 Effect of Synthesis Method and FeₓP Phase on the Electrochemical Properties of LiFeₓMn₁₋ₓPO₄₋ₓC Electrode – J. P. Vålkinjas (University Of Oulu), S. Tuomaala (Kokkola University Consortium Chydenius), M. T. Andersson, S. Manner (Aalto University), P. A. Tanskanen (University of Oulu), T. Kallio, M. Karpplinen (Aalto University), and U. Lassi (Kokkola University Consortium Chydenius)

• 26 Co-Ionic Neodymium-Doped Ceria/Carbonate Composite Electrolytes – J. Kim, N. Kim, and J. Park (Sejong University)

• 27 Fabrication of High Performance BaLaInₓO₃₋ₓ Electrolyte Single Chamber Solid Oxide Fuel Cell by Using Sublimation Materials as Pore Former in Electrode Preparation – X. Shen, K. Takasu, and T. Yao (Kyoto University)

• 28 Morphology Control of Palladium Nanostructures by Potential Adjustment – X. Pham, M. Bui, C. Li, K. Han, and G. Seong (Hanyang University)

• 29 Preparation of Organoboron Ion-Gels Using PVA and Their Ion Conductive Properties – H. Tsutakawa and N. Matsumi (Japan Advanced Institute of Science and Technology)

• 30 Structure and Electrochemistry of NaNiO₂ – R. I. Fielden and M. N. Obrovac (Dalhousie University)

• 31 Fabrication of Ruthenium Oxide Nanosheet Electrodes by Electrophoretic Deposition – S. Ikuta, N. Ishigaki, K. Fukuda, T. Sato, and W. Sugimoto (Shinshu University)

• 32 Characterization Attributes of Metal Oxide Nanocomposites – M. Hockey, Q. Lin, and E. Caldeñas (Brewer Science Inc.)

• 33 Improvement in ORR Performance of 1-1.5 nm Pt Nanoparticles by Modification with Ruthenium Oxide Nanosheets – D. Takimoto, M. Ohuchi, L. Koodlur, C. Chauvin, and W. Sugimoto (Shinshu University)

• 34 Pt/TiO₂ Nanohybrid Structures on Single-Walled Carbon Nanotubes: Preparation and Electrocalytic Characteristics – K. Han, C. Li, M. Bui, X. Pham, and G. Seong (Hanyang University)

• 35 Direct Synthesis of Nanostructures in a Microfluidic Device for Electrochemical Analysis – C. Li, K. Han, M. Bui, X. Pham, and G. Seong (Hanyang University)

• 36 Influence of Surface Structure and Ion Type on the Capacitance of Doped SWCNTs Electrode of Electrochemical Capacitors – A. Al-zubaidi, Y. Ishii, T. Matushita, and S. Kawasaki (Nagoya Institute of Technology)

• 37 Electrochemical Study on Oxygen Reduction in a Pt/Nafion/Humidified Air System – Y. Sugiyama, E. Tada, A. Nishikata, and T. Tsuru (Tokyo Institute of Technology)

• 38 Solid Phase Growth of Nickel Silicides in Polycrystalline Si Film on SiO₂ with Cl Plasma Containing NiCl – K. Kanomata, K. Momiyama, S. Kubota, T. Suzuki, and F. Hirose (Yamagata University)

• 39 Enhancement of Dye-Sensitized Photocurrents by Gold Nanoparticles: Effects of Particle Size and Density – T. Kawakami (The University of Tokyo), Y. Takahashi (Kyushu University), and T. Tatsuma (University of Tokyo)

• 40 The Synthesizing Process and Electrochemical Characteristics of Si Active Material Particles Covered with Silicon Oxide as Anode Electrodes in a Lithium-Ion Battery – N. Shimoi and Y. Tanaka (Tohoku University)

• 41 Electrochemical Property of the Composition by Ground Process of Active Materials Based on Silicon and Oxides – N. Shimoi, Q. Zhang, and Y. Tanaka (Tohoku University)

• 42 Characterizations of AlₓOᵧ/Znₓ Grown on Si Substrate by Plasma Enhanced Atomic Layer Deposition – C. Chung, B. Tran, K. Lin (National Chiao Tung University), C. Wang, C. Chen, C. Huang, S. Lee (Industrial Technology Research Institute), and E. Yi Chang (National Chiao Tung University)

• 43 Preparation of n-Conjugated Polycarbazole – Boron Complexes as Fluoride Anion Sensor – Y. Hosono and N. Matsumi (Japan Advanced Institute of Science and Technology)
• Preparation of Marimo Carbon Supported PtCo Bimetal Catalyst by the Nanocolloidal Solution Method – K. Sato, T. Onuma (Ibaraki University), K. Komatsu, M. Kobori (Toyo University), K. Iwasawa, M. Eguchi, Y. Kobayashi (Ibaraki University), M. Nishitani-Gamo (Toyo University), and T. Ando (National Institute for Materials Science)

• Changes in the Conduction Properties of LaBaGaO₄ Based Proton Conductor by Liquid-Phase Synthesis – N. Hamao, N. Kitamura, and Y. Idemoto (Tokyo University of Science)

• The effect of the Relationship between Ionomer and Carbon in the PEFC Catalyst Layer – K. Baba, T. Onuma, K. Iwasawa, M. Eguchi, Y. Kobayashi (Ibaraki University), K. Komatsu, M. Kobori, M. Nishitani-Gamo (Toyo University), and T. Ando (National Institute for Materials Science)

• Effects of Misaligned Electrode for Measurement in PEFC with Reference Electrode – K. Baba, S. Ueda, M. Eguchi, Y. Kobayashi (Ibaraki University), and Y. Tsutsumi (FC Development Co., Ltd.)

• Low-Temperature Synthesis and Study of Apatite-Type Lanthanum Silicates – N. Kitamura, K. Kaneko, and Y. Idemoto (Tokyo University of Science)

• Anodic Oxidation of Alcohols on Ni-Sn Electrocatalysts Prepared by Electrodeposition – K. Maruyama, N. Yoshimoto, M. Egashira, and M. Morita (Yamaguchi University)

• A New 4.3 V Aqueous Hybrid Capacitor Based on Manganese Dioxide Positive and Lithium Negative Electrode – Y. Shimehara, S. Makino, W. Shimizu, and W. Sugimoto (Shinshu University)

• Synthesis and Characteristics of Novel Boric Ester Type Ionic Liquids – Y. Toyota and N. Matsumi (Japan Advanced Institute of Science and Technology)

• Aqueous Electrolytes for Ultracapacitor Devices Using Manganese Oxide as Electrode Material – A. Boisset (Université de Tours), L. Athouël (University of Nantes), J. Jacquemin (Queen’s University Belfast), T. Brousses (University of Nantes), and M. Anouti (Université de Tours)

• Molecular Weight Dependence of P-Type Semiconductive Polymer on High Efficiency Thin Film Organic Photovoltaic Cells – M. Sugimoto, H. Nakamura, K. Yamada, and H. Yamane (KitaKyushu National College of Technology)

• Effect of Gold Nano-Seed Particles on Electrochemical Characteristics of Conducting Substrates – Y. Nakayama and M. Oyama (Kyoto University)

• Sn-CNT Fabric for Multifunctional Anodes in Li-ion Batteries – J. Benson, Y. Zhao, B. Hertzberg (Georgia Institute of Technology), M. Schauer, D. Lashmore (NanoComp Technologies, Inc.), and G. Y. Yushin (Georgia Institute of Technology)

• High Temperature Protonic Conduction and Clustal Structure of Euylite-Type Phosphates – N. Kitamura, Y. Yamada, and Y. Idemoto (Tokyo University of Science)

• Composition Dependence of Average and Local Structure and Thermodynamic Stability for xLi(Li₁₋ₓMnₓ)O₂-(1-x)Li₂(MnₓNi₁₋ₓ)O₃ as a Cathode Active Material for Li-Ion Battery – M. Inoue, N. Kitamura, and Y. Idemoto (Tokyo University of Science)

• Non-Pacman Type Co-Porphyrin Bilayers for Oxygen Reduction Reaction – S. Satoh, K. Murakoshi, and K. Ikeda (Hokkaido University)

• Stress Durability of Electrolyte Structure in Flexible Sheet Type Direct Methanol Fuel Cell (FS-DMFC) – Y. Sakurai and A. Kawai (Nagaoka University of Technology)

• Fabrication of TiO₂ Layers for Dye Sensitized Solar Cells using Electrostatic Inkjet Printing Method – A. Ishii (Tokai University), S. Umezue (Tokai Univ.), and Y. Kunugi (Tokai University)

• Construction of the Copper (I) Oxide/CdO Hybrid Photovoltaic Devices – T. Saitoh, T. Ohata, F. B. Mohamad, J. Sasano, and M. Izaki (Toyohashi University of Technology)

• Electrochemical Oxidation of Ammonia by Multi-Walled Carbon Nanotubes-Supported Pt-Core/Ir-Shell and Pt-Core/Pd-Shell Nanoparticles – S. Morita, S. Azuma, H. Shiroishi (Tokyo National College of Technology), M. Yonekawa, and K. Naga (Tokyo Institute of Technology)

• A Study of Photochemical Proton Reduction and Oxidation of Water Using PbₓRu₁₋ₓO₂₋₅ Synthesized by Neutralization Method – S. Hanyu, H. Shiroishi (Tokyo National College of Technology), T. Hatai, Y. Ayato, and J. Kuwano (Tokyo University of Science)

• Performance of Proton Conductive Intermediate Temperature Fuel Cell Using ZrO₂-1.6P₂O₅ Electrolyte with 1% CO-H₂ and Methanol as Fuels – Y. Houshi (Tokyo National College of Technology), M. Yonekawa (Tokyo Institute of Technology), H. Shiroishi (Tokyo National College of Technology), M. Kunimatsu (Kanagawa Industrial Technology Center), K. Matsushima, Y. Ayato (Tokyo University of Science), M. Saito (Doshisha University), and J. Kuwano (Tokyo University of Science)

• Electrochemical Studies of Epoxy Based Lignosulfonate Doped Double Stranded Polyamine-Montmorillonite-Nocomposite Coatings on AA 2024 Alloy – G. Gupta (IITB-Monash Research Academy), A. Khanna (IIT Bombay), and N. Birbilis (Monash University)

• Carbon Nanotube Synthesis over Nickel-Ferrite Loaded Oxidized Diamond Catalyst – G. Tsurino, K. Nakagawa (Kansai University), T. Ando (National Institute for Materials Science), and H. Oda (Kansai University)

• Cycle Performance of Nano Inclusion containing Li₂Mn₁₋ₓOₓ Cathode Material – J. Harada, H. Tsubouchi, Y. Kawai, and T. Yao (Kyoto University)

• Peeling Force of Polymer Micro Pattern by Direct Peeling by using AFM Tip (DPAT) – T. Aiba (Nagaoka University of Technology) and K. Akira (Nagaoka University of Technology Department of Electrical Engineering)

• Monitoring and Modeling for Response Time of Biopotential in Plant Cells – Y. Noguchi and A. Kawai (Nagaoka University of Technology)
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• 70 A New High Energy Density Aqueous Hybrid Capacitor Based on Lithium Negative and Ruthenium Oxide Positive Electrode – T. Ban, S. Makino, W. Shimizu, and W. Sugimoto (Shinshu University)

• 71 Construction and Photovoltaic Performance of Hybrid ZnO:CuPc Bulk Heterojunction Solar Cells – H. Ryo, K. Murata, J. Sasano (Toyohashi University of Technology), S. Watase (Osaka Municipal Technical Research Institute), and M. Iizuki (Toyohashi University of Technology)

• 72 VOC Sensing Characteristics of SmFeO3 Film Covered with SiC Powder – J. Iseda, M. Mori, and Y. Sadoaka (Ehime University)

• 73 Adsorption States and Reactivity of Nitric Oxide on Pd and Pd-based Binary Electrodes as Studied by Infrared Absorption Spectroscopy – K. Yamaki (Hokkaido University), A. Okubo, S. Notani (Graduate School of Environmental Science, Hokkaido University), K. Nakata (Faculty of Environmental Earth Science, Hokkaido University), M. Osawa, and K. Shimazu (Hokkaido University)

• 74 Platinum Nanodot and Nanohoneycomb Structures: Construction Using a Cyclodextrin Monolayer as a Molecular Template – R. Saito, Y. Domi, T. Kawaguchi, and K. Shimazu (Hokkaido University)

• 75 Design of Polymer Inclusion Complex of Curcumin Using Amylose – Y. Morita and N. Matsumi (Japan Advanced Institute of Science and Technology)


• 77 Change of Crystal and Electronic Structure of Layered Cathode Material 0.4Li2MnO3-0.6LiMn2/3Ni1/3Co1/3O2 by Charge and Discharge Process – R. Yamamoto, N. Kitamura, and Y. Idemoto (Tokyo University of Science)

• 78 Structural Studies on Self-Assembled Monolayer of Porphyrin Derivative on Au(111) – N. Aoki, B. Zhang, R. Kuwana, T. Wada, and T. Kondo (Ochanomizu University)

• 79 Electrocatalytic Activity for Oxygen Reduction of Pseudomorphic Pt Monolayer Electrochemically Prepared on a Au(111) Surface – T. Wada, M. Shibata, M. Kawabuchi (Ochanomizu University), I. Yagi (FC-Cubic TRA), and K. Toshihiro (Ochanomizu University)

• 80 Performance of Nb and Mo Alloyed Ferritic Stainless Steel for SOFC Interconnect by Using Button Cell Configuration – D. Yun, H. Seo (Pohang University of Science and Technology), J. Jun (Research Institute of Industrial Science and Technology), and K. Kim (Pohang University of Science and Technology)

• 81 Development of 4 V-class Aqueous Hybrid Electrochemical Capacitor with Porous Positive Electrode and Li Negative Electrode – S. Makino, Y. Shinohara, T. Ban, W. Shimizu, and W. Sugimoto (Shinshu University)

• 82 Electrochemical Properties of Reduced Graphite Oxide Nanosheet Electrodes Prepared by Layer-by-Layer Assembly – T. Mitsu (Shinshu University), K. Higurashi, J. Sato, K. Fukuda, and W. Sugimoto (Shinshu University)

• 83 A Comparison of Steam and CO2 Activation of Boron Doped Diamond Electrodes – J. Zhang and W. Sugimoto (Shinshu University)

• 84 Electrochemical Properties of Nanocarbon Produced from Organic Waste and its Application in Electric Double-Layer Capacitor – D. Mishima, Y. Hamasuna, T. Tashima (University of Miyazaki), S. Kumagai (Akita University), and J. Madden (University of British Columbia)

• 85 Amorphous Titanium Oxide Prepared from Peroxo-Polytitanic Acid and Its Electrochemical Properties – K. Kobayashi and I. Tsuyumoto (Kanazawa Institute of Technology)

• 86 One Dimensional Silver/Silver Halide Nanocomposites: Synthesis and Electrocatalytic Activity – S. Kim (Ewha womans University), J. Shim (Daegu University), C. Lee, and Y. Lee (Ewha Womans University)

• 87 Terminal Redox Moiety effects on the Long-Range Electron Conduction of π-Conjugated Bis(Terpyridine) Metal Complex Oligomer Wires on Electrode – S. Katagiri, R. Sakamoto, and H. Nishihara (The University of Tokyo)

• 88 Pyrimidine Ring Motion Correlated with Electron Transfer at the Copper(II)/(I) Coordination Site Immobilized on Au Electrode Surface – Y. Takara, M. Nishihoka (Department of Chemistry, School of Science, The University of Tokyo), S. Kume (Department of Chemistry, Graduate School of Science, Hiroshima University), and H. Nishihara (The University of Tokyo)

• 89 Preparation of Glass-Coated CdSe/CdZnS Quantum Dots and Their Photostability – T. Gunshi (Kwansei Gakuin University), C. Li (National Institute of Advanced Industrial Science and Technology), K. Ogasawara (Kwansei Gakuin University), M. Ando, and N. Murase (National Institute of Advanced Industrial Science and Technology)

• 90 Development and Application of an Electrochemical Dual Microsensor for Simultaneous O2/pH Measurements – Y. Ha, S. Park (Ewha Womans University), J. Shim (Daegu University), and Y. Lee (Ewha Womans University)

• 91 Electrochemical Impedance Analysis for Corrosion on Current Collecting Electrodes in Dye-sensitised Solar Cells – K. Inoue, I. Shitanda, Y. Hoshi, and M. Itagaki (Tokyo University of Science)

• 92 Preparation of Polymer Nanoparticles Composite Coating Films for Investigation of the Co-Deposition Theory – K. Iwasaki, I. Shitanda, Y. Hoshi, and M. Itagaki (Tokyo University of Science)

• 93 Glancing Angle Sputter-Deposition of Titanium Dioxide Films with Rotating Substrate Holder for Photocatalytic Application – Y. Yasuda, N. Kitahara, and Y. Hoshi (Tokyo Polytechnic University)

• An InGAP Sub-Wavelength Structure (SWS) Realized by Colloidal Lithography for Solar Cell Applications – D. Kim, S. Eo, and J. Jang (GIST)

• LbL Film with PtNPs as a Sensor of the Dopamine Encapsulated in Liposomes – V. Dos Santos, M. Dos Santos, B. Sandrino, C. De Jesus, J. R. Garcia, S. T. Fujiwara, C. A. Pessôa, and K. Wonhrath (State University of Ponta Grossa)

• Effect of Lateral Size of Reduced Graphite Oxide Nanosheet on the Electrochemical Capacitance – Z. Lei, T. Sakai, and W. Sugimoto (Shinshu University)

• A Model for the Influence of Steel Corrosion Products on Nuclear Fuel Corrosion under Permanent Disposal Conditions – L. Wu (Western University), Y. Beauregard (NOVA Chemicals), Z. Qiu, S. Rohani (Western University), and D. W. Shoesmith (University of Western Ontario)

• CO2 Reduction at Glassy Carbon Electrode in the Presence of Pyridine – J. Agullo, M. Morin, and D. Bélanger (Université du Québec à Montréal)

• Utilizing a Rotating Ring Disk Electrode (RRDE) to Simultaneously Measure Contaminant Species Adsorption effects on Two Different Catalyst Surfaces – J. M. Christ (Colorado School of Mines), K. Neyerlin, H. Wang (National Renewable Energy Laboratory), R. M. Richards (Colorado School of Mines), and H. N. Dinh (National Renewable Energy Laboratory)

• Carbon Deposition and Gasification over Ni-YSZ Cermet during Methane Reforming Reaction – K. Song and J. Jung (Postech)

• Influence of Relaxation Time on the Lifetime of Commercial Lithium-Ion Cells – M. J. Reichert, H. Bremes, S. Passerini, and M. Winter (University of Münster)

• 3-D Electrochemical Impedance Spectroscopy Calculated by Wavelet Transformation -Influence of Scale and Time Parameters on Impedance Spectra – K. Isobe, Y. Hoshi, I. Shitanda, and M. Itagaki (Tokyo University of Science)

• In Situ ATR-IR Analysis of Graphite/Electrolyte Interface in Li-Ion Batteries – Y. Akita, H. Munakata, and K. Kanamura (Tokyo Metropolitan University)


• Electrochemical Evaluation of Li4Ti5O12 Single Particle at Various Temperatures – K. Annaka, H. Munakata, and K. Kanamura (Tokyo Metropolitan University)

• 3DOM Polyimide Separator for Rechargeable Lithium Batteries with High Rate Performance – K. Miyahara, Y. Jin, H. Munakata, and K. Kanamura (Tokyo Metropolitan University)


• RRDE Studies on Oxygen Reduction Reaction of Pd Single Crystal Electrodes – M. Kawabuchi, T. Wada, M. Shibata, and T. Kondo (Ochanomizu University)

• Synthesis and Characterization of Core-Shell Structured Ni- Ce0.8Gd0.2O1.9 SOFC Anodes by Ultrasonic Spray Pyrolysis – C. Lim and K. Lee (Chonbuk National University)

• Broadband Terahertz Antireflection Structure Fabricated By Utilizing Stamping Method – D. Kim (Gwangju Institute of Science and Technology), D. Kim, and J. Jang (GIST)

• Fabrication of GDC Electrolyte Thin Films on NiO-GDC Anode Support by Electro photophoretic Deposition for Solid Oxide Fuel Cells – S. Yu and K. Lee (Chonbuk National University)

• Characterization of Ca3.3La0.7TiO3 Anode Materials for Hydrocarbon-Fueled Solid Oxide Fuel Cells – J. Koo and K. Lee (Chonbuk National University)

• Design of Ion-gel Electrolytes Using Nonflammable Organoboron Bio-based Polymer as Polymer Support – Y. Yoshinaga and N. Matsumi (Japan Advanced Institute of Science and Technology)

• Enhanced Photocurrent Generation of Porphyrins – Ag Nanoparticles Composite Layers on an Electrode – S. Yagyu, M. Ishizaki, K. Kanaizuka, M. Kurihara, and M. Sakamoto (Yamagata University)

• Electrochemical behavior of Spin-coated Hybrid Thin Film of Prussian-blue Analog Nanoparticles – S. Soma, M. Ishizaki, K. Ono, K. Kanaizuka (Yamagata University), M. Sakamoto, and M. Kurihara (Yamagata University)

• Electrochemical Intercalation of Bis(Fluorosulfonyl)Amide Anion into Graphite – F. Yamane, K. Miyazaki, T. Fukutsuka, and T. Abe (Kyoto University)

• Preparation of Perovskite Type Oxide Thin-Films as Bi-Functional Air Electrodes by Pulsed Laser Deposition Method and Their Electrochemical Properties – Y. Miyahara, K. Miyazaki, T. Fukutsuka, and T. Abe (Kyoto University)

• MgBr2/Ether-Based Electrolyte Solutions for Mg-Rechargeable Batteries – K. Asaka, K. Miyazaki, T. Fukutuka, T. Abe, K. Niho, and Y. Uchimoto (Kyoto University)

• Electrochemical Properties of LiCoPO4 in the Anion Receptor-Based Organic Electrolyte Solution – T. Nakagawa, K. Miyazaki, T. Fukutsuka, and T. Abe (Kyoto University)

• Layered Double Hydroxides with Different Cation Ratios – Y. Asada, K. Miyazaki, T. Fukutuka, T. Abe, K. Niho, and Y. Uchimoto (Kyoto University)

• Anisotropic Anion Conduction of MgAl2O4-Layered Double Hydroxides with Different Cation Ratios – Y. Asada, K. Miyazaki, T. Fukutsuka, and T. Abe (Kyoto University)

• Redox Reaction of Metal Cations on the Surface of LiCoO2 Thin-Film Electrodes – J. Inamoto, K. Miyazaki, T. Fukutsuka, and T. Abe (Kyoto University)

• Electrochemical Behavior of Magnesium Metal in Alkaline Aqueous Solutions – Y. Taniguchi (Graduate School of Engineering, Kyoto University), K. Miyazaki, T. Fukutsuka, and T. Abe (Kyoto University)
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124 Frequency-Tunable Multicolor Light-Emitting Cell Based on AC-Driven Electrochemiluminescence – M. Nakakomi, T. Nobeshima, K. Nakamura, and N. Kobayashi (Chiba University)

125 Electrochemical Properties of Graphite Electrode in Ionic Liquid Containing Bis(Fluorosulfonyl) Amide Anion – K. Ono, K. Miyazaki, T. Fukutsuka, and T. Abe (Kyoto University)

126 A Study on Electrochemical Performance of Hard Carbon / Na,[Fe2O3,Mn1/2]O; Cells as Rechargeable Na-Ion Batteries – M. Kanayama, N. Yabuuchi (Tokyo University of Science), J. Iwatate (Tokyo Univ. of Science), and S. Komaba (Tokyo University of Science)

127 Fabrication of Electroless Cu/CNT Composite Plating Films Containing Different Sized CNTs – T. Osaki and S. Arai (Shinshu University)

128 Electrochemical Properties of AZO Films Functionalized with Redox-Active Molecules – H. Kaneko, T. Tsuda, K. Kanazikuma, M. Kurihara, and M. Sakamoto (Yamagata University)

129 Fabrication of Silicon Composite Films for Lithium-Ion Batteries by Electrodeposition – T. Kitamura and S. Arai (Shinshu University)

130 Molecular Assembly of Porphyrin Derivative on a Substrate by Polymerization Reaction and Its Electrochemical Properties – A. Izumi, M. Ishizaki, K. Kanazikuma, M. Kurihara, and M. Sakamoto (Yamagata University)

131 Surface Modification of Vapor Grown Carbon Nanofibers by Plasma Treatment – D. Shimizu (Shinshu University), Y. Suzuki (Shinshu university), M. Endo, and S. Arai (Shinshu University)


135 Electrochemical Hybrid Capacitor Using Closest-Packed Ferrocene Terminated Monolayer on Carbon Electrode – Y. Sato, T. Kawaguchi, and K. Shimazu (Hokkaido University)

136 Electrochemical Properties of Zinc Oxide Electrodes Coated with Anion-Conducting Ionomer in Alkaline Solutions – Y. Lee, K. Miyazaki, T. Fukutsuka, and T. Abe (Kyoto University)

137 Field Emission Properties of Nickel/Carbon Nanotube Composite Films Electrodeposited from a Citrate Bath – S. Tanabe and S. Arai (Shinshu University)

138 Effects of Interferents on H2O2 Quantification by Electrochemical Reduction on IrO2 Electrodes – M. Ueda, T. Zhang, and M. Morimitsu (Doshisha University)

139 Electrochemical Features of Nanoporous Electrodes and Their Applications – J. Han, J. Bae, and T. Chung (Seoul National University)


142 Study on Deterioration of Electric Double-Layer Capacitor Cells – A. Haruta (Miyazaki – University), Y. Suenaga (Miyazaki University), D. Tashima (University of Miyazaki), T. Kawaji (UD Trucks Corporation), and H. Toyama (UD Trucks Corporation)

143 Electrochemical Construction of Pt Nanoparticles As a Catalyst for Oxygen Reduction Reaction – H. Aso, T. Wada, and T. Kondo (Ochanomizu University)

144 Segmented Electrode Developed for Complementary Use of Small-Angle Neutron Scattering Measurement – S. Ueda, K. Baba, M. Eguchi, Y. Kobayashi, S. Koizumi (Ibaraki University), and Y. Tsutsumi (FC Development Co., Ltd.)

145 Fundamental Research on Development of Novel Analysis Method for Hyaluronan Production with Use of Human Dermal Fibroblasts – M. Narukoa (Kanagawa Institute of Technology), Y. Nakamura (JUJU Cosmetics Co.), and Y. Iida (Kanagawa Institute of Technology)

146 Electrodeposition of Zn-Mg Alloy in Ethylene Glycol-ZnCl2-MgCl2 Non-Aqueous Solution – H. Yamamoto, M. Morishita, T. Miwa, and K. Isono (University of Hyogo)

147 Relaxation Structure Analysis for Li Inserted α-Fe2O3 – K. Takasu, S. Park, and T. Yao (Kyoto University)

148 GroEL Mutant Can Encapsulates Metal Nano Particles in Each Cavity – H. Yoda (Kanagawa Institute of Technology), O. Yamamoto (Yamagata University), and A. Koike-Takeshita (Kanagawa Institute of Technology)

149 EIS and CV Characteristics of Pt Cathode Catalyst in PEMFC – S. Kanazawa, E. Tada, A. Nishikata, and T. Tsuru (Tokyo Institute of Technology)

150 Pt-Loaded Carbon Nanofilament as an Electrocatalyst for Direct Methanol Fuel Cell – T. Toriyama, K. Nakagawa (Kansai University), T. Ando (National Institute for Materials Science), and H. Oda (Kansai University)

151 Fabrication of Sexithiophene/Ze(IV) Hybrid Thin Films and Their Photofunctional Properties – A. Kodaira, T. Harada (Toho University), C. Pac (Toho University, Korea University), H. Moriyama (Toho University), G. Sahara, T. Yui, and O. Ishitani (Tokyo Tech.)

152 Corrosion Behavior and Sacrificial Ability of Hot-Dip Al-Mg-Si Coated Steel – K. Chihara, Y. Kyo, E. Tada, A. Nishikata, and T. Tsuru (Tokyo Institute of Technology)

153 Morphology of Self-ordered Nano Oxide Coatings for Oxygen and Chlorine Evolution – N. Ohnishi, M. Matsuda, T. Zhang, and M. Morimitsu (Doshisha University)
• 154 Selection of B16 Melanoma Cells by Single Cell Manipulation and Analysis of Tyrosinase Gene Expression and Epigenetic Regulation – M. Hillary, K. Makoto, and Y. Iida (Kanagawa Institute of Technology)


• 156 Detailed Observation and Analysis of the Reaction Distribution in LiFePO4 Composite Electrodes – Y. Gogyo, H. Yamashige (Kyoto University), M. Katayama (Ritsumeikan University), Y. Orikasa (Kyoto University), Y. Inada, T. Ota (Ritsumeikan University), H. Arai, Y. Uchimoto, and Z. Ogumi (Kyoto University)

• 157 Metal-Semiconductor-Metal Photodetectors on Flexible Substrates – T. Oh, W. Shin, J. Park, S. Chang, K. Choi, H. Ha, K. Lee, and B. Ju (Korea University)


• 159 Surface Oxidization Diamond for Dye-Sensitized Solar Cell – M. Mori, K. Nakagawa (Kansai University), T. Andou (National Institute for Materials Science), and H. Oda (Kansai University)

• 160 Dynamics of Phase Transition in Li0xFePO4 Using Time-Resolved X-Ray Diffraction – T. Maeda, Y. Koyama, Y. Orikasa, H. Murayama, H. Tanida, H. Arai, E. Matsubara, Y. Uchimoto, and Z. Ogumi (Kyoto University)

• 161 Hydrogen Starvation Tests on PEMFCs Using Segmented Cell Hardware – M. Geymayer, A. Stadlhofer, and V. Hacker (Graz University of Technology)


• 164 Relaxation Phase Analysis of Li-Co-O Cathode for Secondary Lithium-ion Battery – S. Nagashima, S. Park, T. Iwai, and T. Yao (Kyoto University)

• 165 Evaluation of Corrosion Resistance of Galvanized Steel under Wet-Dry Cyclic Condition – T. Okazaki, E. Tada, A. Nishikata, and T. Tsuru (Tokyo Institute of Technology)

• 166 The Detection of Odor Vapors, H2S and CH2SH, by the Planar-Type Zirconia Sensor – Y. Nagai, M. Mori, and Y. Sadaoka (Ehime University)

• 167 Electrochemical Reaction Mechanism of FeS2 Cathode Material in AICl3 – EMIC Ionic Liquids – T. Mori, Y. Orikasa, K. Nakanishi (Kyoto University), T. Ohta (Ritsumeikan University), and Y. Uchimoto (Kyoto University)

• 168 ZrO2 coating Effect of LiCoO2 Thin-film Model Electrode prepared by PLD – S. Mori (Kyoto University), D. Takamatsu (Office of Society-Academia Collaboration for Innovation, Kyoto University), Y. Orikasa, Y. Koyama, H. Tanida (Kyoto University), T. Uruga (Japan Synchrotron Radiation Research Institute), H. Arai, Z. Ogumi, and Y. Uchimoto (Kyoto University)

• 169 Novel Gel Polymer Electrolytes Based on Ethylene Oxide Containing Block-Copolymers for Lithium-Ion Batteries – M. Schaefer (Institut für Physikalische Chemie WWU Münster), P. Isken (Westfälische Wilhelms-University Münster), M. Winter, S. Passerini (University of Münster), and A. Lex-Balducci (Westfälische Wilhelms-University Münster)

• 170 Phase Transformation Mechanism during Cycling of LiFeSiO4 – T. N. Masese, H. Arai, Y. Orikasa, T. Ina, C. Tassel (Kyoto University), K. Nakanishi, T. Ohta (Ritsumeikan University), K. Hiroshi, Y. Uchimoto, and Z. Ogumi (Kyoto University)

• 171 In Situ XAS Study on Effect of Platinum Catalyst on Cathodic Reaction in Nonaqueous Li – Air Batteries – J. Oyama (Graduate School of Human and Environmental Studies, Kyoto University), Y. Orikasa (Kyoto University), and Y. Uchimoto (Graduate School of Human and Environmental Studies, Kyoto University)

• 172 Bioelectrocatalytic Conversion of Atmospheric CO2 into Extracellular Organic compounds by Acidithiobacillus ferrooxidans – T. Ishi, T. Mogi (University of Tokyo), K. Hashimoto, and R. Nakamura (The University of Tokyo)

• 173 Newly Found Electrochemical Oscillations during Reduction of Nitrate ions – S. Yamamoto, Y. Mukouyama, R. Nakazato (Tokyo Denki University), S. Nakanishi (The University of Tokyo), and H. Okamoto (Tokyo Denki University)

• 174 Electrochemical and Surface Properties of Mg – Li Alloys – H. Endo, Y. Sugawara, I. Muto, and N. Hara (Tohoku University)

• 175 Evaluation of Influence of Activated Carbon on Plant Growth – K. Oino and Y. Iida (Kanagawa Institute of Technology)

• 176 Relaxation Structure Analysis for Li Inserted LiNi0.5Mn0.5Co0.5O2 Cathode Material – I. Seo, S. Park, and T. Yao (Kyoto University)

• 177 Performance Evaluation of an Anode-supported Honeycomb Solid Oxide Fuel Cell – A. Fukushima, H. Nakajima, and T. Kitahara (Kyushu University)

• 178 Synthesis of Co-Doped LaP2O7 by Precipitation in Phosphoric Acid Solutions – Y. Adachi, N. Hatada, T. Onishi, A. Kuramitsu, and T. Uda (Kyoto University)

• 179 Effect of Particle Size on the Relaxation of LiFePO4 Cathode – S. Park, K. Kameyama, and T. Yao (Kyoto University)

• 180 Electrical Performance Change by the Difference in the Production Methods of the Anode for SOFC – G. Watanabe, N. Takahashi, T. Takatsuka, and H. Fukunaga (Shimshu University)
Meeting Program  
PRIME 2012  
October 7-12, 2012  
Honolulu, Hawaii

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Structure and Electrochemical Properties of La$_2$Li$_2$(CO)$_3$O$_4$ with Layered Structure – M. Iqbal (Tokyo Institute of Technology), G. Kobayashi (Kanagawa University), H. Masaaki, R. Kanno (Tokyo Institute of Technology), and M. Yonemura (High Energy Accelerator Research Organization)

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Li-Air Battery Using Stabilized Acetonitrile Electrolyte – K. Furukawa, Y. Yamada, M. Yaegashi, F. Li (The University of Tokyo), H. Zhou (National Institute of Advanced Industrial Science and Technology), and A. Yamada (The University of Tokyo)

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Control of Growth Density of Multi-walled Carbon Nanotubes Array and Its Gas Sensing Properties – M. Omae (Ritsumeikan University), T. Hashishin (Joining and Welding Research Institute, Osaka University), K. Kojima, and J. Tamaki (Ritsumeikan University)

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A Novel Gas and Flow Sensor of Penetrating a Porous Polypropylene Nanofiber Mat – T. Jun and Y. Kim (hanyang University)

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Hydrogen in Platinum Films Electrodeposited from Dinitrosulfonatophlatinate Solution – N. Hisanaga (Graduate school of Engineering, University of Hyogo), N. Fukumuro, S. Yae, and H. Matsuda (University of Hyogo)

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Evaluation of Stress Condition of Operated Anode Supported-Type SOFC under Operating Conditions Based on Raman Scattering Spectroscopy – S. Onodera, M. Nagai, F. Iguchi, N. Sata, T. Kawada, and H. Yugami (Tohoku University)

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Development of Low-Temperature Operating Micro-SOFC with Perovskite-Type Proton Conductive Electrolytes – Y. Inagaki, F. Iguchi, K. Kubota, S. Tanaka, N. Sata, M. Esashi, and H. Yugami (Tohoku University)

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Study on Phase Diagram of Li-Rich Layered Li[(Li$_{0.5}$Ni$_{0.2}$Co$_{0.2}$Mn$_{0.5}$)$_2$O$_2$] – Y. Irii, G. Kobayashi, T. Kataoka, T. Ikehara, F. Matsumoto (Kanagawa University), A. Ito (Nissan Motor Co., Ltd.), Y. Ohzawa, M. Hatano (Nissan Motor Co., Ltd), and Y. Sato (Kanagawa University)

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Preparation and Photoluminescence Properties of Sn/Mn Phosphate Zirconium Phosphor – T. Nishizaki, S. Takase, and Y. Shimizu (Kyushu Institute of Technology)

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Synthesis and Electrochemical Properties of Organogel Electrolytes Based on Low Molecular Weight Molecules – M. Miura, A. Iuchi, Y. Morita, K. Kasatani, and H. Okamoto (Yamaguchi University)

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Electrochemical Characterization of Lanthanum Calcium Titanium Manganite as Potential Dual Electrode Material in Symmetrical Solid Oxide Fuel Cell – H. Yoon, J. Jou, and J. Chung (Pohang University of Science and Technology)

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Depth-Resolved XAFS Study on Surface Segregation of La$_{0.65}$Sr$_{0.35}$CoO$_{1.3}$ Electrode – S. Sakou, Y. Orikasa (Kyoto University), E. J.Crumlin (Mechanical Engineering Department,Massachusetts Institute of Technology), Y. Shao-Horn (Massachusetts Institute of Technology), K. Amezawa (Tohoku University), and Y. Uchimoto (Kyoto University)

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Single Crystal Silicon based Sensor-Transistor Circuit by Thin Film Transfer Process – S. Jeong, T. Oh, S. Chang, K. Choi, K. Lee, Y. Kim, H. Ha, and B. Ju (Korea University)

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Increasing Both Anodic and Cathodic Stability of Either-Based Electrolyte for Li-Air and Li-Ion Batteries – M. Yaegashi, Y. Yamada, S. Nishimura (The University of Tokyo), T. Abe (Kyoto University), and A. Yamada (The University of Tokyo)

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Solvant Extraction Using Microchannel System for High Purification of Silica – N. Matsuo, M. Matsu, Y. Fukunaka, and T. Homma (Waseda University)

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Control of the Morphology of Si Nanostructure Using Single-Step Metal Assisted Etching Method – T. Yamaguchi, T. Shimizu, F. Inoue, C. Wang, S. Otsuka, Y. Tada (Kansai University), M. Inada (Kansai Univeristy), and S. Shingubara (Kansai University)

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Maintaining Proper Hardness and Frictional Properties as a Noyanide Gold Bath is Aged – J.R. Pillars (Sandis National Laboratories) and W. Yelton (Sandia National Laboratories)

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Polyoxometalates in Asymmetric Supercapacitors – J. Suarez-Guevara, V. Ruiz, and P. Gomez-Romero (CIN2-CSIC)

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Electrochemical Construction and Characterizations of P-Copper(I) Oxide/N-Zinc Oxide Nano-Pillar Photovoltaic Device – T. Ohta, M. Kondo, J. Sasano (Toyohashi University of Technology), T. Shinagawa (Osaka Municipal Technical Research Institute), T. Pauporte (Centre National de la Recherche Scientifique), and M. Izaki (Toyohashi University of Technology)

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Effect of Dissolved Gas in an Ionic Liquid Electrolyte for Lithium and Lithium/Sodium Metal Anode – J. K. Stark and P. Kohl (Georgia Institute of Technology)

Room Temperature Fabrication of Crystalline Germanium Nanowires by Electrochemical Deposition and its Application as Li Ion Battery Anode – J. Gu, S. Collins, A. Carim, X. Hao, B. Bartlett, and S. Maldonado (University of Michigan)

Wet-Chemical Preparation of Li2.5A10.5Ti1.5(PO4)3 Lithium Ionic Ceramic Thin-Films – C. Kubo, R. Aono, S. Takase, and Y. Shimizu (Kyushu Institute of Technology)

Synthesis of Pt-Ir Catalysts by Coelectrodeposition: Application to Ammonia Electrooxidation in Alkaline Media – S. Le Vot (Université du Québec à Montréal), L. Roué (INRS-Énergie Matériaux et Télécommunications), and D. Béland (Université du Québec à Montréal)

Direct Evaluation of Oxygen Chemical Potential in an SOFC Cathode by In Situ Micro XAS – Y. Fujimaki, H. Watanabe, Y. Kimura, K. Amezawa (Tohoku University), Y. Terada (JASRI), S. Hashimoto, and T. Kawada (Tohoku University)

An Entirely Printed, Rechargeable Zinc-based Battery – Z. Wang, B. Kim, J. W. Evans, and P. K. Wright (University of California at Berkeley)

The effect of the Deposition Conditions on the Electrodeposition of Si Nanopillars in TMHATFSI – Y. Ishibashi, T. Akiyoshi, J. Izaki (Toyohashi University of Technology), S. Watase (Osaka Municipal Technical Research Institute), and M. Murata, J. Sasano (Toyohashi University of Technology, Institute of Technology)

Construction of Zinc Oxide/Phthalocyanine Hybrid Photovoltaic Device – R. Chizaki, K. Murata, J. Sasano (Tokyo University of Technology), T. Shinagawa (Osaka Municipal Technical Research Institute), S. Watase (Osaka Municipal Technical Research Institute), and M. Izaki (Toyohashi University of Technology)

Novel Surface Modification Technique Based on the Liquid Phase Deposition Using Solid Fluorine Scavenger – T. Hasegawa (Graduate School of Engineering, Kobe University), S. Matsumoto, and M. Mizuhata (Kobe University)

Electro-Oxidation of CO on Pt in Alkaline Media Studied by In Situ Surface-Enhanced Infrared Absorption Spectroscopy – J. Joo, T. Uchiha (Hokkaido University), M. T. Koper (Leiden University), and M. Osawa (Hokkaido University)

Ultra-Strong Silicon-Coated Carbon Nanotube Fabric as Multi-Functional Lithium Ion Battery Anodes – K. Evanoff, J. Benson (Georgia Tech), M. Schauer (Nanocomp), I. Kovalenko (Georgia Institute of Technology), D. Lashmore (Nanocomp), J. Ready (Georgia Tech), and G. Y. Yushin (Georgia Institute of Technology)


Variation of Crack Voltage in Anodic Aluminum Oxide/Aluminum Sheet for High Power LED Applications – H. Lee, H. Shin, and H. Lee (Korea Institute of Industrial Technology)

Visualization of Bubble Behavior in Water Electrolyzer with High-Speed Camera – Y. Maeda, S. Tsukamoto, and K. Ito (Kyushu University)

Memory Effect on Charge Storage in Layer-By-Layer Films of Rod-Shaped Multinuclear Complexes on Electrodes – T. Suzuki, T. Ryo, and M. Haga (Chuo University)

Nanoporous α-Alumina Membrane with High Chemical Resistance Prepared by Anodizing – T. Masuda, H. Asoh, and S. Ono (Kogakuin University)

Biocompatibility and Corrosion Resistance of Magnesium Coated with Hydroxyapatite using Alternative Immersion Method – D. Kobayashi, H. Asoh, and S. Ono (Kogakuin University)

Application of Argon (70) + Nitrogen (30) Plasma Coagulation in Swine Mucosa – K. K. Ou and M. Colley (Taipei Medical University)

Preparation of Flexible Micro-Glucose Sensor – T. Toba, N. Shiba, H. Matsu, K. Edagawa, and M. Yasuzawa (University of Tokushima)

Preparation of Nonspecific Adsorption Eliminating Surface Using Perhydropolysilazane – N. Shinsuke, K. Ikematsu, K. Rikitake, S. Nomoto, T. Koike (The University of Tokushima), and M. Yasuzawa (University of Tokushima)

Stability of Different Bis-Terpyridine Metal Cations under Alkaline Solution – Y. Liu, M. Liberatore, and A. Herring (Colorado School of Mines)


Positive-Tone, Aqueous-Developable, Polynorbornene Dielectric – B. K. Mueller, A. Grillo (Georgia Institute of Technology), E. Elce (Promerus LLC), and P. Kohl (Georgia Institute of Technology)

Fabrication of Nano-Structured (La, Sr)(Zn, Fe)O, Cathodes for Intermediate-Temperature SOFC – S. Hwang, J. Jang, G. Choi, S. Lee, O. Kwon, D. Lee (Daegu Gyeongbuk Institute of Science & Technology), S. Mukherjee, and S. Park (University of Louisville)

Shape Selective Formation and Growth of High Index Polyhedral Gold Nanoparticles and Their Activity to Oxygen Evolution – B. C. Solomon, F. Ke, and X. Zhou (University of South Carolina)

Study of Optical and Structural Properties of SRSN Fabricated by Cat-CVD below 200 °C – S. Kang, K. Keum, J. Park, T. Song, J. Kim, and W. Hong (University of Seoul)

The Structure, Thermal Expansion Property and Polymorphism of Solid Solution H3O$_x$W$_2$O$_7$ – X. Liu, G. Yu (Shanghai Institute of Technical Physics), and Y. Liu (China Institute of Atomic Energies)
**Nanotechnology General Session**
All Divisions / New Technology Subcommittee
313C, Level 3, Hawaii Convention Center

**Nanoparticles, Nanowires and Nanocomposite – 08:00 – 12:00**
Co-Chairs: Guoliang Xiao and Fanglin (Frank) Chen

- **08:00 232** Growth of Pt Subnano-Clusters on Surface Limited Areas of Prussian-Blue Nanoparticles – M. Ishizaki, S. Tsuruta, K. Kananizuka, M. Kurihara, and M. Sakamoto (Yamagata University)
- **08:20 233** Novel Synthesis Method of Copper Nanoparticles by Controlling Metal Complexes in Aqueous Solution – S. Yokoyama, H. Takahashi, and K. Tohji (Tohoku University)
- **08:40 234** Characterization Attributes of Metal Oxide Nanocomposites – M. Hockey, Q. Lin, and E. Calders (Brewer Science Inc.)
- **09:00 235** Fabrication and Optical Characteristics of Ordered Crystalline ZrO$_2$ Nanowires and Nanoporous Films on Glass – S. Chu, Y. Hitoshi (Iwate University), H. Segawa, S. Inoue, and K. Wada (National Institute for Materials Science)
- **09:40** Intermmission (20 Minutes)
- **10:00 237** Effects of Thermal Annealing on Conducting ZnO Nanowires: Conductor-To-Semiconductor Transition and Its Device Applications – P. Jeon, Y. Lee, R. Ha, H. Choi, and S. Im (Yonsei University)
- **10:40 239** Synthesis of Tailored Intermetallic Nanoparticles with Core-Shell Structure by Electrochemical Selective Phase Dissolution – G. Pigozzi (EMPA Swiss Federal Laboratories for Materials Science and Technology), D. Mukherji (Technical University Braunschweig), and P. Schmutz (EMPA Swiss Federal Laboratories for Materials Science and Technology)
- **11:00 240** Annealing-Induced Interfacial Fracture Energy of Silver Nanoparticle Films on Substrate for Reliable Printed Electronics – I. Lee, S. Kim, J. Yun, I. Park, and T. Kim (Kaist)
- **11:20 241** Atomistic Simulation Studies on Oxidation of Metal Nanoparticles – R. Subbaraman, S. A. Deshmukh, and S. Sankaranarayanan (Argonne National Laboratory)
- **11:40 242** Photoinduced Spectral and Morphological Changes of Single Plasmonic Silver Nanoparticles on TiO$_2$: Towards Single Particle Photochromism – T. Tatsuma and I. Tanabe (University of Tokyo)

**Characterization of Nanomaterials – 14:00 – 16:00**
Co-Chairs: Fanglin (Frank) Chen and Sirikanda Nuansaeng

- **14:00 243** Electrooptic Study of Charge Carriers in Aligned Liquid Crystalline Polymers Transistors via Polarized Charge Modulation Spectroscopy – M. Lee (Kookmin University), Z. Chen (Université Aix-Marseille III), J. Lee (Kookmin University), and H. Sirringhaus (University of Cambridge)
- **14:20 244** Use of Förster Resonance Energy Transfer (FRET) as a New Characterization Method for the Interface in Sustainable Nanocomposites – J. W. Gilman, M. Zammantal (National Institute of Standards and Technology), P. H. Maupin (U.S. Department of Energy), L. Sung, E. McCarthy, Y. S. Kim (National Institute of Standards and Technology), D. Fox (American University), A. J. Berro, and I. Sacui (National Institute of Standards and Technology)
- **14:40 245** Nanoimaging and Analysis of Localized Surface Plasmon-Induced Charge Separation and Application to Versatile Photochromism – E. Kazuma (The University of Tokyo) and T. Tatsuma (University of Tokyo)
- **15:00 246** Characterization of TiO$_2$ Particles Irradiated with N$_2$, Plasma by Newly Developed Plasma-Treatment System – K. Matsubara, M. Inoue, Y. Honda, and T. Abe (University of Toyama)
- **15:20 247** Mapping of Electrochemical Interfaces at Nanoscale Dimensions Using Atom Probe Tomography – A. C. Hillier and Y. Zhang (Iowa State University)

**Batteries and Energy Technology Joint General Session – In Honor of James McBreen**
Battery / Energy Technology
Coral 1, Mid-Pacific Conference Center, Hilton Hawaiian Village

**Li Battery Cell – 08:00 – 12:20**
Co-Chairs: Sanjeev Mukerjee and Manickam Minakshi

- **08:00** Memory of James McBreen (20 Minutes)
- **08:20 320** A Wonderful Life Dedicated to Energy Research In Memory of James McBreen – X. Yang, K. Nam (Brookhaven National Laboratory), S. Mukerjee (Northeastern University), M. Balasubramanian (Argonne National Laboratory), W. Yoon (Sungkyunkwan University), and K. Chung (Korea Institute of Science and Technology)
- **09:00 321** Recent Advances in Neutron Imaging for Battery Characterization – D. S. Hussey, J. Kahn, O. Zilecha, D. Jacobson (National Institute of Standards and Technology), B. Khaykovich (Massachusetts Institute of Technology), M. V. Guvarev (NASA), J. Gagliardo, and J. Owejan (General Motors Electrochemical Energy Research Laboratory)
09:20  322 Application of Synchrotron-Based X-Ray Techniques to Study Thermal Behavior of Electrode Materials for Lithium Rechargeable Batteries – W. Yoon (Sungkyunkwan University), K. Nam (Brookhaven National Laboratory), K. Chung (Korea Institute of Science and Technology), M. Balasubramanian (Argonne National Laboratory), D. Jang (Sungkyunkwan University), J. Hanson, and X. Yang (Brookhaven National Laboratory)

09:40 Intermission (20 Minutes)

10:00  323 Solid-State Batteries: A Fifty Year Perspective – B. B. Owens and O. Yamamoto (Mie University)

10:20  324 Rechargeable Lithium Battery Electrodes Using a Multifunctional Polymer Binder – A. E. Javier, S. N. Patel (University of California – Berkeley), and N. P. Balsara (Lawrence Berkeley National Laboratory)

10:40  325 An Empiric Approach to the Estimation of State of Charge of Lithium Cells and Range of an Electric Vehicle – G. Davolio, R. Giovanardi (Università di Modena e Reggio Emilia), and C. Lanciotti (KEMET Electronics Italia)

11:00  326 Designing Advanced Hybrid Materials for Rechargeable Lithium Batteries – Y. Guo (Chinese Academy of Sciences)

11:20  327 Substation Installations of Electrovaya’s MWh-Scale Lithium-Ion SuperPolymer Batteries for Smart Grid Applications – R. DasGupta (Electrovaya Inc.)


12:00  329 Polymer Gel Electrolytes for Lithium-Ion Batteries – M. Gnanavel, M. Patel, and A. J. Bhattacharyya (Indian Institute of Science)

Co-Chairs: A. K. Shukla and V. Battaglia

14:00  341 Enhancement of Li Insertion Capacity of Carbon Anode on the Basis of Faradaic Adsorption Combined with Nano-Ionics Mechanism – T. Takamura (Harbin Institute of Technology), J. Suzuki, K. Sumiya, and K. Sekine (Rikkyo University)

14:20  342 Microwave Synthesis of Graphene/Sn Nanocomposite Anodes for Lithium-Ion Batteries – F. R. Beck, R. Epur (University of Pittsburgh), A. Manivannan (U.S. Department of Energy), and P. N. Kumta (University of Pittsburgh)

14:40  343 Understanding Cycle Life Failure Mechansims in Graphite-Silicon Alloy Composite Electrodes by Electrochemical Calorimetry – L. J. Krause (3M Corporate Research Laboratory), L. Liu, L. Jensen (3M Co.), V. L. Chevrier (3M Corporate Research Laboratory), and J. Singh (3M Co.)

15:00  344 Tough Solid Composite Electrolytes to Enable Lithium Metal Anodes – W. E. Tenhaeff, K. A. Perry (Oak Ridge National Laboratory), E. Herbert (The University of Tennessee), S. Kalnaus, and N. J. Dudney (Oak Ridge National Laboratory)


Meeting Program - PRiME 2012 - October 7-12, 2012 - Honolulu, Hawaii

Meeting Program

Monday, October 8

Electrolyzer – 14:00 – 16:00
Co-Chairs: G. Botte and Kathy Ayers


14:20 348 Challenges in Water Electrolysis and Its Development Potential as a Key Technology for Renewable Energies – J. Mergel (Forschungszentrum Jülich) and D. Stolten (Forschungszentrum Jülich GmbH)

14:40 349 Electrochemical Modeling of Anode Supported Solid Oxide Electrolyzer Cells (SOEC) in Electrolysis of Carbon Dioxide – J. Njodzefon (Karlsruher Institute of Technology), A. Weber (Karlsruher Institut für Technologie), and E. Ivers-Tiffée (Karlsruhe Institute of Technology)

15:00 350 Novel Fluorine Doped Transition Metal Oxide (Ru,Sn,0:2:F) Oxygen Evolution Electro-Catalysts for Hydrogen Generation from PEM Based Water Electrolysis – K. Kadakia, M. Datta, O. Velikokhatnyi, and P. N. Kumta (University of Pittsburgh)


15:40 352 Synthesis of Active Fibrous Perovskite Catalyst and Its Application for Hydrogen Production – Y. Jeon, D. Park, M. Park, G. Lee (Yonsei University), J. Park (Kyushu University), and Y. Shul (Yonsei University)

Electrochemical Capacitors

Battery / Physical and Analytical Electrochemistry
South Pacific 4, Mid-Pacific Conference Center, Hilton Hawaiian Village

Pseudocapacitance I – 08:00 – 09:40
Co-Chairs: J. Long and W. Sugimoto

08:00 487 A Critical View on Graphene-Metal Oxide Based Electrochemical Supercapacitors – P. Gao (Institut Charles Gerhardt Montpellier), S. Baek, N. Pinna (Seoul National University), F. Moser, T. Brousse (University of Nantes), and F. Favier (Institut Charles Gerhardt Montpellier)

08:40 488 Tuning the Electrolytic Manganese Oxide/Graphene Oxide Nanocomposites for High-Energy Asymmetric Electrochemical Capacitors in Aqueous Electrolytes – K. I. Ozoemen (Council for Scientific and Industrial Research), C. J. Jafa (CSIR), M. K. Mathe (Council for Scientific and Industrial Research), and S. Chen (University of California)

09:00 489 Pseudocapacitive Behavior of Hierarchical Porous Carbide-Derived Carbon with Integrated Niobium Pentoxide Nanoparticles – V. Presser (Drexel University), E. Perre (University of California), M. Lukatskaya (Drexel University), B. Dunn (University of California), and Y. Gogotsi (Drexel University)

09:20 490 MnO2/Carbon Nanocomposite Electrode Prepared Via Molecular Bridging – C. Ramirez Castro (University of Nantes), R. Retoux (Université de Caen Basse-Normandie), A. Morel, O. Crosnier, L. Athouël, P. Guilemet, F. Moser, C. Martin (University of Nantes), D. Bélanger (Université du Québec à Montréal), and T. Brousse (University of Nantes)

Pseudocapacitance II – 10:00 – 12:00
Co-Chairs: F. Favier and J. M. Ko

10:00 491 Hydrous Ruthenium Oxide: A Pseudocapacitance Champ with Lessons of Relevance for the Redesign of Energy-Storage Architectures – D. R. Rolison (U.S. Naval Research Laboratory)

10:40 492 An Investigation of Nanostructured Thin Film α-MoO3 Based Supercapacitor Electrodes in an Aqueous Electrolyte – B. Mendoza Sanchez (University of Oxford), T. Brousse, C. Ramirez Castro (University of Nantes), V. Nicolosi, and P. Grant (University of Oxford)

11:00 493 Kinetic and Mass Transport Phenomena in Different Phases of Manganese Dioxide for Application in Electrochemical Capacitors – M. Dupont and S. W. Donne (University of Newcastle)

11:20 494 Transition Metal Nitrides Thin Films for Supercapacitor Applications – S. Bouhiyya (Université de Lorraine), R. Lucio-Porto, J. Ducros (Université de Nantes), P. Boulet, F. Capon (Université de Lorraine), T. Brousse (University of Nantes), and J. Pierson (Université de Lorraine)

11:40 495 New Developments in Colloidal Fabrication of Manganese Dioxide-Carbon Nanotube Electrodes of Supercapacitors – I. Zhitomirsky (McMaster University)

Pseudocapacitance III – 14:00 – 18:00
Co-Chairs: S.-G. Park and A. Balducci

14:00 496 Research on Conducting Polymer/Carbon Composite Supercapacitors: Toward Enhanced Cycle Stability and Power Performance – N. N. Wu and Y. Weng (National Taiwan University)

14:40 497 Polyaniline-MnO2 Nanocomposite Supercapacitor Electrodes Prepared by Galvanic Pulse Polymerization – G. Pandey and A. Rastogi (Binghamton University (SUNY))

15:00 498 Electrochemical Codeposition of Polyaniline and Tungsten Oxide for Supercapacitor – B. Zou and X. Liu (Northeastern University)

15:20 499 Aqueous Hybrid Capacitor Based on Doping/ Dedoping of Lithium- Ion into Conducting Polymer – J. Ahn (Korea Institute of Industrial Technology), Y. Shul (Yonsei University), and H. Kim (Korea Institute of Industrial Technology)

15:40 500 Binder Free Thick Electrodes of Polyaniline Nanofibers/ Multiwalled Carbon Nanotubes – M. Hyder, S. Lee, Y. Shao-Horn, and P. Hammond (Massachusetts Institute of Technology)
B4  Intercalation Compounds for Rechargeable Batteries
B5  Interfaces and Interphases in Battery Systems

Cathode I – 08:00 – 12:25
Co-Chairs: Christopher Johnson and Shirley Meng

08:00  Introductory Remarks (5 Minutes)
08:05  619  Iron and Manganese Based Cathode Materials for Electrochemical Energy Storage – K. J. Takeuchi, A. C. Marschik, and E. S. Takeuchi (Stony Brook University)
08:25  620  Electrochemical and Structural Properties of Li-Rich Layered Cathode Material Li$_{1.2}$Ni$_{0.2}$Mn$_{0.8}$O$_2$ – T. Sasakawa, Y. Harada, H. Inagaki, N. Takami (Toshiba Corporation), N. Kitamura, and Y. Idemoto (Tokyo University of Science)
08:45  621  Electrochemical Property of Nano Size Multiple Transition Metal Oxides Transformed from Layered Double Hydroxide – N. Sonoyama, S. Hayashi, T. Toba, and Z. Quan (Nagoya Institute of Technology)
09:05  622  Ion-Exchange Synthesis and Intercalation Process of Li$_{0.85}$Na$_{0.05}$Ni$_{0.2}$Mn$_{0.8}$O$_2$ Cathodes for Li-Ion Batteries – M. Slater, S. Rood, D. Kim, S. Kang, E. Lee, V. Maroni, D. Bass (Argonne National Laboratory), A. DeWahl, S. Hackney (Michigan Technological University), and C. S. Johnson (Argonne National Laboratory)
09:45  Intermission (20 Minutes)
10:45  624  Change of Local, Average and Electronic Structures, and Property by Heat-Treatment under Vacuum Reducing Condition and Charge-Discharge Process in Li$_{1.2}$Mn$_{0.8}$Ni$_{0.2}$O$_2$ – Y. Idemoto, T. Kashima, and N. Kitamura (Tokyo University of Science)
11:05  625  Surface Control and Multi-Composite Cathodes – A. Mauger (Université Pierre et Marie Curie), K. Zaghib (Institut de Recherche d’Hydro-Québec), H. Groult, and C. M. Julien (Université Pierre et Marie Curie)
11:25  626  Improvement in Electrochemical Performances of Li(Ni$_{0.75}$Mn$_{0.25}$O$_2$ Upon Cycling and Storage – J. Kim (Mitsubishi Chemical Group Science and Technology Research Center Inc.)
11:45  627  Structural and Electrochemical Properties of LiNi$_{0.75}$Co$_{0.25}$Mn$_{0.05}$O$_2$ Positive Electrode Material Modified by Coating with Al Oxides (2) – Y. Sasaki (Hitachi Maxell Energy, Ltd.), Y. Kikuzono (Research Institute for Ubiquitous Energy Devices, AIST, 1-8-31, Midorigaoka, Ikeda, Osaka 563-8577 Japan), N. Fuku (Research Institute for Ubiquitous Energy Devices, AIST, 1-8-31, Midorigaoka, Ikeda, Osaka 563-8577 Japan), N. Taguchi (National Institute of Advanced Industrial Science and Technology (AIST)), K. Araki, K. Okamura (Kyoto University), K. Kojima, F. Kita (Hitachi Maxell Energy Ltd.), T. Takeuchi, H. Sakaeb, K. Tatsumi (National Institute of Advanced Industrial Science and Technology (AIST)), and Z. Ogumi (Kyoto University)

Computation – 14:00 – 16:00
Co-Chairs: Katsuyo Thornton and Yukinori Koyama

14:00  629  Simulations of Charge-Discharge Processes in an Intercalation Compound at the Nanoscale – B. Orvananos (University of Michigan), H. Yu (University of Michigan), R. Malik (Massachusetts Institute of Technology), C. P. Grey (University of Cambridge), G. Ceder (Massachusetts Institute of Technology), and K. Thornton (University of Michigan)
15:00  630  First-Principles Calculations on Defect Chemistry in Layered Lithium Transition-Metal Oxides – Y. Koyama, H. Arai, T. Tanaka, Y. Uchimoto, and Z. Ogumi (Kyoto University)
15:40  631  First-Principles Study of Two-Phase Interface in LiFePO$_4$ – Y. Asari, Y. Suwa, T. Hamada (Hitachi, Ltd.), Y. Dinh, J. Nara, and T. Ohno (National Institute for Materials Science)
15:20  632  Design Criteria for Electrochemical Shock Resistant Battery Electrode Particles – W. H. Woodford, W. Carter, and Y. Chiang (Massachusetts Institute of Technology)
16:00  633  Electronic Model of Intercalation of Alkaline Ions into Transition Metal Oxides – J. Molenda (AGH University of Science and Technology)

B5  Interfaces and Interphases in Battery Systems

Interfaces and Interphases in Battery Systems I – 08:00 – 12:00
Co-Chairs: Robert Kostecki and Jason Graetz

08:00  718  Studies on Reactions and Structures at Electrode/Electrolyte Interface Using Epitaxial Model Electrodes – R. Kanno, M. Hirayama (Tokyo Institute of Technology), and K. Tamura (Japan Atomic Energy Agency)
08:40  719  In Situ XAS and XRD Studies on Electrode/Electrolyte Interface of Li$_2$O Thin-Film Electrode – D. Takamatsu, S. Mori, K. Shimada, Y. Orikasa, T. Kawaguchi, H. Murayachi (Kyoto University), T. Hirano (Hitachi, Ltd.), M. Sato (JASRI/SPring-8), H. Tanida, Y. Koyama, H. Arai, E. Matsuura, Y. Uchimoto, and Z. Ogumi (Kyoto University)
09:00  720  Revealing Positive Electrode Oxide Changes on Electrochemical Cycling by In Situ Electron Microscopy – D. J. Miller, C. Proff, J. Wen, and D. P. Abraham (Argonne National Laboratory)
09:40  Intermission (20 Minutes)
10:00  722  Advanced Characterization and First Principles Modeling of Surface and Interfaces of Lithium Intercalation Compounds – Y. Meng (University of California San Diego)
11:00  724  In Situ Atomic Force Microscopy Studies of Surface Layer Formation on LiMnO₂ Thin Films – N. Missett, R. Garcia, and J. M. Rivera (Sandia National Laboratories)

11:20  725  The Effect of ZrO₂ Coating on Nano Size LiCoO₂ Cathode for Lithium-Ion Batteries – Y. Kusachi, T. Shimizu, Y. Orikasa, and Y. Uchimoto (Kyoto University)

11:40  726  Phosphate-Based Additives for High Voltage Li-Ion Batteries and Their Derivatives – A. V. Cresce (U. S. Army Research Laboratory) and K. Xu (U. S. Army Research Laboratory)

Interfaces and Interphases in Battery Systems II – 14:00 – 16:00

Co-Chairs: Bor Yann Liaw and Shirley Meng

14:00  727  Two-Layer/Two-Mechanism Model of Li-Ion Diffusion in Solid Electrolyte Interphase – S. Shi (Brown University), Y. Qi (General Motors R&D Center), P. Lu (Trison Business Solution Inc.), Z. Liu (General Motors), L. G. Hector Jr., and S. J. Harris (General Motors R&D Center)

14:40  728  Effect of Graphite Orientation on Solid-Electrolyte-Interphase Formation and Characterization – M. Tang (Lawrence Berkeley National Laboratory), K. Miyazaki (Kyoto University), J. Newman (University of California, Berkeley), and T. Abe (Kyoto University)

15:00  729  Real-Time Dynamics during Recharging Cycles – J. Keist, B. El Dasher, S. Torres (Lawrence Livermore National Laboratory), J. W. Evans, P. K. Wright (University of California at Berkeley), F. Ross (IBM Watson), D. Steingart (City College New York), and C. Orme (Lawrence Livermore National Laboratory)

15:20  730  Simultaneous Coupling of Kinetic Monte-Carlo Simulations with Continuum Models to Examine Capacity Fade – P. Northrop (Washington University), R. Braatz (Massachusetts Institute of Technology), and V. Subramanian (Washington University)

15:40  731  Diffusion Limitations of the Liquid Metal Battery – G. A. Thompson, S. A. Barriga, U. P. Muecke, and D. R. Sadoway (Massachusetts Institute of Technology)


08:40  775  Phase Transition Study of LiFePO₄ Nanowires in Li-Ion Battery – J. Niu, A. Kushima, L. Qi (Massachusetts Institute of Technology), J. Huang (Sandia National Laboratories), and J. Li (Massachusetts Institute of Technology)

09:00  776  Thermal Stability of Binary Olivine LiₓFe₁₋ₓO₁₋ₓₐₓ,₂MnₓPO₄ [0 ≤ x, y ≤ 1] for Li Rechargeable Battery – J. Kim, K. Park, I. Park (Seoul National University), J. Yoo (KAIST), J. Hong, and K. Kang (Seoul National University)

09:20  777  A Novel Double-Structured LiMn₁₋ₓFeₓ₁₋ₓPO₄ LiFePO₄ Core-Shell Materials for Rechargeable Lithium-Ion Batteries – S. Oh (Hanyang University), S. Myung (Sejong University), J. Park (Hanyang University), B. Scrosati (University of Rome Sapienza), K. Amine (Argonne National Laboratory), and Y. Sun (Hanyang University)

Monday, October 8

Lithium-Ion Batteries: Alternative Chemistries – 08:00 – 09:40

Co-Chairs: Yong Yang and Faisal Alamgir

08:00  778  3D Nanoporous Current Collectors for Advanced Thin Film Microbatteries – S. Gowda, A. Reddy, and P. Ajayan (Rice University)

08:20  779  High Energy Cells: Lithium-Sulfur and Lithium-Sulfur-Silicon – M. Hagen (Fraunhofer ICT), S. Dörfler (Fraunhofer IWS), E. Quiroga-González (Christian-Albrechts-University of Kiel), H. Althues (Fraunhofer IWS), J. Tübke (Fraunhofer ICT), and H. Föll (Christian-Albrechts-University of Kiel)

08:40  780  Effect of Initial Sulfur Morphology on Capacity and Cycle-Life of Lithium-Sulfur Batteries – H. Jha, A. Eberle, S. Eckstein, H. A. Gasteiger (Technische Universität München), C. Poggi, and O. Gröger (Volkswagen Aktiengesellschaft, D-38436 Wolfsburg, Germany)

09:00  781  Large Self-Weaving Sulfur-MWCNT Composite Cathodes for High Rate Lithium-Sulfur Batteries – Y. Su and A. Manthiram (The University of Texas at Austin)

09:20  782  Hollow Carbon Balls-Sulfur Composite in Advanced Configuration Lithium Battery – D. Lee (Hanyang University), J. Hassoun (University of Rome Sapienza), J. Park (Hanyang University), B. Scrosati (University of Rome Sapienza), and Y. Sun (Hanyang University)

Lithium-Ion Batteries: Cathodes I (Lithium Metal Phosphate Systems) – 10:00 – 12:00

Co-Chairs: Vince Battaglia and Gao Liu

10:00  783  Experimental Observation of Coherent Strain Effects on Phase Separation in LiFePO₄ Electrode – K. Tokuda, T. Kawaguchi, T. Ichitsubo, E. Matsubara, K. Fukuda, Y. Uchimoto, and Z. Ogumi (Kyoto University)

10:20  784  Hydro Thermal Synthesized LiFePO₄ Modified by LiₓPₓOᵧ and Carbon Coatings – J. Chong, S. Xun, X. Song, G. Liu, and V. Battaglia (Lawrence Berkeley National Laboratory)
10:40  785  Comparison of Charge Transfer Resistance for Different LiFePO₄-Electrodes – J. Illig, M. Ender, and E. Ivers-Tiffée (Karlsruhe Institute of Technology (KIT))

11:00  786  A Comparative Study on AₓMnPO₄F (A = Na and Li) Cathodes for Rechargeable Batteries – S. Kim (State University of New York at Stonybrook), D. Seo, H. Kim, K. Park, H. Kim, and K. Kang (Seoul National University)

11:20  787  Olivine Type Cathodes for Stationary Lithium-Ion Batteries – D. Choi, Y. Choi, Q. Huang, W. Wang, J. Liu, J. Zhang, L. Pederson, and V. Sprekle (Pacific Northwest National Laboratory)

11:40  788  Nanosized Effect on Charge-Discharge Property of LiMnP₀₄ Embedded in Porous Carbons – S. Aono, K. Urita, H. Yamada, and I. Moriguchi (Nagasaki University)

**Coral 4, Mid-Pacific Conference Center, Hilton Hawaiian Village**

**Lithium Batteries: Alternative Chemistries – 10:00 – 12:00**

**Co-Chairs: Faisal Alamgir and Yong Yang**

10:00  789  Synthesis and Characterization of Hybrid Organic-Inorganic Composite Electrodes for Li-Based Batteries – C. M. Lopez (CIC Energigune), P. Sánchez-Fontecoba (University of the Basque Country), S. Pérez-Villar, V. Roddatis, and T. Rojo (CIC Energigune)

10:20  790  Modeling Failure due to Redistribution in Lithium-metal Batteries – A. Ferrese (UC Berkeley) and J. Newman (University of California, Berkeley)

10:40  791  Solid State Fluoride Ion Batteries – A. Munnangi, R. Witter, and M. Fichtner (Karlsruhe Institute of Technology)

11:00  792  Rechargeable, Lithium-ion Molten Salt Battery for High Temperature Applications – J. Caja (Electrochemical Systems, Inc.), T. J. Dunstan (Electrochemical Systems, Inc.), and M. Caja (Electrochemical Systems, Inc.)

11:20  793  Fabrication of Liₓ₀.₅Ti₂₀.₅O₄ Electrode for All-Solid-State Lithium-Ion Rechargeable Batteries Using a Novel Flux Coating Method – H. Kojima, K. Teshima, H. Wagata, Y. Mizuno, and S. Oishi (Shinshu University)

11:40  794  In Operando, Naked, and Hot: High Temperature Batteries Without Packaging – C. F. Petersburg, K. Bogaert, and F. M. Alamgir (Georgia Institute of Technology)

**Coral 3, Mid-Pacific Conference Center, Hilton Hawaiian Village**

**Lithium-Ion Batteries: Cathodes I (Lithium Metal Phosphate Systems) – 14:00 – 15:40**

**Co-Chairs: Linda Nazar and Stefano Passerini**

14:00  795  (ECS Battery Division Research Award) High Capacity Intercalation Materials for Li-Ion and Na-ion Batteries – S. Passerini (University of Münster)

14:40  796  Improvement of Battery Performances of LiCoPO₄ as Cathode Material for Lithium Ion Batteries – J. Yoshida, S. Nakanishi, and H. Iba (Toyota Motor Corporation)

15:00  797  Combined First-Principle Calculations and Experimental Study of Doping Effect in LiFe₀.₉₅M₀.₀₅PO₄ (M = Na, Mg, Zn, Mn, Ni) – Z. Wang, L. Yuan, and Y. Huang (Huazhong University of Science and Technology)

15:20  798  Lithium Iron Phosphate Wired by Carbon Nanotubes for High Rate Capability Lithium-ion Batteries – A. J. Bhattacharyya and M. Gnanavel (Indian Institute of Science)

**Coral 4, Mid-Pacific Conference Center, Hilton Hawaiian Village**

**Lithium-Ion Batteries: Cell Design Aspects – 14:00 – 15:40**

**Co-Chairs: Gen Inoue and Jan Prochazka**


14:20  800  Advances in 3D Lithium Battery Technology – J. Prochazka (HE3DA, Ltd)

14:40  801  High Power 3D Lithium Battery – J. Prochazka (HE3DA, Ltd)

15:00  802  Lithium Ion Batteries: 3-D Multi-scale Tomography – F. Tarig (Imperial College London), P. Shearing (University College London), V. Yufit (Imperial College London), J. Gelb (Xadria Inc), R. Bradley, P. Withers (University of Manchester), and N. Brandon (Imperial College London)

15:20  803  Effect of Binder Distribution in LIB Electrode on Mass Transport Performance – G. Inoue (Kyoto University), T. Matsuoka, Y. Matsukuma, and M. Minemoto (Kyushu University)

**B7 Metal-Air Batteries**

**Battery / Energy Technology / Fullerenes, Nanotubes, and Carbon Nanostructures**

**Nautilus 1, Mid-Pacific Conference Center, Hilton Hawaiian Village**

**Air Electrode – 08:00 – 11:40**

**Co-Chairs: Jie Xiao and Fanny Barde**

08:00  1099  (Invited) Metal-Air Batteries: A Reality Check – S. Whittingham (SUNY)

08:40  1100  Very High Specific Surface Area Capacity Lithium-Air Battery – P. Stevens, G. Toussaint (Electricité de France), P. Vinatier, and L. Puéch (Université de Bordeaux)

09:00  1101  A Versatile Composite Electrode Design for Metal-Air Batteries – A. C. Marschilok, E. S. Takeuchi, and K. J. Takeuchi (Stony Brook University)

09:20  1102  Comparison of Air Cathodes and Aluminium Anodes for High-Power Density Alkaline Aluminium-Air Batteries – D. MacAodhagáin, C. Ponce-de-Leon-Albarran, R. J. Wood (University of Southampton), K. R. Stokes (DSTL, UK), and F. C. Walsh (University of Southampton)

09:40  Intermission (20 Minutes)
10:00 1103 (Invited) Cycling Stability and Charging Behavior of Carbon Nanotube Electrodes for Li-O2 Batteries – B. M. Gallant, R. R. Mitchell, C. V. Thompson, and Y. Shao-Horn (Massachusetts Institute of Technology)

10:40 1104 N-Doped Graphene Nanosheet for Li-Air Fuel Cell under Acidic Conditions – E. Yoo (Advanced Industrial Science And Technology), J. Nakamura (University of Tsukuba), and H. Zhou (National Institute of Advanced Industrial Science and Technology)

11:00 1105 Structure of Li2O2 Discharge Products on Free-Standing Aligned Carbon Nanotube Electrodes for Li-Air Batteries – R. R. Mitchell, B. M. Gallant, Y. Shao-Horn, and C. V. Thompson (Massachusetts Institute of Technology)

11:20 1106 Graphene and N-Doped Graphene as Cathodes for Li-Air Batteries – Y. Li, J. Wang, X. Li, D. Geng, R. Li, and X. A. Sun (University of Western Ontario)

**Reaction Mechanism – 13:00 – 15:30**

**Co-Chairs: Yang Shao-Horn and Nobuyuki Imanishi**

13:00 1107 (Invited) Promoting Ideal Reaction Processes in the Rechargeable Non-Aqueous Li-Air Battery – F. Bardé (Toyota Motor Europe), Y. Chen, S. A. Freunberger, and P. Bruce (University of St. Andrews)

13:30 1108 (Invited) Fundamental Electrochemistry in Non-Aqueous Li-air – B. McCloskey (IBM Research), A. Speidel, R. Scheffler (Volkswagen of America), V. Viswanathan, J. S. Hummelshøj, J. K. Nørskov (Stanford University), and A. Luntz (IBM Almaden Research)

14:00 1109 (Invited) Metal-Air Technologies-- Reversibility of Zinc Electrode – J. Yamaki, A. Nakata, T. Yamane, T. Hirai, and Z. Ogumi (Kyoto University)

14:30 1110 Electrochemistry of Cathode Materials for Lithium-Oxygen Batteries Using Microelectrode Voltammetry – E. Nemanick (The Aerospace Corporation)

14:50 1111 Decomposition Kinetics of Li-Air Cell Discharge Products in Non-Catalyzed and Catalyzed Carbon Cathodes – S. Meini (Technische Universität München), H. Beyer, N. Tsioquaras, M. Piana (Technical University Munich), and H. A. Gasteiger (Technische Universität München)


**Non-Aqueous Electrolytes for Lithium Batteries**

**Battery / Energy Technology / Physical and Analytical Electrochemistry**

**South Pacific 3, Mid-Pacific Conference Center, Hilton Hawaiian Village**

**Solid Electrolytes, Ceramic 1 – 08:00 – 09:40**

**Co-Chairs: Dr. Ue and Dr. Hayashi**

08:00 1188 Development of Sulfide Glass Electrolytes for All-Solid-State Lithium Batteries – A. Hayashi and M. Tatsumisago (Osaka Prefecture University)

08:40 1189 Suppression of H2S Gas from Li2S-P2S5 Glass Electrolytes by the Addition of Li2O – T. Ohtomo, K. Kawamoto (Toyota Motor Corporation), A. Hayashi, and M. Tatsumisago (Osaka Prefecture University)

09:00 1190 New Lithium Superionic Conductor and Its Application to All Solid-State Batteries – R. Kanno, M. Hirayama (Tokyo Institute of Technology), M. Yonemura (High Energy Accelerator Research Organization), Y. Kato, and K. Kawamoto (Toyota Motor Corporation)

**Solid Electrolytes, Ceramic 2 – 10:00 – 12:00**

**Co-Chairs: Dr. Kanno and Dr. Takada**


10:40 1192 Enlarged Lithium-Ions Migration Pathway by Substitution of B+++ for P5+++ in Li3PS4 – K. Homma, T. Yamamoto, S. Watanabe, and T. Tanaka (Fujitsu Laboratories Ltd.)

11:00 1193 First Principles Investigations of the Li2GePS3 Superionic Conductor and Related Materials – S. Ong, Y. Mo, W. D. Richards, and G. Ceder (Massachusetts Institute of Technology)

11:20 1194 First-Principles Molecular Dynamics Simulations for Li+ Diffusion in Li2PO4 and Li3PS4 Electrolytes – M. Ikeda, T. Yamasaki, C. Kaneta, K. Homma, T. Yamamoto, and T. Tanaka (Fujitsu Laboratories Ltd.)

11:40 1195 Analysis of Lithium-Ion Conduction in LISICON-Based Solid Electrolytes by First-Principles Molecular Dynamics Simulation – K. Fujimura, A. Kuwabara, H. Moriwake (Japan Fine Ceramics Center), A. Seko, Y. Koyama, and I. Tanaka (Kyoto University)

**Solid Electrolytes, Ceramic 3 – 14:00 – 16:00**

**Co-Chairs: Dr. Takada and Dr. Kanno**

14:00 1196 Research on Electrode-Electrolyte Interfaces of Innovative New Generation Batteries – F. Mizuno (Toyota Research Institute of North America) and H. Iba (Toyota Motor Corporation)

14:40 1197 The Preparation of Li3La2Zr2O12 by Sol-Gel Method and Its Electrochemical Performance – T. Nishioka, J. Wakasugi, N. Saito, H. Munakata, and K. Kanamura (Tokyo Metropolitan University)

15:00 1198 Flux Growth of Idiomorphic Garnet-Type Solid Electrolyte Crystals for All-Solid-State Lithium-Ion Rechargeable Batteries – H. Onodera, K. Teshima, H. Wagata, Y. Mizuno (Shinshu University), K. Yubuta, T. Shishido (Tohoku University), and S. Oishi (Shinshu University)

15:20 1199 High Lithium-Ion Conducting Garnet-type Oxide; Li1-xLa3-yAl2Zr2-x,10Nb2O12 (A = Alkali Earth Metals) – Y. Kihira, S. Ohta, H. Imagawa, and T. Asaoka (Toyota Central R&D Labs., Inc.)
Polymer Electrolyte Fuel Cells 12 (PEFC 12)
Energy Technology / Corrosion / Physical and Analytical Electrochemistry / Battery / Industrial Electrochemistry and Electrochemical Engineering
Tap 2, Tap 2 Conference Center, Hilton Hawaiian Village

Plenary Session – 14:00 – 16:00
Co-Chairs: Deborah Jones and Vijay Ramani

14:00 1279 Ionomer in the Catalyst Layer – S. Holdcroft (Simon Fraser University)


15:20 1281 Development of Highly Active and Durable Pt Core-Shell Catalysts for Polymer Electrolyte Fuel Cells – M. Inaba and H. Daimon (Doshisha University)

Renewable Fuels from Sunlight and Electricity
Energy Technology / High Temperature Materials / Physical and Analytical Electrochemistry / New Technology Subcommittee
Nautilus 2, Mid-Pacific Conference Center, Hilton Hawaiian Village

Keynote Speech on Solar Fuels – 08:10 – 12:00
Co-Chairs: Nick Wu and Kazunari Domen

08:10 Introductory Remarks (10 Minutes)

08:20 1719 Hydrogen Production from Photoelectrochemical Cells: Economic and Theoretical Considerations and Experimental Results – J. A. Turner (National Renewable Energy Laboratory)


09:40 Intermission (20 Minutes)

10:00 1721 Materials for Photocatalytic and Photoelectrochemical Water Splitting – A. Kudo (Tokyo University of Science)

10:40 1722 Solar Energy Conversion and Environmental Remediation Using Semiconductor-Liquid Interfaces: Design Paradigms for the Photocatalyst Material and Progress Update – K. Rajeshwar (The University of Texas)

11:20 1723 Solar Energy Materials for High Efficiency Photoelectrochemical Sensitized Solar Cell – N. Park (Sungkyunkwan University)

New Materials for Photocatalysts & Photoelectrochemical Cells – 14:00 – 16:00
Co-Chairs: Pawel Kulesza and Ravi Subramanian

14:00 1724 Photoelectrochemical Energy Conversion Using Earth-Abundant Semiconductor Nanomaterials – S. Jin (University of Wisconsin-Madison)

14:30 1725 All-Oxide Quantum-Confined Heteronanostructures for Solar Hydrogen Generation – L. Vayssieres (Xi’an Jiaotong University)

15:00 1726 Plasmon-Enhanced Photocatalytic Activity of Metal/Metal Oxide Composites – S. Cushing, J. Li, A. Bristow, and N. Wu (West Virginia University)

15:20 1727 Photooxidation of Water at Nanostructured Hybrid Materials Utilizing Polyoxometallate-Decorated Tungsten Oxide and Gold Nanoparticles – P. J. Kulesza, R. Solarska, K. Miecznikowski, S. Zoladek (University of Warsaw), and S. Fiechter (Helmholtz Zentrum)

15:40 1728 Plasmonic-Enhancing Efficiency of Water Splitting in Au/Quantum Dots Sensitized ZnO Nanowires-Array Photoelectrodes – R. Liu, H. Chen, C. Chen, D. Tsai (National Taiwan University), and S. Hu (National Taiwan Normal University)
Ion Conducting Thin Film Electrolytes – 09:00 – 12:00
Co-Chairs: Eric Wachsman and John Kilner

09:00 1879 Innovative Oxides Materials for Electrochemical Energy Conversion – E. D. Wachsman (University of Maryland)

09:40 1884 Intermission (20 Minutes)

10:00 1880 Study of Crystal Growth in Oxide Thin Films Fabricated by Pulsed Laser Deposition – N. Sata, S. Tamura, Y. Fujiwara, Y. Shibata, F. Iguchi, H. Yugami (Tohoku University), Y. Nagao (JAIST), H. Kageyama, and K. Nomura (AIST Kansai)

10:40 1881 Probing Pr0.56Ce0.44O2–δ Thin Film Defect Concentrations Using In Situ Optical Absorption and Impedance Spectroscopy Techniques – S. R. Bishop (Kyushu University), D. Chen, J. Kim, N. Thompson, and H. L. Tuller (Massachusetts Institute of Technology)

11:00 1882 Metastable Thin Films for Energy Applications: On Structural Lattice Anomalies and Electrical Transport – J. L. Rupp, S. Bishop (Massachusetts Institute of Technology), E. Fabbri (Paul Scherrer Institute), J. Han (Massachusetts Institute of Technology), D. Marrochelli (Trinity College Dublin), E. Traversa (National Institute for Materials Science), H. L. Tuller, and B. Yildiz (Massachusetts Institute of Technology)


11:40 1884 Ion Conduction in BaZr0.85Y0.15O3-δ Films Fabricated by Pulsed Laser Deposition in Various Conditions – D. Jang, K. Bae, and J. Shim (Korea University)

Ion Conducting Thin Film Multilayers – 14:00 – 18:00
Co-Chairs: Enrico Traversa and Shu Yamaguchi

14:00 1885 Do Oxygen-Ion Conductors Feel the Strain – D. Pergelesi (National Institute for Materials Science), E. Fabbri (Paul Scherrer Institute), S. N. Cook (Imperial College London), V. Roodtaxis (CIC Energigene), E. Traversa (University of Roma Tor Vergata), and J. A. Kilner (Imperial College London)

14:40 1886 Epitaxial Zirconia and Ceria Based Thin Films and Multilayers with Arbitrary Composition – W. Shen, J. Jiang, and J. L. Hertz (University of Delaware)

15:00 1887 Electric Conductivity in Cu- and Ga-Doped Pr2NiO7 Nano Film Laminated with Sm-Doped CeO2 – J. Hyodo and T. Ishihara (Kyushu University)

15:20 1888 Electronic Activation in the (La0.8Sr0.2)2CoO/(La0.8Sr0.2)2CoO2 Superlattices at High Temperature – Y. Chen, Z. Cai, Y. Kuru, H. L. Tuller, and B. Yildiz (Massachusetts Institute of Technology)

15:40 1889 Low Energy Ion Scattering (LEIS) Analysis of SrTiO3 (100) and NdGaO3 (110) Single Crystal Surface Terminations – A. Cavallaro (Imperial College, London) and J. A. Kilner (Imperial College London)

Bioengineering Based on Electrochemistry
Organic and Biological Electrochemistry / Sensor
324, Level 3, Hawaii Convention Center

Co-Chairs: K. Sode, H. Nam, J. Choi, and E. Tamiya

08:00 1999 Electrochemical-Based Bioprocessing Device Composed of Recombinant Protein/DNA Conjugate – J. Choi (Sogang University)

08:40 2000 Fabrication of Multilayer Cell Structure Using Electro-Deposited Alginate Gel – F. Ozawa, K. Ino, H. Shiku, and T. Matsue (Tohoku University)

09:00 2001 Metabolism Feature of Multicellular Tumor Spheroids Assessed by a Comprehensive System – Y. Zhou, T. Arai, Y. Horiguchi, K. Ino, H. Shiku, and T. Matsue (Tohoku University)

09:20 2002 Development of Voltage Switching Mode Scanning Electrochemical Microscopy for Topographical and Electrochemical Nanoscale Imaging of Living Cells – Y. Takahashi (Tohoku University), A. I. Shevchuk (University of Southampton), P. Novak (Imperial College London), Y. Matsumae (Tohoku University), B. Babakinejad (Imperial College London), J. V. Macpherson, P. R. Unwin (University of Warwick), K. Ino, H. Shiku, and T. Matsue (Tohoku University)

09:40 2003 Electrochemically Modulated Release of Nitric Oxide through Polymers to Inhibit Bacterial Biofilm Formation and Prevent Platelet Activation – M. E. Meyerhoff, L. Höfler, D. Koley, H. Ren, T. C. Major, J. Wu, and C. Xi (University of Michigan)

10:00 2004 Engineering of Catalytic Domain of Cellobiose Dehydrogenase and Its Application for the Direct Electron Transfer Type Enzyme Electrode – S. Ando, S. Ferri, W. Tsugawa, and K. Sode (Tokyo University of Agriculture and Technology)

11:00 2005 Aptameric Sensor for Detection of VEGF Based on Labeling Technique Using GDH Fused Zinc Finger Protein – A. Tatsumi, K. Abe, T. Fukaya, K. Sode, and K. Ikebukuro (Tokyo University of Agriculture and Technology)

11:20 2006 Evolution of Cathodic Characteristics (Water and Oxygen Transport) in Microbial Fuel Cell (MFC) – C. Santoro, M. Cremins, A. Mackay, U. Pasassogullari (University of Connecticut), M. Guizzioni, A. Casalegno (Politecnico di Milano), and B. Li (University of Connecticut)
New Synthetic and Mechanistic Approaches to Molecular Electroorganic Chemistry
Organic and Biological Electrochemistry
306B, Level 3, Hawaii Convention Center

Co-Chairs: S. Nishiyama and S. Suga

10:00 2066 Anodic Oxidation of gem-Diaryl Ketones in the Presence of Alcohols – A. J. Fry and B. Sheludko (Wesleyan University)

10:20 2067 Oxidative Dechlorination of Chlorinated Organic Compound Catalyzed by Vitamin B_{12}-TiO_{2} – H. Shimakoshi and Y. Hisaeda (Kyushu University)

10:40 2068 Controlling and Improvement of Electrosynthetic Reaction by Using Microreactor: Application to Intermolecular Coupling Reaction of Phenol Derivatives – T. Kashiwagi (Tokyo Institute of Technology), S. R. Waldvogel (University of Mainz), and M. Atobe (Tokyo Institute of Technology)

11:00 2069 Site-Controlled Modification of Conducting Polymer Films Based on Bipolar Electrochemistry – S. Inagi, Y. Ishiguro, and T. Fuchigami (Tokyo Institute of Technology)

11:20 2070 Electrochemical Dehalogenation of Persistent Organic Pollutants with a Silver Cathode in Aqueous Media – A. A. Pevery and D. G. Peters (Indiana University)


Co-Chairs: A. Fry and T. Fuchigami

14:00 2072 Development of Regioselective Electrochemical Glycosylation Oriented Natural Products Synthesis – K. Kawa, T. Saitoh, E. Kaji, and S. Nishiyama (Keio University)

14:20 2073 Direct Reduction of 6-Halo-1-Phenyl-1-Hexynes at Silver Cathodes – L. M. Strawsine and D. G. Peters (Indiana University)

Co-Chairs: K. Sode, H. Nam, J. Choi, and E. Tamiya

14:00 2008 Peroxidase Activity of G-Quadruplex Hemin-Binding DNA Aptamers Determined by Electrochemical Measurement – I. Kubo, Y. Hoshino (Soka University), M. Liu, H. Abe, and Y. Ito (RIKEN Advanced Science Institute)

14:40 2009 Electron Transfer between Cytoplasm and Electrode via Redox-Active Phospholipid Polymer – K. Nishio, R. Nakamura, S. Nakanishi, X. Lin, T. Konno, K. Ishihara, and K. Hashimoto (The University of Tokyo)

15:00 2010 In Situ Observation of Direct Electron Transfer Reaction between Cytochrome c and ITO Electrode with Electrochemically Controlled Slab Optical Waveguide Spectroscopy – N. Matsuda and H. Okabe (National Institute of Advanced Industrial Science and Technology)
Passivity and Passivity Breakdown – 10:00 – 12:00
Co-Chairs: David W. Shoesmith and Bernard Tribollet

10:00 2183 The Relationship between Nanostructure and Electronic Properties of Passive Films Studied by Scanning Tunneling Microscopy Combined with Scanning Tunneling Spectroscopy – P. Marcus, T. Massoud, and V. Maurice (CNRS Chimie ParisTech)

10:30 2184 Characterization of Repassivation Process on Fe-Cr Alloys Using Scratching Technique – M. Wada, A. Kawano, M. Saito, and S. Fujimoto (Osaka University)

10:45 2185 Coupling the Point Defect Model and the Density Functional Theory for Modeling Pit Nucleation – B. Malki, B. Baroux, O. Le Baq, and A. Pasturel (Grenoble INP)

11:00 2186 Development of Base Electro catalysts which are Passive towards Corrosion in Hot Acidic Electrolytes – G. T. Burststein, G. E. Haslam, and X. Y. Chin (University of Cambridge)

11:15 2187 Characterization of Bound Water in Passive Film of Titanium Formed in H2SO4 Solution – T. Haruna, S. Ito, and K. Kimoto (Kansai University)

11:30 2188 Kinetic Stability of Aluminium and Its Alloys: The Role of “Structural” Features – X. Zhou (Monash University), D. D. Macdonald (The Pennsylvania State University), and N. Birbilis (Monash University)

11:45 2189 Effect of Galvanostatic Condition on Growth Behavior and Repassivation Potential of Crevice Corrosion of Duplex Stainless Steels – S. Aoki, T. Ehashi, and J. Sakai (Waseda University)

Passivity and Passivity Breakdown – 13:30 – 14:45
Co-Chairs: Ashok Kumar Shukla and Srdjan Nesic

13:30 2190 Metallographic Characterization of Transgranular Stress Corrosion Cracking on Type316L Stainless Steel in High Temperature and High Pressure Water Environment – S. Fujimoto, N. Okada, T. Saito, and H. Tsuchiya (Osaka University)

13:45 2191 Corrosion Inhibition of Localized Corrosion and Stress Corrosion Cracking of Steam/Gas Turbine Materials – B. Bavarian, J. Zhang, and L. Reiner (California State University)

14:00 2192 Comparison of Electrochemical Pitting Characteristics of Alloy 825, Alloy 690 and Titanium for a Concentrated Radioactive Waste Hold-Up Tank – H. Kim and K. Na (KHNP-CRI)

14:15 2193 Studies of Pitting Initiation on High-Strength Pipeline Steel by Metallurgical Micro-Electrochemistry – Y. Cheng (University of Calgary)

14:30 2194 Hydrogen Induced Passivity Degradation and Stress Corrosion Cracking – J. Luo, B. Lu (University of Alberta), and S. Shi (The Hong Kong Polytechnic University)

Passivity and Passivity Breakdown – 14:45 – 16:00
Co-Chairs: Damien Feron and Farrel Martin

14:45 2195 Birth and Death Stochastic Process in Pitting Corrosion and Stress Corrosion Cracking – T. Shibata (Osaka University)

15:15 2196 Implications for the Initiation of Pitting Corrosion of Composition Changes around Sulphide Inclusions in Stainless Steels – D. E. Williams (University of Auckland)

15:30 2197 Effect of Sulfate Ion on Pitting Corrosion Behavior of Type 420 Martensitic Stainless Steel in Chloride Solution – W. Ji, S. Pan, and W. Tsai (National Cheng Kung University)

15:45 2198 Intrinsic Vacancies and Their effect on Corrosion Reactivity at the FeS2 (100) Surface – A. Krishnamoorthy, F. W. Herbert, and B. Yildiz (Massachusetts Institute of Technology)
High Temperature Chemistry of Carbides, Borides, and Nitrides – 14:00 – 18:00
Co-Chairs: E. Wuchina and T. Markus

14:00 2301 Influence of Phase Crystallinity on Precipitation Microstructures and Deformation Mechanisms in Tantalum Carbides – G. B. Thompson, R. A. Morris, N. De Leon, B. Wang (The University of Alabama), and C. Weinberger (Sandia National Laboratories)


15:00 2303 Variability in Oxidation Resistance of ZrB2−SiC – K. N. Shugart and E. J. Opila (University of Virginia)

15:20 2304 Effect of Silicon Addition on the Oxidation Kinetic and on the Structure of the Oxide Layer Formed on Transition Metal Nitride Coatings – J. Piersson (Université de Lorraine), P. Steyer (INSa de Lyon), A. Mége-Revol (Ecole Centrale de Lille), and D. Pilloud (Université de Lorraine)

15:40 2305 Oxidation of Cr2AlC between 700 and 1300°C in Air – S. Kim, S. Bong, and D. Lee (Sungkyunkwan University)

Silicon Dissolution and Characterization – 08:00 – 10:00
Co-Chairs: C. Lévy-Clément and M. J. Sailor

08:00 Intermission (10 Minutes)

08:10 2365 Thinking Again of Porous Si Formation – Y. H. Ogata (Kyoto University)

08:40 2366 Investigation of Pore Diameter Modulation in Depth in p-type Silicon – E. Ossei-Wusu (Universität zu Kiel), I. Carstenensen, E. Quiroga-González (Christian-Albrechts-University of Kiel), M. Amirmaleki (Universität zu Kiel), and H. Föll (Christian-Albrechts-University of Kiel)

09:00 2367 Differential Photoacoustic Electrochemical Cell to Study In Situ the Porous Silicon Formation – D. G. Espinosa-Arbelaez and M. E. Rodriguez-Garcia (Universidad Nacional Autónoma de México)

09:20 2368 Spontaneous Groove Formation on Silicon during Anodic Dissolution Induced by Turing Instability – K. Fukami, T. Urata, T. Sakka (Kyoto University), K. Krischer (Technische Universität München), and Y. H. Ogata (Kyoto University)

09:40 Intermission (20 Minutes)

Metal-Assisted Silicon Dissolution – 10:00 – 12:00
Co-Chairs: Y. Ogata and P. Schmuki

10:00 2369 Anodic Dissolution of Si: Electrochemical Oscillations and Porous Silica Formation – F. Ozanam and J. Chazalviel (CNRS-Ecole polytechnique)

10:30 2370 Stain Etching of Silicon with and without the Aid of Metal Catalysts – K. W. Kolaisinski, J. Gogola, W. B. Barclay, and C. Somerville (West Chester University)

10:50 2371 Metal-Assisted Chemical Etching of Silicon Using Oxygen as an Oxidizing Agent – S. Yae, Y. Morii, M. Enomoto, N. Fukumuro, and H. Matsuda (University of Hyogo)


11:30 2373 Formation of Group IV Porous Semiconducting Nanowires and Nanotubes: The Role of Etching – X. Huang, R. Gonzalez, and J. L. Coffer (Texas Christian University)

Silicon Etching and Optical Properties – 14:00 – 18:00
Co-Chairs: J. L. Coffer and R. B. Wehrspohn

14:00 2374 A “Cook’s Tour” of Two Decades of Research into the Optical Properties of Nanostructured Materials – D. J. Lockwood (National Research Council)

14:30 2375 Magnetic Field Assisted Etching of Porous Silicon as a Tool to Enhance Magnetic Characteristics – P. Granitzer, K. Rumpf (Karl-Franzens-University Graz), T. Ohta, N. Koshida (Tokyo University of Agriculture and Technology), P. Poet (University of Technology Graz), and M. Reissner (Vienna University of Technology)

14:50 2376 Structural and Morphological Study of Mesoporous Germanium Layers Formed by Bipolar Electrochemical Etching – S. Tutashkonko (INSa de Lyon), A. Boucherif (Université de Sherbrooke), T. Nychyporuk (INSa de Lyon), R. Arès, V. Aimez (Université de Sherbrooke), and M. Lemiti (INSa de Lyon)


15:30 2378 Relaxation Processes and Functions of Blue Phosphorescent Porous Silicon – B. Gelloz (Nagoya University), R. Mentek (Tokyo Univ. of A & T), and N. Koshida (Tokyo University of Agriculture and Technology)

Atomic Layer Deposition Applications 8
Dielectric Science and Technology / Electronics and Photonics
3048B, Level 3, Hawaii Convention Center

General Session – 08:30 – 10:00

08:30 Introductory Remarks (10 Minutes)

08:40 2456 Fabrication of Sh2Te2 and B2Te2 Multilayer Composite Films by Atomic Layer Deposition – K. Zhang, D. Numinbajel, M. Tangirala, H. Baumgart (Old Dominion University), and V. Kochergin (MicroXact Inc.)

09:00 2457 Trimethylaluminum-Based Atomic Layer Deposition of Al2MO2 (M=Zr, Hf): A Viable Route to Integrate High-Permittivity Oxides on In0.53Ga0.47As Substrates – A. Molle, E. Cianci, A. Lamperti, C. Wiemers, S. Baldovino, L. Lamagna, S. Spiga, M. Fanciulli (CNR-IMM), G. Brammertz, C. Merckling, and M. Kaymax (imec)

09:40 Intermission (20 Minutes)
**Reaction Mechanisms I – 10:00 – 12:00**

10:00 2458 Are Ions Good or Bad during Plasma-Assisted ALD – H. B. Profijt and W. Kessels (Eindhoven University of Technology)


11:40 2461 Reaction Mechanism of Non-Heating SiO₂ Atomic Layer Deposition by Using TDMAS and Plasma Excited Water Vapor – F. Hirose, K. Kanomata, M. Degai, and K. Momiyama (Yamagata University)

**Oxides – 14:00 – 18:00**

14:00 2462 Crystalization Study by Transmission Electron Microscopy of SrTiO₃ Thin Films Grown by Plasma-Assisted ALD – V. Longo, M. A. Verheijen, F. Roozeboom, and W. Kessels (Eindhoven University of Technology)


15:00 2464 Application of the Plasma Surface Modification for Uniform Al₂O₃ Films Grown by Atomic Layer Deposition on Polyethylene Blown Film – G. Lee, K. Son (Korea University), S. Park (Korea University, Mechanical Engineering), J. Shim (Korea University), and B. Choi (Korea University, Mechanical Engineering)

15:20 2465 Atomic Layer Deposition of Molybdenum Oxide Using Bis(Tert-Butylimido)Bis(Dimethylamido) Molybdenum – A. Bertuch, L. Lecordier, M. Dalberth, G. Sundaram, J. Becker (Cambridge Nanotech), E. Deguns (Unaffiliated), M. Saly, D. Moser, and R. Kanjolia (SAFC Hitco)

15:40 2466 Room-Temperature ALD of Metal Oxide Thin Films by Energy-Enhanced ALD – S. E. Potts, H. B. Profijt, R. Roelofs, and W. Kessels (Eindhoven University of Technology)

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**SiC Power Devices I – 10:00 – 12:00**

10:00 2516 SiC Trench Devices with Ultra Low R_{on} – T. Nakamura, M. Aketa, and Y. Nakano (ROHM Co., Ltd.)

10:20 2517 Fabrication of a SiC Double Gate Vertical Channel JFET and Its Application in Power Electronics – A. Schöner and M. Bakowski (Acrc AB)

10:40 2518 Recent Advances in VJFETs at SemiSouth – K. Chatty, D. C. Sheridan, V. Bondarenko, R. Schrader, K. Speer, and J. B. Casady (SemiSouth Laboratories)

11:00 2519 Optimization of 4.5kV Si IGBT/SiC Diode Hybrid Module – K. D. Hobart, E. Imhoff (Naval Research Laboratory), T. Duong, and A. Hefner (National Institute of Standards and Technology)

11:20 2520 Aspects on SiC Switches for Soft-Switching Converters in an Industrial Application – P. Ranstad and J. Linner (Alstom Power)

11:40 2521 Fast High Voltage Switching With SiC Power Devices – T. Funaki (Osaka University)

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**SiC Crystal Growth – 14:00 – 16:00**

14:00 2522 On the De-Rating of Silicon Carbide (SiC) Power Devices – K. Shenai (University of Toledo)


15:00 2525 Life-Time Killing Defects in Ion-Implanted 4H-SiC; Enhanced Annealing and Lateral Distribution – L. Sundnes Levlie, L. Vines, I. Pintilie, and B. G. Svensson (University of Oslo)

15:20 2526 Silicon Carbide Bulk Crystal Growth Modeling from Atomic Scale to Reactor Scale – S. NISHIZAWA (National Institute of Advanced Industrial Science and Technology)

15:40 2527 Modeling of SiC CVD Epitaxial Growth using CFD-ACE+ – A. Bhoj (ESI US R&D Inc), S. Tangli (University of Southern Carolina), and K. Shenai (University of Toledo)

Panel # 1: Can We Eliminate Defects in Bulk SiC and GaN Materials? – 18:00 – 20:00
Co-Chairs: Krishna Shenai and Noboru Ohtani

18:00 Introduction of Panelists (15 Minutes)
18:15 K. Gaskill (10 Minutes)
18:35 K. Waldrip (10 Minutes)
18:45 M. Mann (10 Minutes)
18:55 S. Nishizawa (10 Minutes)
19:05 M. Dudley (10 Minutes)
19:15 Q&A (45 Minutes)

Dielectric Materials and Metals for Nanoelectronics and Photonics 10
Dielectric Science and Technology / Electronics and Photonics
313A, Level 3, Hawaii Convention Center

Non Volatile Memory – 10:00 – 12:30
Co-Chairs: Albert Chin and Samara Kar

10:00 Introductory Remarks (10 Minutes)
10:10 2574 Ultra-Low Switching Power RRAM Using Hopping Conduction Mechanism – A. Chin, Y. Chiu (National Chiao-Tung University), C. Cheng (National Taiwan Normal University), Z. Zheng, and M. Liu (Chinese Academy of Sciences)

10:40 2575 ALD Grown Functional Oxide Layers for Nonvolatile Resistive Switching Memory Applications – S. Hoffmann-Eifert and R. Waser (Forschungszentrum Juelich)

11:10 2576 Hafnium Oxide Based CMOS Compatible Ferroelectric Materials – U. Schroeder (Namlab gGmbH), J. Mueller (Fraunhofer CNT), E. Yurchuk, S. Mueller, D. Martin, S. Slesazeck, and T. Mikolajick (Namlab gGmbH)


12:10 2578 Resistive Switching of Iron Oxide Nanoparticles in Patterned Array Structure on Flexible Substrate – J. Kim, J. Yoo, Y. Baek, H. Kim, Q. Hu, C. Kang, and T. Yoon (Myongji University)

Novel Dielectrics – 13:50 – 16:00
Co-Chairs: Joerg Osten and Sven Van Elshocht

13:50 2579 Theoretical Perspectives in Defect and Impurity Physics toward Materials Design for Oxides – N. Umezawa (National Institute for Materials Science)

14:20 2580 Strain-induced effects on dielectric properties of thin, crystalline rare earth oxides on silicon – H. Osten and D. Schwendt (Leibniz University)

14:50 2581 Epitaxial Si and Gd2O3 Heterostructures – Distributed Bragg Reflectors with Stress Management Function for GaN on Si Light Emitting Devices – R. Dargis, A. Clark, E. Arkun, R. Roucka, D. Williams, R. S. Smith, and M. Lebby (Translucent Inc.)

15:10 2582 Room Temperature Ferromagnetism Induced by Electric Field in Cobalt-Doped TiO2 – T. Fukumura (University of Tokyo)

15:40 2583 Enhancement of Dielectric Properties and Magnetic Coupling of Pb(Fe0.5Nb0.5)O3 by Doping Nb0.5Zr0.5FeO3 – S. K. Barik, D. K. Pradhan, S. Sahoo, V. Pauli, and R. Katiyar (University of Puerto Rico)

High Purity Silicon 12
Electronics and Photonics
320, Level 3, Hawaii Convention Center

Keynote – 08:50 – 09:40
Co-Chair: E. Simoen

08:50 Introductory Remarks (10 Minutes)
09:00 2624 Challenges for the Semiconductor Industry in the 21st Century – P. A. Gargini (Intel Corporation)
09:40 Intermission (20 Minutes)

Crystal Growth – 10:00 – 12:00
Co-Chairs: R. Falster and G. Kissinger

10:00 2625 Si Crystal Growth from a Melt: The Secrets Behind the v/G Criterion – J. Vanhellemont (Ghent University)

10:30 2626 FZ Crystal Growth of Si and Ge - Current Limitations and Approaches to Overcome – H. Riemann, H. Rost, M. Wuenischer, R. Menzel, and B. Hallmann-Seiffert (Leibniz-Institute for Crystal Growth)

11:00 2627 Electrolytic Deposition of Silicon for Solar Application – S. Sokhanvaran and M. Barati (University of Toronto)


12:00 Lunch Break (120 Minutes)
Doping, Impurities and Point Defects – 14:00 – 15:50
Co-Chairs: P. Stallhofer and J. Vanhellemont

14:00 2630 Schottky Barrier Height Engineering for Low Resistance Contacts to Ge and III-V Devices – K. Saraswat, J. Lin, A. Nainani, A. Roy (Stanford University), B. Yang (Globalfoundries), and Z. Yuan (Stanford University)

14:30 2631 Challenges and Opportunities for Doping Control in Ge for Micro and Optoelectronics Applications – E. Bruno (University of Catania), G. Scapellato, E. Napolitani, S. Mirabella, A. La Magna (CNR-IMM), M. Mastromatteo, D. De Salvador (University of Padova), S. Boninelli, G. Fortunato, V. Privitera (CNR-IMM), and F. Priolo (University of Catania)

15:00 2632 Defect Engineering at the Nanoscale: Challenges and Trends – E. G. Seibauer (University of Illinois)

15:30 2633 Long-Range Interaction between H and (B or P) Dopant Atoms in Silicon Crystals Investigated by First Principles Calculation – E. Kamiyama and K. Sueoka (Okayama Pref. University)

Low-Dimensional Nanoscale Electronic and Photonic Devices 5
Electronics and Photonics / Dielectric Science and Technology / Sensor
304A, Level 3, Hawaii Convention Center

Low-Dimensional Silicide Materials – 10:10 – 11:40
Co-Chairs: Li-Jen Chou and Song Jin

10:10 2660 Syntheses of a Variety of Silicide Nanowire and Nanosheet Bundles – H. Tatsuoka, W. Li, E. Meng, and D. Ishikawa (Shizuoka University)

10:35 2661 Bottom-up Process to Fabricate Periodic Arrays of β-FeSi2 Nanopillars for Photonic Applications – Y. Kaneko, M. Suzuki, K. Nakajima, and K. Kimura (Kyoto University)

11:00 2662 Mn Silicide Nanowires on the Si(001)-2×1 Surface Having Anisotropic Strain Fields with Bi Nanolines – K. Miki, H. Liu (National Institute for Materials Science), and J. Owen (Université de Genève)


Low-Dimensional Materials for Energy Conversion – 14:00 – 15:45
Co-Chairs: Hirokazu Tatsuoka and Motofumi Suzuki

14:00 2664 High-Performance Piezoelectric Nanogenerators Based on Piezoelectric and Semiconducting Coupled Properties – S. Kim (Sungkyunkwan University)


14:50 2666 WO3 Nanotubes for Effective Photoelectrochemical Water-Splitting – X. Zheng (Stanford University)

15:15 2667 Fabrication of Silicon Groove/Pyramid Hierarchical Structures for Solar Cell Applications – Z. Lin (Photonics and Optoelectronics), A. Li, H. Wang (National Taipei University of Technology), and J. He (National Taiwan University)

15:30 2668 Large Scale Single-Crystal Cu(In,Ga)Se2 Nanotip Arrays For High Efficiency Solar Cell – Y. Chueh (National Tsing Hua University)

Processing Materials of 3D Interconnects, Damascene and Electronics Packaging 4
Dielectric Science and Technology / Electrodeposition / Electronics and Photonics
310, Level 3, Hawaii Convention Center

Challenges in Damascene and 3D Integration – 08:00 – 09:40
Co-Chairs: K. Kondo and R. Akolkar

08:00 2715 Innovation Through Industry and University Collaboration – S. Johnston (Intel Corporation)

08:40 2716 Heterogeneous 3D Stacking Technology Developments – H. Ikeda (ASET)

09:10 2717 Metallization for 3D interconnect processing – H. Philipsen, Y. Civale, K. Vandersmissen, M. Honore, F. Inoue, and P. Leunissen (IMEC)

Novel Processes for 3D Packaging – 10:00 – 12:00
Co-Chairs: F. Roozeboom and M. Koyanagi

10:00 2718 3D Wafer Stacking via Bonding of Recessed Cu Damascene Structures – C. Tan (Nanyang Technological University)

10:30 2719 3D Integration Technologies Based on Surface-Tension Driven Multi-Chip Self-Assembly Techniques – T. Fukushima, K. Lee, J. Bea, T. Tanaka, and M. Koyanagi (Tohoku University)

11:00 2720 High Aspect Ratio Silicon Etch – B. Wu (Applied Materials, Inc.)

11:30 2721 Through Silicon Via (TSV) Process Using DRIE and Cathode Coupled PE-CVD – Y. Kusuda (SAMCO INC.)

Electrodeposition and Electroless Plating Advances – 14:00 – 16:00
Co-Chairs: M. Hayase and G. Mathad

14:00 2722 Advances in Semiconductor Metallization Technologies for New Applications and Device Scaling – R. Preisser (Atotech USA Inc.)

14:30 2723 Opportunities for Electroless Copper Deposition in Semiconductor Manufacturing – Y. Dordi (Lam Research Corp)

15:00 2724 Cu Electroless Deposition on Ru Barrier – Investigation of Growth Phenomena and Film Properties – K. Kim, T. Lim, K. Park, H. Koo, M. Kim, and J. Kim (Seoul National University)


Roadmaps – 08:00 – 10:00


08:40 2783 Technology Roadmapping of ICs “More than Moore” Functional Diversification – B. Bader (iNEMI) and M. Gaitan (National Institute of Standards and Technology (NIST))

09:20 2784 Emerging Research Devices and Architectures for More-Than-Moore Applications – A. Chen (Globalfoundries)

Bioelectronics – 10:00 – 12:00

10:00 Intermission (15 Minutes)
10:15 2785 Engineering the Bio-Abio Interface to Enable Next Gen Bionics – A. Guiseppi-Elie, C. Kotanen, O. Karunwei, and A. Wilson (Clemson University)

10:50 2786 Enabling Long-Term Dielectrophoretic Actuation for Cell Manipulation and Analysis in Microfluidic Biochips – D. R. Reyes (National Institute of Standards and Technology)

11:25 2787 Micrsystem Pathways to a Greener World Using Radioisotopes – A. Lal (Cornell University)

3D Systems – 13:05 – 14:50

13:05 2788 Superconducting Fault Current Limiter with Fast Nanosecond Switching Time for Communication System Application – T. Chiu, C. Shih (CSIST), C. Cheng, C. Cheng (Chung-Shan Institute of Science & Technology), T. Huang (CSIST), and T. Chang (Chung-Shan Institute of Science & Technology)

13:40 2789 High-Speed Alkaline Etching for Backside Exposure of through Silicon Vias – K. Yoshikawa (Tohoku University), T. Miyazaki (PRE-TECH AT CO., LTD), N. Watanabe, and M. Aoyagi (National Institute of Advanced Industrial Science and Technology)


3D Metrology – 14:50 – 16:00

14:50 2791 Metrology to Enable “More than Moore” Applications of Resistive Switching Devices – C. A. Richter, J. Tedesco (NIST), H. Jang (NIST & Wake Forest University), H. Li (NIST & George Mason University), O. Jurchescu (Wake Forest University), and Q. Li (George Mason University)


Semiconductor Wafer Bonding 12: Science, Technology, and Applications

Electronics and Photonics
312, Level 3, Hawaii Convention Center

Fundamentals – 08:00 – 09:40

08:00 2952 Direct Bonding Energy Measurement Under Anhydrous Atmosphere – F. Fournel, L. Contini, C. Morales, J. Da Fonseca, H. Moriceau, C. Martin Cocher (CEA, LETI), F. Rieutord (CEA, INAC), A. Barthelemy, and I. Radu (Soitec)

08:40 2953 Study of Hydrophilic Si Direct Bonding with Ultraviolet Ozone Activation for 3D Integration – J. Fan, G. Chong, and C. Tan (Nanyang Technological University)

09:00 2954 Hydrophilic Wafer Bonding – An Acid/Base Concept – M. Reiche (Max-Planck-Institut für Mikrostrukturphysik)

09:20 2955 Surface Activation for Semiconductor Wafer Direct Bonding Using Polymer-Stripping Wet Chemicals – R. Knechtel, H. Wünschre, and H. Klingner (X-FAB Semiconductor Foundries AG)

Bonded Interface Properties – 10:00 – 12:00

10:00 2956 In Situ Observation of Formation of Bonded Interface using MEMS-in-TEM at the Nanoscale – T. Ishida (Tokyo Institute of Technology)

10:40 2957 Structure of Directly Bonded Interfaces Between Si and SiC – M. Yoshimoto, R. Araki, T. Kurumi, and H. Kinoshita (Kyoto Institute of Technology)


11:20 2959 Strain Characterization of Directly Bonded Germanium-on-Silicon Substrates – I. P. Ferain (Tyndall National Institute-UCC), N. Bennett, P. McNally (Dublin City University), S. Holl (California State University, Sacramento), and C. Colinge (Tyndall National Institute-UCC)

11:40 2960 The Study on Defects of Germanium-on-Insulator Fabricated by a Low Temperature Smart-Cut Process – X. Zhang, F. Yang, Y. Ou (Institute of Microelectronics of Chinese Academy of Sciences), T. Ye (Chinese Academy of Sciences), and S. Zhuang (University of Shanghai for Science and Technology)

Wafer Bonding for Solar Cells – 14:00 – 16:00

Meeting Program – PRIME 2012 – October 7-12, 2012 – Honolulu, Hawaii

Monday, October 8

State-of-the-Art Program on Compound Semiconductors 54 (SOTAPPCS 54)
Electronics and Photonics / Luminescence and Display Materials
328, Level 3, Hawaii Convention Center

Advances in Wide Bandgap Semiconductors – 08:00 – 12:00

08:00 3001 Progress in Nonpolar and Semipolar GaN Materials and Devices – J. S. Speck (University of California Santa Barbara)

08:30 3002 Study of Protein-Peptide Binding Affinity Using AlGaN/GaN High Electron Mobility Transistors – C. Huang (National Tsing Hua University), G. Lee, J. Chyi (National Central University), H. Cheng (National Taiwan University Hospital), C. Hsu (National Tsing Hua University), Y. Hsu (NanoEngineering and MicroSystems, National Tsing Hua University), F. Ren (University of Florida), and Y. Wang (National Tsing Hua University)

09:00 3003 Science Challenges of Ultra-Efficient Solid-State Lighting – M. H. Crawford and J. Tsao (Sandia National Laboratories)

09:30 3004 InGaN/GaN Nanostructure Arrays for LEDs – T. Yeh, Y. Lin, and P. D. Dapkus (University of Southern California)

10:00 Intermission (15 Minutes)

10:15 3005 Wide Bandgap Semiconductors for Sensing within Extreme Harsh Environments – D. G. Senesky (Stanford University)

10:45 3006 ZnS-based Nanostructures: An Unique UV-Light Sensor – X. Fang, L. Hu, and L. Wu (Fudan University)

11:15 3007 Detection of SARS Coronavirus Nucleocapsid Protein Using AlGaN/GaN High Electron Mobility Transistors – Y. Hsu (NanoEngineering and MicroSystems, National Tsing Hua University), G. Lee, J. Chyi (National Central University), C. Chang (Institute of Biomedical Sciences, Academia Sinica), C. Huang, C. Hsu (National Tsing Hua University), T. Huang (Institute of Biomedical Sciences, Academia Sinica), F. Ren (University of Florida), and Y. Wang (National Tsing Hua University)

11:30 3008 n-type Nanostructures / p-GaN or Si Thin Film Positioned by Non-Uniform Electric Field – J. Kim (Korea University)

Advanced ins Wide Bandgap Semiconductors – 13:30 – 18:00

13:30 3009 Resistive Switching in Zinc-Tin-Oxide and Atomic Layer Deposition of Nanolaminates for Amorphous Oxide Semiconductor Thin Film Transistors – J. Conley Jr. (Oregon State University)

14:00 3010 Impurity-Induced Disordering in Si- and Mg-doped AlGaN-AlN Superlattices – A. Allerman, J. Wierer, Q. Li, M. H. Crawford, and S. Lee (Sandia National Laboratories)


15:00 3012 Phosphor-Free Green and Yellow LEDs in Nanopatterned and Polarization Controlled Epitaxy – C. Wetzel and T. Detchprohm (Rensselaer Polytechnic Institute

15:30 3013 Improved Hydrogen Sensing Performance of AlGaN/GaN based sensor with Platinum Nanonetworks – S. Jang, H. Kim (Dankook University), S. Pearton, and F. Ren (University of Florida)

Thin Film Transistors 11 (TFT 11)
Electronics and Photonics
327, Level 3, Hawaii Convention Center

Oxide TFTs and Fabrication Process I – 08:00 – 10:20
Co-Chair: Y. Kuo

08:00 Introductory Remarks (10 Minutes)

08:30 3043 Transparent Amorphous Oxide Semiconductor TFTs: History and current status – H. Hosono (Tokyo Institute of Technology)

08:50 3044 Top-Gate effects in Dual-Gate Amorphous InGaZnO Thin-Film Transistors – K. Takechi (NLT Technologies, Ltd.), S. Iwamatsu, T. Yahagi, Y. Watanabe, S. Kobayashi (Yamagata Research Institute of Technology), and H. Tanabe (NLT Technologies, Ltd.)

09:30 3045 Deposition of Low Stress Amorphous Zinc Tin Oxide at Ambient Temperature using a Remote Plasma Sputtering Process Suitable for Delicate Substrates – S. M. Pfaender (University of Cambridge), G. Ercolano, J. Driscoll (Department of Material Science, University of Cambridge), and A. J. Flewitt (Department of Engineering, University of Cambridge)

09:50 Intermission (30 Minutes)

Oxide TFTs and Fabrication Processes II – 10:20 – 12:00
Co-Chairs: S. Fonash and H. Hosono

10:20 3046 MgZnO/ZnO Heterostructure Field-Effect Transistors Fabricated by RF-Sputtering – B. Wang (Graduate Institute of Photonics and Optoelectronics & Department of Electrical Engineering, National Taiwan University), I. Cheng, and J. Chen (National Taiwan University)
SiGe, Ge, and Related Compounds: Materials, Processing, and Devices 5
Electronics and Photonics
316A, Level 3, Hawaii Convention Center

Opening and Plenary Session – 08:25 – 10:35
Co-Chair: David Harame

08:25  Introductory Remarks (20 Minutes)

08:45  3101  Advanced CMOS Scaling and FinFET Technology – E. J. Novak (IBM)

09:40  3102  FinFET--How to Make a Very Short Channel MOSFET – C. Hu (Univ. of Calif., Berkeley)

FET/Strain Session 1: FinFET – 10:50 – 12:10
Co-Chairs: Yee-Chia Yeo

10:50  3103  Effect of Fin Doping Concentration on the Electrical Characteristics of Germanium-on-Insulator Multi-Gate Field-Effect Transistor – B. Liu, X. Gong, C. Zhan (National University of Singapore (NUS)), G. Han (National University of Singapore), N. Daval, C. Veytizou, D. Delprat, B. Nguyen (Soitec), and Y. Yeo (National University of Singapore)

11:10  3104  Germanium Gate-All-Around FETs on SOI – H. Chang (GIEE,NTU), S. Hsu, C. Chu (National Nano Device Laboratories), W. Tu, Y. Chen (National Taiwan University), P. Sung, G. Luo (National Nano Device Laboratories), and C. Liu (National Taiwan University)

11:30  3105  Selective Growth Of Strained Ge Channel On Relaxed SiGe Buffer In Shallow Trench Isolation For High Mobility Ge Planar And Fin p-FET – B. Vincent, L. Witters, O. Richard, A. Hikavy, H. Bender, R. Loo, M. Caymax, and A. Thean (imec)


HBT Session 1: Advanced SiGe HBT Technology – 13:40 – 16:00
Co-Chairs: Quo Fu Niu and Mikael Ostling

13:40  3107  Advanced Transistor Architectures for Half-Terahertz SiGe HBTs – B. Heinemann, A. Fox, and H. Rücker (IHP)

14:10  3108  Understanding the Effects of Epitaxy Artifacts on SiGe HBT Performance through Detailed Process/Device Simulation – R. Camillo-Castillo, Q. Liu, P. Cheng, J. Adkisson (IBM Microelectronics), and D. Harame (IBM Systems and Technology Group)

14:30  3109  Improved Frequency Response in a SiGe npn Device through Improved Dopant Activation – J. Adkisson (IBM Microelectronics), M. Khater (IBM T.J. Watson Research Center), J. Gambino, P. Cheng, V. Jain, R. Camillo-Castillo (IBM Microelectronics), C. Lavoie (IBM T.J. Watson Research Center), A. Sutton, O. Gluschenkov (IBM Semiconductor Research and Development Center), Q. Liu, T. McDevitt (IBM Microelectronics), S. Engelmann (IBM T.J. Watson Research Center), J. Pekarik (IBM Microelectronics), and D. Harame (IBM Systems and Technology Group)

14:50  3110  Evaluation of RF Noise Source Relative Importance in SiGe HBTs Using Various Noise Representations – Z. Xu and G. Niu (Auburn University)

15:10  3111  Strained Silicon Heterojunction Bipolar Transistors – A. ONeill (Newcastle University)

15:40  3112  A Self-Aligned Sacrificial Emitter Process for High Performance SiGe HBT in BiCMOS – Q. Liu (IBM Microelectronics) and D. Harame (IBM Systems and Technology Group)
Meeting Program • PRiME 2012 • October 7-12, 2012 • Honolulu, Hawaii

**Electrochemical Biosensors – 10:00 – 11:40**

Co-Chairs: John Harb and Zorida Aguilar

10:00 3244 (Invited) DNA-Translocation through a Solid-State Nanopore Coated with a Functionally Switchable Self-Assembled Monolayer – S. Harrer (IBM Research Laboratory Melbourne), D. Wang, B. Luan, G. Stolovitzky, H. Peng, and A. Afzali-Ardakani (IBM Research USA)


11:20 3246 Iridium Oxide Hybrids as Electrodes for the Neural System – N. M. Carretero, J. Moral, A. Cruz, and N. Casañ-Pastor (ICMAB-CSIC)

**Biologically Inspired Systems – 14:00 – 15:40**

Co-Chair: Daniel Schwartz


14:40 3248 (Invited) Biologically Inspired Synthesis of a Photocatalytically Active Membrane for Water Treatment – N. Kinsinger, A. Dudchenko, A. Wong (UC Riverside), D. Li (Lawrence Berkeley National Labs), and D. Kisaüllis (UC Riverside)

15:20 3249 Bio-Inspired Chemistry for Electrophotochernistry Nanotechnology – I. Zhitomirsky (McMaster University)

**Electrodeposition General Session: Fundamentals and New Materials – Dieter M. Kolb Memorial Symposium**

Electrodeposition

313B, Level 3, Hawaii Convention Center

**Session I – 08:00 – 10:00**

Co-Chairs: R. Alkire and T. Homma

08:00 3262 Introductory Remarks (20 Minutes)

08:20 3262 On the Structure of the Helmholtz Layer at the Solid-Electrolyte Boundary and its Relation to Electrode Kinetics – H. J. Lewerenz (California Institute of Technology)

09:00 3263 Metal Deposition on Metal, Semiconductor, Organic Layer – Common Interests with Prof. Dieter Kolb – K. Uosaki (NIMS)

09:40 Intermission (20 Minutes)

**Session II: UPD and Adsorption – 10:00 – 12:00**

Co-Chairs: T. Homma and R. Alkire

10:00 3264 Underpotential Deposition of Cu on Au(111) in Acid Sulfate Solution – N. Vasiljevic (University of Bristol), L. Viyannalage (SUNY-Binghamton), N. Dimitrov (SUNY at Binghamton), and K. Steradzki (Arizona State University)

10:20 3265 Tuning the Driving Force in Underpotential Codeposition of Alloys via Selective Complexation: Application to Au-Cu Alloys – D. Liang and G. Zangari (University of Virginia)

10:40 3266 Lead Underpotential Deposition on Sub-Monolayer Pt and Ru Modified Au(111) Surface – Q. Yuan, A. Tripathi, M. Slavkovic, and S. Brankovic (University of Houston)

11:00 3267 EC-STM Study of Two-Dimensional Complex Adlayer Directly Formed on Au(111) – S. Yoshimoto (Kumamoto University) and K. Nishiya (Kumamoto Univ.)

11:20 3268 Characterisation of the Deposition of N-octan- hydroxamate on Copper Surfaces – G. K. Parker (Griffith University), S. Holt (Australian Nuclear Science and Technology Organisation), and G. Hope (Griffith University)

11:40 3269 Electrochemical Formation of Cu-Corrugene Adlayer on Au(111) in Acidic Solution – T. Sawaguchi (National Institute of Advanced Industrial Science and Technology) and S. Yoshimoto (Kumamoto University)

**Session III: Thin Film Electrodeposition – 14:00 – 16:00**

Co-Chairs: K. Uosaki and L. Kibler

14:00 3270 E-ALD of Pd on Au Single Crystals – L. Sheridan, Y. Kim, J. Stucky (The University of Georgia), and D. B. Robinson (Sandia National Laboratories)

14:20 3271 Layer-by-layer Pt Electrodeposition on Au Single Crystal Surfaces Studied by In Situ Resonance Surface X-ray Scattering – T. Kondo, M. Shibata (Ochanomizu University), T. Masuda, and K. Uosaki (NIMS)

14:40 3272 The Evolution of Surface Morphology and Stress in Electrodeposited Copper Nanofilms – M. O’Grady, C. Lenihan (Materials and Surface Science Institute, University of Limerick), and D. Buckley (Materials & Surface Science Institute, University of Limerick)

15:00 3273 Electrochemical Impedance Spectroscopy Applied to Cantilever Curvature – M. C. Lafouresse, U. Bertocci, C. Beauchamp, and G. Stafford (NIST)

15:20 3274 Controlling Pt Nucleation and Growth by Solution Chemistry and Deposition Conditions – Y. Liu, D. Gokeen (National Institute of Standards and Technology), U. Bertocci (NIST), and T. Moffat (National Institute of Standards and Technology)

15:40 3275 XAS Study of Core-Shell PtRu Nanoparticles from Galvanic Pulse Current Deposition – Y. Hsieh (National Chiao Tung University), L. Chang (Graduate Program for Science and Technology of Accelerator Light Source), P. Wu (Department of Materials Science and Engineering National Chiao Tung University), and J. Lee (National Synchrotron Radiation Research Center)
Electroless Deposition: Principles, Activation, and Applications 2
Electrodeposition
306A, Level 3, Hawaii Convention Center

Co-Chairs: Stojan Djokic, John Sickney, T. Homma, and W. Cai

08:00 Introductory Remarks (5 Minutes)
08:05 Influence of Added Elements on Electroless Ni-P – P. Cavalliotti and L. Magagnin (Politecnico di Milano)
08:25 Corrosion of Copper and Nickel During Electroless Ni-P deposition – C. S. Tiwari and R. Nguyen (Micron Technology Inc.)
08:45 Electrochemical Evaluation of Electroless Ni-Zn-Cu-P Alloy Deposition – M. Zaimi and K. Noda (Shibaura Institute of Technology)
09:05 Deposition of Thin Metallic Films on Semiconductor Substrates – S. Djokic (Elchem Consulting, Ltd.), N. Djokic (Elchem Consulting Ltd.), and T. Thundat (University of Alberta)
09:25 Copper Electroless Deposition on a Glass Substrate – P. Chan and W. Dow (National Chung Hsing University)
09:45 Co-Ni Electroless Composite Plating of 20 nm Diamond particles on 10 micrometer Plastic Balls and the Application of thus prepared devices to Post CMP Processes – S. Yoshihara (Utsunomiya University)
10:05 Intermission (15 Minutes)
10:20 Impact of the Silicon Substrates Cleaning and Activation in the Nickel Electroless Plating – M. Boultemy (Institut Lavoisier de Versailles), H. El Belghiti (OMG Ultra Pure Chemicals), D. Aureau (CNRS-UVSQ), E. Delbos (OMG Ultra Pure Chemicals), and A. Etchepurry (Institut Lavoisier de Versailles)
10:40 Fluoride Free Galvanic Displacement of Copper and Silver as Surface Modifications for MEMS – D. Serra, A. Raygani, and L. Magagnin (Politecnico di Milano)
11:00 Solution-Source Vapor-Phase Mist Deposition Method for Future Roll-to-Roll Process in Semiconductor Device Fabrication – S. Fujita, S. Katori, T. Ikenoue, and J. Piao (Kyoto University)
11:20 Effect of Light/Heat on Fast Formation Reaction of Highly-Conductive Polymer with Metal Shell Structure – Y. Hashimoto (Chiba Institute of Technology), J. Kawakita, T. Chikyow (National Institute for Materials Science), and Y. Sakamoto (Chiba Institute of Technology)
11:40 Deposition Rate of Metal on Conducting Polymer Under Photo Irradiation – H. Fujihira, J. Kawakita, T. Chikyow (National Institute for Materials Science), and Y. Sakamoto (Chiba Institute of Technology)

Co-Chairs: J. Stickney, Stojan Djokic, and L. Magagnin

14:00 On the Mechanism of Electroless Deposition of Ni-P: Electrochemical and Computational Investigations – L. Magagnin, C. Cavalliotti, and P. Cavalliotti (Politecnico di Milano)
14:20 Electroless Deposition for Developing ATR Surface Enhanced IR Spectroscopy – W. Cai (Department of Chemistry, Fudan University)
14:40 Investigation of Reactions and Additive Effects in Electroless Deposition by In Situ Transmittance Measurement – K. Park, T. Lim, M. Kim, and J. Kim (Seoul National University)
15:00 Intermission (20 Minutes)
15:20 Factors Affecting Reaction Rates of Chemical Bath Deposition of Copper Oxide Thin Films – J. Saso, Y. Adachi, and M. Izaki (Toyohashi University of Technology)
15:40 The Interaction of Tantalum with Tellurite Ions in Basic Solution – C. Tsang and J. Sickney (The University of Georgia)

Magnetic Materials and Devices 12
Electrodeposition
323C, Level 3, Hawaii Convention Center

Magnetic Recording and Materials 1 – 09:00 – 16:00
Co-Chairs: C. Bonhole, G. Zangari, and S. Brankovic

09:00 Thin Film Magnetic Heads – Early Inventions and Their Ongoing Impact on Magnetic Storage and on Electrochemistry – L. Romankiw (IBM, Thomas J. Watson Research Center) and S. Krongelb (IBM Thomas J. Watson Research Center)
09:40 Intermission (20 Minutes)
10:00 Beyond Perpendicular Magnetic Recording—Alternative Magnetic Storage Technologies – N. Robertson (HGST Research)
10:40 Electrodeposition of Magnetic Alloys Used in Fabrication of Recording Heads – I. Tabakovic, S. Riemer, J. Gong, V. Venkataram, and M. Kautzky (Seagate Technology)
11:20 Magnetic Tape Heads and Contact Recording – R. G. Biskeborn (IBM Corporation)
12:00 Intermission (120 Minutes)
14:00 Electrochemical Deposition of Magnetic Alloy Films with Large Magnetic Anisotropy – D. Liang and G. Zangari (University of Virginia)
14:40 Reversible Change of Magnetism in FePt and CoPt Films by Electrochemical Charging – K. Leistner (IFW)
15:20 Resistivity Control in CoFeNiX Magnetic Alloys – N. Dole (University of Houston), D. Lee, N. Brockie, A. Papou, W. French (Texas Instruments), and S. Brankovic (University of Houston)
15:40 Composition Gradients and Magnetic Properties of 10-100nm NiFe and CoFe Films Obtained by Electrodeposition – J. Gong, S. Riemer, V. Venkataram, M. Kautzky, and I. Tabakovic (Seagate Technology)

Physical and Analytical Electrochemistry
General Session
Physical and Analytical Electrochemistry
318B, Level 3, Hawaii Convention Center

PAED General Session 1 – 09:00 – 12:00
Co-Chairs: R. Calhoun and S. Chen

09:00 Electrochemical Measurements in High Magnetic Fields for Energy Storage – A. Migliori, C. R. Kreller, R. L. Borup, and F. H. Garzon (Los Alamos National Laboratory)
14:00 3535 Simulation of Electrochemical Micromachining with Nanosecond Pulses – E. L. Hotoiu, S. Van Damme, and J. Deconinck (Vrije Universiteit Brussel)

14:20 3536 Performance Characterization of the Titanium(IV)-Porphyridin Reagent for Determining Hydrogen Peroxide based on Ab Initio Calculations – K. Takamura (Tokyo University of Pharmacy and Life Sciences) and T. Matsumoto (Institute of Multidisciplinary Research for Advanced Materials, Tohoku University)

14:40 3537 Quantum Mechanical Analysis on the Effect of Electric Field on the Adsorption of Water and Hydronium on Transition Metal Surfaces – A. Huzayyin, J. Chang, F. Dawson, and K. Lian (University of Tokyo)

15:00 3538 A Temperature Dependent Multi-Ion Model for Time Accurate Numerical Simulation of the Electrochemical Machining Process – D. Deconinck, S. Van Damme, and J. Deconinck (Vrije Universiteit Brussel)

15:20 3539 Electroless Deposition of the cylindrical Iron Nanotubes using Anodic Aluminum Oxide Template – T. Hussain, A. Shah, and G. Zohra (University of the Punjab)

14:20  3583  Facilitation of High-Rate NADH Electrocatalsysis at Activated Carbon Electrode – H. Li, R. Li, R. Worden, and S. Calabrese Barton (Michigan State University)

14:40  3584  Ionic Liquid-Based Electrochemical Biosensors – P. Yu and L. Mao (Institute of Chemistry, Chinese Academy of Sciences (CAS))

15:00  3585  Electrochemical Biosensor and Biofuel Cell Applications of Nanomaterials Modified Electrodes – S. Chen, Y. Li, V. Mani, and M. Rajkumar (National Taipei University of Technology)

15:20  3586  Direct Electron Transfer and Electrocatalsysis of Hemoglobin on ITO Nanoparticle Electrode – Y. Ayato, K. Yamagwa (Tokyo University of Science), H. Shiroshi (Tokyo National College of Technology), and J. Kuwano (Tokyo University of Science)

15:40  3587  A Third Generation L-fucose Biosensor based on a Novel Dehydrogenase from the Basidiomycete Coprinopsis Cinerea – M. Inukai (Tokyo University of Agriculture and Technology), H. Matsumura, K. Igarashi, M. Samejima (The University of Tokyo), N. Nakamura, and H. Ohno (Tokyo University of Agriculture and Technology)

### New Molten Salts and Ionic Liquids/Properties of MS and IL – 14:00 – 16:00
Co-Chairs: D. Fox and M. Watanabe

14:00  3624  Boron-Based Ionic Liquids: Salts of Boron Centered Cations as Promising Salts for Electrochemical Applications – J. H. Davis Jr. (University of South Alabama), T. Ruether (Commonwealth Scientific and Research Organization, CSIRO, Energy Technology), and S. Dorman (Birmingham Southern College)

14:40  3625  The Structure of Ionic Liquids on the Nanoscale – C. J. Margulis, H. Kashyap, H. Annapureddy, J. Hettige (University of Iowa), E. Castner Jr., C. Santos, and N. Murthy (Rutgers University)

15:20  3626  Physicochemical and Electrochemical Properties of Novel Ionic Liquids Containing Aprotic Heterocyclic Anions Doped with Lithium Salts – C. Shi, A. DeSilva, M. Guzman, and J. Brennecke (University of Notre Dame)

15:40  3627  New Approaches to the Low-melting Inorganic Ionic Liquid Challenge – T. G. Tucker and C. Angell (Arizona State University)

### Electrochemistry in Molten Salts and Ionic Liquids – 08:00 – 08:40
Co-Chair: W. M. Reichert

08:00  3615  Fundamental Study on Reduction Rate for Electrolytic Reduction of SiO2 Powder in Molten CaCl2 – T. Toba, K. Yasuda, T. Nohira, R. Hagiwara (Kyoto University), K. Ichitsubo, K. Masuda (Taiheiyo Cement Corporation), and T. Homma (Waseda University)

08:20  3616  Anodic Reactions on Some Materials in LiCl-KCl Melt – T. Takenaka, M. Umemara, D. Araki, and T. Morishige (Kansai University)

### New Molten Salts and Ionic Liquids and Properties – 08:40 – 14:00
Co-Chairs: W. M. Reichert and J. Davis

08:40  3617  Properties of Quaternary Phosphonium Fluorohydrogenate Ionic Liquids and Their Derivatives Giving Ionic Plastic Crystal Phases – R. Hagiwara, T. Enomoto, and K. Matsumoto (Kyoto University)

09:00  3618  Border between Ionic Liquids and Electrolyte Solutions – M. Watanabe (Yokohama National University)

09:40  3619  Intermission (20 Minutes)


10:40  3621  Polymorphic Behavior of Alkali Metal Bis(Fluorosulfonyl)Amides – K. Matsumoto, T. Oka, T. Nohira, and R. Hagiwara (Kyoto University)


12:00  Lunch Break (120 Minutes)

### Electrocatalsysis Structural Effects I – 08:15 – 12:00
Co-Chairs: G. Brisard and V. Ramani

08:15  Introductory Remarks (5 Minutes)

08:20  3737  (Invited) Oxygen Evolution Reaction on Minute Amounts of Ru and Ir Catalysts for Application in Fuel Cell Protection – R. T. Atanasoski (3M Company), D. A. Cullen (Oak Ridge National Laboratory), and L. Atanasoska (3M Company)

09:00  3738  ORR Activity Enhancement of MBE-prepared Pt monolayer on Au(111) Single Crystal Substrate – Y. Iijima, Y. Takahashi, N. Todoroki, K. Matsumoto, and T. Wadayama (Tohoku University)

09:20  3739  Facile Synthesis of Pd,Co@Pd/C Core-Shell Nanoparticles and Pt-Decorated Pd,Co@Pd/C as Oxygen Reduction Reaction Electrocatalsysts – D. Wang, C. Li (Southwest University), and H. D. Abruña (Cornell University)

09:40  Intermission (20 Minutes)
10:00 3740 Oxygen Reduction for Fuel Cells and Batteries: Mechanistic Studies and the Design of New Catalysts – A. A. Gewirth, C. Tornow, and E. Tse (University of Illinois)

10:20 3741 Surface Modification of PtRu/C by Mono-layered Decoration of Pt, Au, Pd, and Ir for Oxygen Reduction Reaction – C. Kuo (National Chiao Tung University), L. Chang (Graduate Program for Science and Technology of Accelerator Light Source), Y. Hsieh (National Chiao Tung University), P. Wu (Department of Materials Science and Engineering National Chiao Tung University), and J. Lee (National Synchrotron Radiation Research Center)

10:40 3742 An Excellent Electrocatalysis of Novel Pt-TaOx Composite Electrocatalysts for Oxygen Reduction Reaction – Z. Awaludin, T. Okajima, and T. Ohsaka (Tokyo Institute of Technology)

11:00 3743 Carbon Supported Pt-Os Electrocatalysts for Oxygen Reduction Reaction – Y. Lee, C. Kuo, Y. Hsieh (National Chiao Tung University), P. Wu (Department of Materials Science and Engineering National Chiao Tung University), and J. Lee (National Synchrotron Radiation Research Center)

11:20 3744 Instantaneous One-Pot Synthesis of Fe-N-codoped Graphene as an Efficient Electrocatalyst for Oxygen Reduction Reaction in Acidic Solutions – K. Kamiya, K. Hashimoto, and S. Nakaniishi (The University of Tokyo)

11:40 3745 Strip-Like Nanosized Tungsten Carbide as Catalyst for Oxygen Reduction Reaction – S. Kang and P. Shen (Sun Yat-Sen University)

Surface Characterisation of Electrocatalysts – 14:00 – 16:00

Co-Chairs: P. K. Shen and R. Atanasoski

14:00 3746 In Situ STM Elucidation of the effects of Step Structures on Pt(111) Electrodes for Dissolved CO Oxidation – J. Inukai, D. A. Tryk, T. Abe, M. Wakisaka, H. Uchida, and M. Watanabe (University of Yamashita)

14:20 3747 High Speed AFM Study on the Potential Dependence of the Dissolution of Shape-controlled Pt Nanoparticles – Y. Yamada, C. Yoshida (Chiba University), M. Nakamura (Chiba University), and N. Hoshi (Chiba University)

14:40 3748 XPS and STEM of the Interface Formation between Ultra-Thin Ru, Ir and Pt Layers and Perylene Red Catalyst Support Whiskers – L. L. Atanasoska (3M Company), D. A. Cullen (Oak Ridge National Laboratory), A. Hester (3M), and R. T. Atanasoski (3M Company)

15:00 3749 Ethanol Electrooxidation on a (2x2)-Sn/Pt(111) Surface Alloy and a SnOx/Pt(111) Surface: A Combined Surface Science and In Situ FTIR Study – W. Zhou, J. Magee, S. A. Xanxada, R. R. Adzic, and M. G. White (Brookhaven National Laboratory)

15:20 3750 Electrochemical and ATR-IR Investigation on Decontaminated Shape-Controlled Pd Nanocrystals – H. Zhang and W. Cai (Department of Chemistry, Fudan University)

15:40 3751 Molecular Structures of Fluorinated Self-Assembled Monolayers (SAMs) Constructed on Metal Surfaces Investigated by Surface Vibrational Spectroscopies – I. Yagi, K. Nomura, and K. Inokuma (FC-Cubic TRA)
**Meeting Program**

**PRiME 2012**

**October 7-12, 2012**  
Honolulu, Hawaii

**J1-2 – Nano/Bio Sensors – 13:40 – 16:00**  
Co-Chairs: G. Hunter and Y. Shimizu

- **13:40** 3838 Development of Electrochemical Cantilever Sensors for DNA Applications – X. Quan, Y. Sun (Technical University of Denmark), A. Labuda (McGill University), A. Heiskanen, A. Wolff (Technical University of Denmark), J. Jorge Dulanto, P. Gutter (McGill University), and A. Boisen (Technical University of Denmark)

- **14:00** 3839 Fabrication of Minimally-Invasive Patch Type Glucose Sensors – M. Yasuzawa, S. Sato, H. Nakanishi, and K. Edagawa (University of Tokushima)

- **14:20** 3840 Flexprint based Glucose Sensors for Continuous Measurement of Glucose Profiles of Diabetic Patients – P. D. Van der Wal (EPFL), P. Hadwary, H. Tschirky (PharmaSens AG), and N. De Rooij (EPFL Lausanne)

- **14:40** 3841 Nanodiamond Microelectrode Array with Mesa Structure Fabricated for Bio-Analytical Applications – S. Raina, N. Ghosh, and W. Kang (Vanderbilt University)

- **15:00** 3842 An Electrochemical Probe Technology for a Label-Free, Point-of-Care Biosensor – J. Wei, S. Singhal (CFD Research Corporation), and H. Liu (Michigan Technological University)

- **15:20** 3843 Electrical Impedance Sensors for Cancer Cell Study – L. Yang (North Carolina Central University)


**J3 – Materials for Solid State Lighting**  
Luminescence and Display Materials / New Technology Subcommittee  
316B, Level 3, Hawaii Convention Center

- **Inorganic & Organic Semiconductors – 08:00 – 12:00**  
Co-Chairs: Anant Setlur and John Collins

- **08:00** 3955 (Centennial Outstanding Achievement Award Presentation of the LDM Division) Toward Further Breakthroughs in Nitride Phosphors – H. Yamamoto (Tokyo University of Science and Technology)

- **09:00** 3956 Spatio-Time-Resolved Cathodoluminescence Studies on Freestanding GaN Substrates Grown by Hydride Vapor Phase Epitaxy – S. F. Chichibu, Y. Ishikawa, K. Haze, M. Tashiro, K. Furusawa (Tohoku University), H. Namirta, S. Nagao, K. Fujito (Mitsubishi Chemical Corporation), and A. Uedono (University of Tsukuba)

- **09:40** 3957 Electrical Characterization of High-quality InGaN-based Blue Light Emitting Diodes on 8inch Silicon Grown by Metalorganic Chemical Vapor Deposition – J. Kim, J. Kim, Y. Tak, J. Kim, H. Hong, S. Chae, M. Yang, J. Lee, H. Choi, J. Park, Y. Park, and U. Chung (Samsung Advanced Institute of Technology)

- **10:00** 3958 Simulation and Design of (In,Ga)N-Based Light Emitting Diodes – Z. Liang, E. Stach, T. Sands, and E. Garcia (Purdue University)

- **10:20** 3959 Tuning of Indium Tin Oxide Work Function with an Ionic Solid Thin Film in Polymer Light-Emitting Diodes – Y. Chou and T. Wen (National Cheng Kung University)

- **10:40** 3960 First Principles Investigations of the Electronic Structures and Associated Properties of Solid Solutions of ALn and GaN – K. C. Mishra (Osmang Sylvania), P. Schmidt (Technische Universität Darmstadt, Darmstadt, Germany), and K. Johnson (MIT, Cambridge, MA, USA)

- **11:00** 3961 Fabrication Semipolar GaN on Nanoscale Pattern C-Cutrone by Using Self-Assembled Ni Pattern as Mask – C. Chen, C. Hsieh, and Y. Wu (National Chiao Tung University)

- **11:20** 3962 Transparent Electrode for Top Emitting Organic Light Emitting Diodes by Suppression of Surface Plasmons – B. Koo, S. Kim, K. Hong, K. Kim, I. Lee, and J. Lee (Pohang University of Science and Technology)


**New Concepts – 15:10 – 15:30**  
Co-Chair: Anant Setlur

- **15:10** 3968 Hybrid Solid-State Lighting Design – W. Hertog, C. Hunt, and J. Carreras (Catalonia Institute for Energy Research (IREC))