Technical Sessions

Sunday, October 7

08:30h..... Short Courses

15:00h..... Professional Development Series: Learn to Brag…the Right Way

16:15h..... Professional Development Series: Resume/On-Line Profile Writing and Strategies for Cultivating and Maintaining Professional Contacts

17:30h..... Sunday Evening Get-Together

17:30h..... PRiME 2012 Student Mixer (invitation only; contact sponsorship@electrochem.org for details)

B9 Polymer Electrolyte Fuel Cells 12 (PEFC 12)

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

Tapa 2, Tapa Conference Center, Hilton Hawaiian Village

D-0.1 Pt Catalysts on New Carbon Supports – 10:00 – 12:00
Co-Chairs: Peter Pintauro and Akari Hayashi

10:00 **1260** Development of PEFCs with Nanostructurally Controlled Electrocatalysts – A. Hayashi and K. Sasaki (Kyushu University)

10:20 **1261** Graphitized Aerogel Supported PEMFC catalysts for Oxygen Reduction Reaction – P. Kolla, Y. Normah, K. Kerce, and A. Smirnova (SDSM&T)

10:40 **1262** Influence of Chemistry and Structure on the ORR Activity of Pt Supported on N-Doped Mesoporous Carbon – S. Shrestha, S. Ashegi, J. Timbro, and W. E. Mustain (University of Connecticut)

11:00 **1263** Low Pt-Loaded Nanofiber Electrodes for Hydrogen/Air Fuel Cells – M. Brodt and P. Pintauro (Vanderbilt University)

11:20 **1264** Electrospinning : A Promising Pathway in the Design of Carbon Nanotubes-Based Electrodes for Hydrogen Fuel Cells – S. Zils and M. Michel (CRP Henri Tudor)

11:40 **1265** Durability of the Electrocatalyst Fabricated based on Carbon Nanotubes – T. Fujigaya, B. Mohamad, and N. Nakashima (Kyushu University)

D-0.2 Pt-Based Cathode Catalyst Layers – 14:00 – 16:40
Co-Chairs: Shyam Kocha and Hiroyuki Uchida

14:00 **1266** Cathode Thickness Dependency of Oxygen Reduction Rate in PEFC – M. Kawase, S. Chin, G. Inoue, K. Sato, and M. Kageyama (Kyoto University)

14:20 **1267** Investigation of Solvent Effects on Dispersion of Carbon Agglomerates and Nafion Ionomer Particles in Catalyst Inks Using Ultra Small Angle X-Ray Scattering and Cryo-TEM – L. Sun (1Department of Mechanical Engineering, Purdue School of Engineering and Technology, Indiana University-Purdue University Indianapolis (IUPUI)), H. Zhang, L. Stanciu (Weldon School of Biomedical Engineering and School of Materials Engineering), J. Ilavsky (Argonne National Laboratory), and J. Xie (Indiana University Purdue University Indianapolis)

14:40 **1268** Structural Control and Evaluation of PEMFC Catalyst Layers by Blending Platinum-Supported/Stand-Alone Carbon Black – T. Suzuki, S. Tsushima, and S. Hirai (Tokyo Institute of Technology)

15:00 **1269** Influence of Nafion on the Electrochemical Activity of Pt-based Electrocatalysts – S. S. Kocha, J. W. Zack, K. Neyerlin, and B. S. Pivovar (National Renewable Energy Laboratory)

15:20 **1270** Analysis of Oxygen Transport Resistance of Nafion Thin Film on Pt Electrode – K. Kudo (Toyota Central R&D Labs., Inc.) and Y. Morimoto (Toyota Central R&D Labs, Inc.)

15:40 **1271** Effect of High Oxygen Permeable Ionomers on MEA Performance for PEFC – K. Yamada, S. Hommura, and T. Shimohira (Asahi Glass Co., Ltd.)

16:00 **1272** Evaluation of Anion Adsorption on Pt Surface in MEA – Y. Furuya, T. Mashio, A. Ohama (Nissan Mortor Co. Ltd), and K. Shinohara (Nissan Motor Co., Ltd)

16:20 **1273** Elemental and Morphological Analysis of Novel Pt Catalysts Synthesized by Galvanic Displacement – K. A. Perry (Oak Ridge National Laboratory), B. A. Larsen, K. Neyerlin, B. S. Pivovar (National Renewable Energy Laboratory), and K. L. More (Oak Ridge National Laboratory)

B10 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

Photoelectrochemical Cells – 14:00 – 15:50
Co-Chairs: Huyen Dinh and Candace Chan

14:00 **1708** Electron- and (*In Situ*) Soft X-ray Spectroscopy of Materials for Photo-Electrochemical Water Splitting – L. Weinhardt (University of Nevada)

14:30 **1709** Analysis of Functional and Dysfunctional Defects in Photoelectrode Materials for Solar Water Splitting – A. Braun (Empa), N. M. Gaillard, Y. Chang (University of Hawaii at Manoa), D. K. Bora (Lawrence Berkeley National Laboratory), K. Gajda-Schrantz (Empa), J. Guo, Z. Liu (Advanced Light Source), K. Sivula, M. Grätzel (EPFL), and E. Constable (University of Basel)

14:50 **1710** Hybrid Photovoltaic/Photoelectrochemical Device Design Using I-III-VI2 Copper Chalcopyrite-Based Photocathodes – J. M. Kaneshiro, Y. Chang, and N. M. Gaillard (University of Hawaii at Manoa)

15:10 **1711** Silicon Microwires Coupled to Earth Abundant Catalysts as Photocathodes for the Hydrogen Evolution Reaction – E. L. Warren, J. R. McKone, M. R. Shaner, H. A. Atwater, H. B. Gray, and N. S. Lewis (California Institute of Technology)

15:30 **1712** Photoelectrochemical Hydrogen Production from Water Using p-type Calcium Ferrite and n-type Semiconducting Electrodes – S. Ida, K. Yamada, H. Hagiwara, and T. Ishihara (Kyushu University)

Photoelectrochemical Cells and Photocatalysts – 16:00 – 18:00
Co-Chairs: Huyen Dinh and Anne Co

16:00 **1713** Band Structure Controls of $SrTiO_3$ towards Visible-Light Induced Two-Step Overall Water-Splitting – H. Irie (University of Yamanashi)

16:20 **1714** Development of Metal-Oxide-Semiconductor (MOS) Electrodes for Photoelectrochemical Water Splitting – D. V. Esposito, A. Talin, and T. Moffat (National Institute of Standards and Technology)

16:40 **1715** Optimum Conditions for Efficient Water Splitting in an Electrolyzer Powered by Solar Cells or Power Supply – M. Frites and S. U. Khan (Duquesne University)

17:00 **1716** Development of High Throughput Experimentation Capabilities for Accelerated Discovery of PEC Materials – X. Liu, M. Marcin, S. Mitrovic, J. Gregoire, S. Lin (California Institute of Technology), E. Cornell (Lawrence Berkeley National Laboratory), C. Xiang (California Institute of Technology), J. Fan (Zhejiang University), G. D. Stucky (University of California, Santa Babara), and J. Jin (Lawrence Berkeley National Laboratory)

17:20 **1717** Adiabatic Free Energy Surface of Hydrogen Evolution Reaction on $GaInP_2$ – W. Choi, B. C. Wood, E. Schwegler, and T. Ogitsu (Lawrence Livermore National Laboratory)

17:40 **1718** Growth of GaAs Array Assisted-TiO_2 Heterojunction Nanostructure for Solar Hydrogen Production – S. Huang (National Tsing Hua University), C. Kei (National Applied Research Laboratories), and T. Perng (National Tsing Hua University)

I3 Molten Salts and Ionic Liquids 18

Physical and Analytical Electrochemistry / Electrodeposition / Energy Technology

301A, Level 3, Hawaii Convention Center

Electrochemistry in Molten Salts and Ionic Liquids – 14:00 – 18:00
Co-Chairs: G. Cheek and T. Takenaka

14:00 **3604** Dynamic Atomic Force Microscopy (AFM) Studies to Characterize Multi-Layered Structures at Ionic Liquid/Solid Interfaces – W. Zhang, L. Chen, K. Smith, J. J. Sangiovanni, and G. S. Zafiris (United Technologies Research Center)

14:20 **3605** Local Structure of Ionic Liquid / Electrode Interfaces Analyzed by Frequency-Modulation AFM and Photoelectron Spectroscopy – T. Harada, Y. Kanai, Y. Mino, A. Imanishi, Y. Yokota, and K. Fukui (Osaka University)

14:40 **3606** An Arrhenius Argument to Explain Electrical Conductivity Maxima versus Temperature – A. L. East (University of Regina)

15:00 **3607** Electrochemical Investigation of Quinone Complexation by Lewis Acids in a Chloroaluminate Ionic Liquid – G. T. Cheek (United States Naval Academy)

15:20 Intermission (20 Minutes)

15:40 **3608** Effects of the Charge Density of the Anions of Ionic Liquids on the Electrode Kinetics of Ruthenium 2,2'-Bipyridine Complexes – Y. Katayama, Y. Toshimitsu, and T. Miura (Keio University)

16:00 **3609** Voltammetric Studies of Proton Reduction in 1-Butyl-1-methylpyrrolidinium Triflate – G. T. Cheek (United States Naval Academy), D. F. Roeper, and W. O'Grady (Excet, Inc.)

16:20 **3610** Robust Microelectrodes for Molten Salt Analysis – A. Relf, D. Corrigan, C. L. Brady, J. G. Terry, and A. J. Walton (University of Edinburgh)

16:40 **3611** PTFE Bound Activated Carbon – A Quasi Reference Electrode for Ionic Liquids and Its Application – D. Weingarth, A. Foelske-Schmitz, A. Wokaun, and R. Kötz (Paul Scherrer Institute)

17:00 **3612** Critical Evaluation of Metallocenes as Internal Reference Scales for Voltammetric Measurements in Ionic Liquids – A. A. Torriero and M. Forsyth (Deakin University)

17:20 **3613** Electrochemical Conversion of Carbon Dioxide to Oxygen in Ionic Liquid Media – D. Carr, B. Slote, K. Jayne, and M. C. Kimble (Reactive Innovations, LLC)

17:40 **3614** Influence of Temperature on the Electrochemical Characteristics of Bi(111) | 1-Butyl-3-Methylimidazolium Tetrafluoroborate Interface – L. Siinor, R. Arendi, C. Siimenson, K. Lust, and E. Lust (University of Tartu)