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Materials Engineering and Process Optimization at Electrified Solid/Liquid Interfaces

15-18 April 2018
Tokyo, Japan

Organized by:
Division 4 Electrochemical Materials Science
Division 5 Electrochemical Process Engineering and Technology
ISE Region Japan

Organizing Committee

Local Organizing Committee

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Sunday 15 April 2018

Okuma Garden House

17:00

Welcome Reception

Monday 16 April 2018

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09:30 to 09:50

Opening Ceremony

Chaired by: Takayuki Homma

Tuesday 17 April 2018

Rihga Royal Hotel Tokyo in the «Diamond Banquet Hall»

18:30

Banquet

Wednesday 18 April 2018

M. Ibuka Memorial Hall

16:20

Closing Ceremony

Monday 16 April 2018 - Morning

Keynotes

M. Ibuka Memorial Hall

Chaired by: Susumu Kuwabata

09:50 to 10:30 Keynote

Richard Alkire (Chemical and Biomolecular Engineering, University of Illinois, Urbana, USA)

Making Science Work: The Need for New Electrochemical Engineering Methods

10:30 to 11:10 Keynote

Hiroyuki Nishide (Applied Chemistry, Waseda University, Tokyo, Japan)

Redox Polymers as an Electrode-active Material

Monday 16 April 2018 - Afternoon

Materials engineering for energy devices: batteries & capacitors

M. Ibuka Memorial Hall

Chaired by: Hiroki Nara and Virginija Kepeniene

12:40 to 13:10 Invited

Stefano Passerini (Helmholtz Institute Ulm, Karlsruhe Institute of Technology, Ulm, Germany), Dominic Bresser

Nanostructures for Combined Conversion/Alloying Materials as Lithium-ion Anodes

13:10 to 13:30

Jernej Bobnar (Department of Materials Chemistry, National Institute of Chemistry, Ljubljana, Slovenia), Rémi Dedryvère, Robert Dominko, Boštjan Genorio, Gregor Kapun, Matic Lozinšek, Christian Njel

Fluorinated reduced graphene oxide as protective layer on lithium surface for batteries application

13:30 to 13:50

Motoko Nagasaki (Graduate School of Urban Environmental Sciences, Tokyo Metropolitan University, Tokyo, Japan), Kiyoshi Kanamura, Takuya Masuda, Hirokazu Munakata, Kei Nishikawa

Surface Analysis of Li metal Anode in Lithium Metal Rechargeable Battery Using $Li_4Mn_5O_{12}$ as Cathode

13:50 to 14:10

David Peralta (Battery Materials Laboratory, CEA Grenoble, Grenoble, France), Didier Bloch, Adrien Boulineau, Carole Bourbon, Jean-François Colin, Frederic Fabre, Sebastien Patoux, Jeremie Salomon

LiNi1/3Mn1/3Co1/3O_2 submicronic particles to improve the power performances of Li-ion batteries

14:10 to 14:30

Yi-Shiuan Wu (Battery Research Center of Green Energy, Ming Chi University of Technology, New Taipei City, Taiwan)

Three-dimensional porous graphene-wrapped silicon nanoparticles composite anode with nanofiber composite PET separator for lithium-ion batteries

Materials engineering for energy devices: fuel cells & energy carriers

M. Ibuka Memorial Hall

Chaired by: Akimitsu Ishihara and Yoshitaka Aoki

14:30 to 14:50

Shun Kobayashi (Clean Energy Research Center, University of Yamanashi, Kofu, Japan), Makoto Aoki, Junji Inukai, Teppei Kawamoto, Toshihiro Kondo, Ryo Shirasaka, Kohei Suda, Hiroyuki Uchida, Mitsuru Wakisaka

Multilateral Analyses of Pt-skin/Pt_3Co(111) Single Crystal Electrode with Extremely High Activity for the Oxygen Reduction Reaction

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Virginija Kepeniene (Department of Catalysis, Center for Physical Sciences and Technology, Vilnius, Lithuania), Eugenijus Norkus, Raminta Stagniunaite, Loreta Tamasauskaite Tamasiunaite

Carbon Based Cobalt Catalysts for Oxygen Reduction Reaction

15:10 to 15:30

Jet-Sing Lee (iCeMS, Kyoto University, Kyoto, Japan), Satoshi Horike, Susumu Kitagawa

Alloy-Doped Carbons Derived from Porous Coordination Polymers for Oxygen Reduction Reaction

15:30 to 15:50

Coffee Break

15:50 to 16:20 Invited

Hasuck Kim (Department of Energy Science and Engineering, DGIST, Daegu, Korea), Pandian Ganesan, Sangaraju Shanmugam, Won-kyo Suh, Seunghee Woo

Preparation of Low Loading Pt Catalysts for Oxygen Reduction in Low Temperature Fuel Cells

16:20 to 16:40

Yoshiki Konno (Surface Finishing Technology Lab, Kyoto Municipal Inst. of Industrial Technology and Culture, Kyoto, Japan), Tomio Nagayama, Toshihiro Nakamura, Kaname Okura, Takayo Yamamoto

Formation of Nanoporous Spinel Ferrite Electrocatalysts by Anodizing of Electroplated Iron Alloys

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Akimitsu Ishihara (Institute of Advanced Sciences, Yokohama National University, Yokohama, Japan), Masazumi Arao, Hideto Imai, Shunsuke Kasamatsu, Masashi Matsumoto, Koichi Matsuzawa, Shigenori Mitsushima, Takaaki Nagai, Ken-ichiro Ota, Osamu Sugino, Yoshiyuki Yamamoto

Oxygen reduction activity of titanium oxide-based compounds as non-platinum cathode for PEFCs

17:00 to 17:20

Shih-Cheng Chou (Materials Science and Engineering, National Chiao Tung University, Hsinchu, Taiwan)

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Arumugam Sivanantham (Energy Science and Engineering, Daegu Gyeongbuk Institute of Science & Technology (DGIST), Daegu, Korea), Sangaraju Shanmugam

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17:40 to 18:00

Yoshitaka Aoki (Faculty of Engineering, Hokkaido University, Sapporo, Japan), Hiroki Habazaki, Damian Kowalski

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Xingxing Chen (School of Chemical Engineering, University of Science and Technology Liaoning, Anshan, China), Xinning Huang, Huimin Liu, Zhenjie Lu, Justus Masa, Haoran Pan, Jun Wang, Tao Wang

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Materials engineering for energy devices: batteries & capacitors

Room 1

Chaired by: Shuehlin Yau and Chunyu Zhu

12:40 to 13:10 Invited

Luca Magagnin (Chemistry, Materials and Chemical Engineering, Politecnico di Milano, Milano, Italy), Alessandra Accogli, Luca Magagnin

Electrochemistry of Particulate Electrodes Based on Magnetite Aggregates

13:10 to 13:30

Shuehlin Yau (Chemistry, National Central University, Taoyuan, Taiwan)

The Au(111) - Supported Pt Monolayer as the Most Active Electrocatalyst Toward Hydrogen Oxidation and Evolution in Sulfuric Acid

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Ove Oll (Institute of Chemistry, University of Tartu, Tartu, Estonia), Enn Lust, Ove Oll

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Chunyu Zhu (Division of Applied Chemistry, Hokkaido University, Sapporo, Japan)

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14:10 to 14:30

Thomas Rabbow (Vienna, Austria)

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14:30 to 14:50

Ozlem Sel (LISE (Laboratoire Interfaces et Systèmes Electrochimiques), Sorbonne Universités, UPMC University Paris 06, Paris, France), Hubert Perrot

Fast Electrogravimetric Methods for Investigating Electrode/Electrolyte Interfaces in Electrochemical Storage Devices: Application to Nanostructured Metal Oxide Thin Films

Materials engineering for energy devices: fuel cells & energy carriers

Room 1

Chaired by: Donald Tryk and Hirotaka Sato

14:50 to 15:10

Federico Calle-Vallejo (Institute of Theoretical and Computational Chemistry, Universitat de Barcelona, Barcelona, Spain), Aliaksandr Bandarenka

Optimizing Platinum Electrocatalysts for Various Reactions by Means of Coordination-Activity Plots

15:30 to 15:50

Coffee Break

15:50 to 16:20 Invited

Aliaksandr Bandarenka (Department of Physics, Technical University of Munich, Garching, Germany)

Identification of Catalytically Active Sites at Electrode Surfaces

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Akichika Kumatani (Advanced Institute for Materials Research, Tohoku Univerisity, Sendai, Japan), Hiroki Ida, Tomokazu Matsue, Chiho Miura, Takeru Okada, Seiji Samukawa, Hitoshi Shiku, Yasufumi Takahashi

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Dongil Lee (Department of Chemistry, Yonsei University, Seoul, Korea)

Electrocatalytic Applications of Atomically Precise Metal Nanoclusters

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Lu Gan (Surface and Interface Kinetics Group, National Institute of Materials Science, Tsukuba City, Japan), Hideyuki Murakami, Isao Saeki, Tomoyuki Yamamoto

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Hirotaka Sato (School of Mechanical and Aerospace Engineering, Nanyang Technological University, Singapore, Singapore), Kee Chun Poon, Haibin Su, Desmond Tan, Thang Vo, Jing Zhan

Facile Electrochemical Synthesis of Electrocatalysts for Fuel Cell and Electroless Plating

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Masanori Hayase (Mechanical Engineering, Tokyo University of Science, Noda, Japan), Toshimitsu Miyauchi, Ryo Shirai, Natasa Vasiljevic

Au-Pd-Pt Catalyst for Miniature Fuel Cells with Monolithically Fabricated Si Electrodes

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Ivar Kruusenberg (Institute of Chemistry, University of Tartu, Tartu, Estonia), Galina Dobele, Katlin Kaare, Eugenijus Norkus, Loreta Tamasauskaite Tamasiunaite, Aleksandrs Volperts, Aivars Zurins

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Materials engineering for energy devices: batteries & capacitors

Room 2

Chaired by: Wataru Sugimoto and Soshi Shiraishi

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Bruce Dunn (Materials Science and Engineering, UCLA, Los Angeles, USA)

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Hubert Perrot (LISE, Sorbonne University, Paris, France), Ozlem Sel

Investigations of various capacitive/faradaic materials through multi-scale coupled methods

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Wataru Sugimoto (Center for Energy and Environmental Science, Shinshu University, Ueda, Japan), Sho Makino, Dai Mochizuki

Lithium pre-doping from aqueous solution for hybrid supercapacitors

13:50 to 14:10

Krzysztof Fic (Institute of Chemistry and Technical Electrochemistry, Poznan University of Technology, Poznan, Poland), Elzbieta Frackowiak, Mikolaj Meller

Redox Activity of Sulphur-based Electrolytes in Supercapacitor Application

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Nathan Keilbart (Materials Science and Engineering, The Pennsylvania State University, University Park, USA), Ismaila Dabo, Shin'ichi Higai, Yasuaki Okada

Quantum-continuum Simulations of High Power Density Oxide Electrodes for Pseudocapacitive Energy Storage

14:30 to 14:50

Da-Je Hsu (Chemical Engineering, National Tsing Hua University, Hsinchu, Taiwan), Yu-Wen Chi, Chi-Chang Hu, Kun-Ping Huang

Electrochemical activation of graphene nanowalls synthesized by plasma-enhanced chemical vapor deposition for high-voltage organic EDLCs

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Grzegorz Lota (Institute of Chemistry and Technical Electrochemistry, Poznan University of Technology, Poznan, Poland), Andreas Bund, Lukasz Kolanowski, Jaroslaw Wojciechowski

The Influence of Current Collector Corrosion on the Performance of Electrochemical Capacitors

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Bebi Patil (Institute of Nano Science and Technology, Hanyang University, Seoul, Korea), Suhyun Ahn, Heejoon Ahn, Youngjin Jeong, Hyeonjun Song, Seongil Yu

Ultrahigh performance of a coaxial fiber-shaped asymmetric supercapacitor based on nanostructured MnO_2/CNT-web paper and Fe_2O_3/carbon fiber electrodes

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Coffee Break

Chaired by: David Zitoun and Torsten Wagner

15:50 to 16:20 Invited

Soshi Shiraishi (Graduate School of Science and Technology, Gunma University, Kiryu, Japan), Yoshikiyo Hatakeyama, Hidehiko Tsukada

Highly Durable Electrochemical Capacitors Using Seamless Activated-Carbon Electrode

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Bunsho Ohtani (Institute for Catalysis, Hokkaido University, Sapporo, Japan), Yuma Murakami, Akio Nitta, Mai Takase, Mai Takashima

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Torsten Wagner (Institute of Nano- and Biotechnologies, FH Aachen, Juelich, Germany), Lars Breuer, Michael J. Schoening, Farnoosh Vahidpour, Rene Welden

A light-addressable lab-on-a-chip platform

17:00 to 17:20

Hoang Anh Truong (Biomedical Engineering, Tohoku University, Sendai, Japan), Koichiro Miyamoto, Carl Frederik Werner, Tatsuo Yoshinobu

Multi-well sensor platform based on a partially etched structure of light-addressable potentiometric sensor

17:20 to 17:40

Kei Murakoshi (Department of Chemistry, Faculty of Science, Hokkaido University, Sapporo, Japan), Hiro Minamimoto, Shumpei Oikawa

Ultra-Fine Tuning of Plasmonic Properties for Au Nano-Structures *via* Electrochemical Method

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Tsubasa Ishii (Department of System and Control Engineering, Tokyo Institute of Technology, Meguro-ku, Japan), Kenji Amaya

Development of Polarization Curve Evaluation System Using Inverse Analysis

18:00 to 18:20

Stijn F.L. Mertens (Institute of Applied Physics, TU Wien, Vienna, Austria)

Quantifying and Modifying Defects in 2D Materials by Metal Underpotential Deposition

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David Zitoun (Department of Chemistry, Bar Ilan University, Ramat Gan, Israel), Masha Alesker, Istvan Bakos, Luba Burlaka, Qingying Jia, Sanjeev Mukerjee, Meital Shviro

Direct Evidence for the Bifunctional Hydrogen Oxidation Reaction Electrocatalysis in Alkaline Medium

Materials engineering for sensing, electronic and photonic devices

Room 3

Chaired by: Chi-Chang Hu and Shigeki Kuroiwa

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Hiroshi Nishihara (Department of Chemistry, School of Science, The University of Tokyo, Tokyo, Japan)

Interfacial Synthesis of Functional Coordination Nanosheets

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Tony Breton (MOLTECH-Anjou UMR CNRS 6200, University of Angers, Angers, France), Marius Cesbron, Christelle Gautier, Eric Levillain

Mixed Functional Monolayers prepared from Redox Controlled Diazonium Grafting

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Maja Budanovic (Division of Chemistry and Biological Chemistry, Nanyang Technological University, Singapore, Singapore), Dzeneta Halilovic, Surendra Mahadevegowda, Miahiela C. Stuparu, Richard D. Webster

The Enhancement of Electron-Acceptor Properties of Extended Corannulenes

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Priscila Valverde Armas (Chemical and Process Engineering, University of Strathclyde, Glasgow, United Kingdom), Todd Green, Sudipta Roy

Electro-dissolution of Copper from a Water-containing Deep Eutectic Solvent

14:10 to 14:30

Prem Pandey (Chemistry, Indian Institute of Technology (BHU), Varanasi, India)

Synthesis and Applications of Processable Prussian Blue Nanoparticles

14:30 to 14:50

Alexander Kuhn (ENSCBP, University of Bordeaux, Pessac, France), Laurent Bouffier, Neso Sojic, Dodzi Zigah

Optimization of asymmetric particle synthesis with bipolar electrochemistry

14:50 to 15:10

Falk Muench (Department of Materials and Interfaces, Weizmann Institute of Science, Rehovot, Israel), Tatyana Bendikov, Yishay Feldman, Ronit Popovitz-Biro, Israel Rubinstein, Alexander Vaskevich

Shape-Selective Electroless Plating of High Aspect Ratio Silver Nanoplatelet Films

15:30 to 15:50

Coffee Break

Chaired by: Naoki Fukumuro and Antoine Allanore

15:50 to 16:20 Invited

Wei-Ping Dow (Chemical Engineering, National Chung Hsing University, Taichung, Taiwan), Po-Fan Chan, I.-Hsuan Chang, Shih-Cheng Chang, Yi-Yung Chen, Chun-Hsiang Lo, Wei-Yang Zeng

Advanced Electroplating Technologies for 2.5D and 3D Chip Packaging Fabrication

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Andrew Lodge (Chemistry, University of Southampton, Southampton, United Kingdom), Richard Beanland, Ruomeng Hang, Andrew Hector, Reza Kashtiban, Samantha Soulé, Kees de Groot

Electrodeposition of porous silica templates inside lithographically defined substrates for nanofabricated devices

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Chi-Chang Hu (Department of Chemical Engineering, National Tsing Hua University, Hsin-Chu, Taiwan), Chun-Cheng Lin

Surface morphology and microstructure control of electrodeposited copper foils for high-frequency wireless devices and Li-ion batteries

Fabrication and diagnosis processes including theoretical analyses and modeling

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Antoine Allanore (Department of Materials Science & Engineering, MIT, Cambridge, USA), Andrew Caldwell, Bradley Nakanishi

AC-voltammetry signals during electrodepositionand gas evolution in molten salts

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Tso-Fu Mark Chang (Institute of Innovative Research, Yokohama, Japan), Chun-Yi Chen, Yi-Hsuan Chiu, Yung-Jung Hsu, Masato Sone

Hydro-Baric Effect on Cathodic Deposition of Titanium Dioxide and Tin Dioxide

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Remigiusz Kowalik (Faculty of Non-Ferrous Metals, Kraków, Poland), Karolina Kolczyk, Dawid Kutyla, Anna Kwiecinska, Piotr Zabinski

Electrochemical Analysis of Cobalt and Selenium Codeposition Process from Acidic Solutions

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Krzysztof Mech (Academic Centre for Materials and Nanotechnology, AGH University of Science and Technology, Krakow, Poland), Jean Paul Chopart, Konrad Szacilowski, Miroslaw Wrobel, Piotr Zabinski

Co-deposition of nickel and palladium from ammonia based bath

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Naoki Fukumuro (Department of Chemical Engineering and Materials Science, University of Hyogo, Himeji, Japan), Yuh Fukai, Ayumu Matsumoto, Shinji Yae

Hydrogen-Induced Structural Changes in Electrodeposited Metal Films

Tuesday 17 April 2018 - Morning

Keynotes

M. Ibuka Memorial Hall

Chaired by: Toshiyuki Momma

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Ulrich Stimming (Chemistry, Newcastle University, Newcastle upon Tyne, United Kingdom), Oliver Schneider, Lukas Seidl

In-situ Studies of Li- and Na- Intercalation Batteries

10:10 to 10:50 Keynote

Eiichiro Matsubara (Materials Science and Engineering, Kyoto University, Kyoto, Japan)

Efforts to Develop the Innovative Batteries in the NEDO RISING 2 Project

10:50 to 11:10

Coffee Break

Materials engineering for energy devices: batteries & capacitors

M. Ibuka Memorial Hall

Chaired by: Futoshi Matsumoto and Nae-Lih Wu

11:10 to 11:40 Invited

Masayoshi Watanabe (Department of Chemistry and Biotechnology, Yokohama National University, Yokohama, Japan)

Effect of Activity of Free Solvents in Concentrated Electrolytes on Electrochemical Energy Conversion Reactions

11:40 to 12:00

Daniel Bélanger (Chimie, Université du Québec à Montréal, Montréal, Canada), Laura Coustan

Electrochemistry in superconcentrated aqueous electrolytes

12:00 to 12:20

Minoru Mizuhata (Department of Chemical Science and Engineering, Kobe University, Kobe, Japan), Hideshi Maki, Masaki Matsui, Marie Takemoto

Dynamic properties on NMR spectroscopy for $LiClO_4$/PC-DME solution coexisting with fumed silica filler

12:20 to 12:40

Futoshi Matsumoto (Department of Life and Materials Chemistry, Kanagawa University, Yokohama, Japan)

Application of porous electrodes prepared with picosecond pulsed laser to lithium ion battery

Materials engineering for energy devices: fuel cells & energy carriers

Room 1

Chaired by: Eiji Higuchi and Hee-Tak Kim

11:10 to 11:40 Invited

Karel Bouzek (Department of Inorganic Technology, University of Chemistry and Technology Prague, Prague, Czech Republic), Tomas Bystron, Martin Prokop

Aspects of Phosphoric Acid Presence in High-Temperature PEM Fuel Cell with Regard to the Pt Catalyst

11:40 to 12:00

Fabian Bienen (Electrochemical Energy Technology, German Aerospace Center, Stuttgart, Germany), K. Andreas Friedrich, Elias Klemm, Dennis Kopljar, Armin Löwe, Nobert Wagner

On the applicability of the capillary rise method for determining the internal wettability of gas-diffusion electrodes

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Tilman Jurzinsky (Applied Electrochemistry, Fraunhofer Institute for Chemical Technology ICT, Pfinztal, Germany), Michael Bruns, Carsten Cremers, Eduardo Daniel Gomez Villa, Julia Melke, Frieder Scheiba

Improving the electrode-electrolyte link in high-temperature polymer electrolyte membrane fuel cells by catalyst support functionalization

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Junichiro Otomo (Department of Environment Systems, The University of Tokyo, Kashiwa, Japan), Fumihiko Kosaka, Chien-I. Li, Akio Oikawa

Electrode Design and Performance Characteristics for Ammonia Electrochemical Synthesis with Proton-Conducting Solid Electrolyte Fuel Cells

Fabrication and diagnosis processes including theoretical analyses and modeling

Room 2

Chaired by: Sho Hideshima and Yasuo Yoshimi

11:10 to 11:40 Invited

Daniel Scherson (Department of Chemistry, Case Western Reserve University, Cleveland, USA), Zhange Feng, Nicholas Georgescu, Qi Han

New Advances in Ohmic Microscopy

11:40 to 12:00

Alexander Oleinick (CNRS-ENS-UPMC, UMR8640 Pasteur, CNRS, Paris, France), Christian Amatore, Oleksii Sliusarenko, Irina Svir

Reconstruction of Nanoparticle or Electroactive Nano-Component Distributions in Electrochemical Arrays based on Chronoamperometric Data

12:00 to 12:20

Shofu Matsuda (Department of Materials Science and Technology, Nagaoka University of Technology, Nagaoka, Niigata, Japan), Yoshiki Obu, Yuuki Okuda, Minoru Umeda

Electrochemical Characteristics of Triphenylamine Derivative by Microelectrode Voltammetry

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Georg Gorbatovski (Institute of Chemistry, University of Tartu, Tartu, Estonia), Erik Anderson, Enn Lust, Ove Oll

Specific Adsorption from an Ionic Liquid: *In Situ* STM and Impedance Study of Iodide Ion Adsorption from a Pure Halide Ionic Liquid at Bismuth Single Crystal Planes

Materials engineering for sensing, electronic and photonic devices

Room 3

Chaired by: Kazuhiro Fukami and Jan Macak

11:10 to 11:40 Invited

Mario Ferreira (Department of Materials Science and Engineering, Campus Santiago, Aveiro, Portugal), Joao Tedim, Mikhail Zheludkevich

Smart Nano/Micro-structured Coatings for Corrosion Protection, Anti-Fouling Application and Sensing

11:40 to 12:00

Chularat Wattanakit (Vidyasirimedhi Institute of Science and Technology, (VISTEC), Rayong, Thailand), Sunpet Assavapanumat, Alexander Kuhn, Veronique Lapeyre, Jumras Limtrakul, Somkiat Nokbin, Chompunuch Warakulwit, Thittaya Yutthalekha

Highly Enantioselective Electrosynthesis at Mesoporous Chiral Metal Surfaces

12:00 to 12:20

Christelle Gautier (Laboratoire MOLTECH-Anjou - UMR CNRS 6200, Universite d'Angers, Angers, France), Olivier Aleveque, Sihame Bkhach, Eric Levillain

From solution to mixed self-assembled monolayers: enhancement or extinction of the properties?

12:20 to 12:40

Kazuhiro Fukami (Department of Materials Science and Engineering, Kyoto University, Kyoto, Japan), Takeshi Abe, Atsushi Kitada, Akira Koyama, Kuniaki Murase, Tetsuo Sakka

Acceleration of Ion Transport within Nanopore Caused by Confinement of Electrolyte Solution

Tuesday 17 April 2018 - Afternoon

Materials engineering for energy devices: batteries & capacitors

M. Ibuka Memorial Hall

Chaired by: Futoshi Matsumoto, and Nae-Lih Wu

14:00 to 14:20

Tokihiko Yokoshima (Research Organization of Nano and Life Innovation, Waseda University, Tokyo, Japan), Toshiyuki Momma, Hiroki Nara, Tetsuya Osaka, Taku Owada

Electrochemical Deposition Mechanism of Si-O-C Composite Anode from Propylene Carbonate Based Bath

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Eduardo dos Santos Sardinha (Department of Chemistry, Carl-von-Ossietzky Universität Oldenburg, Oldenburg, Germany), Michael Sternad, Martin Wilkening, Gunther Wittstock

Scanning Electrochemical Microscopy Study of the Formation of Solid Electrolyte Interfaces and Lithiation on Silicon Electrodes

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Lina Marcela Sepúlveda (Universidad de Antioquia, Medellín, Colombia), Juan Guillermo Castaño, Felíx Echeverría

The Synthesis of TiO_2 Self-Ordering Nanocolumns on Al/Ti Layers by Two-Step Anodizing Process Using Etidronic Acid and Their Electrochemical Study by Cyclic Voltammetry

15:00 to 15:20

Song-Zhu S. Kure-Chu (Department of Materials Function and Design, Nagoya Institute of Technology, Nagoya, Japan), Takehiko Hihara, Nobuhiro Kawakami, Reona Miyazaki, Guoyi Tang, Hitoshi Yashiro, Yongda Ye

One-Process Fabrication of Nanostructured TiO_2-TiO-TiN/XO_2 Composite Films on Ti Foils toward High-Performance Anode Materials for Lithium Ion Batteries

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Sayoko Shironita (Department of Matarials Science and Technology, Nagaoka University of Technology, Nagaoka, Japan), Neil Ihsan, Kotaro Konakawa, Kenichi Souma, Minoru Umeda

Investigation of nitriding treated Ni-free stainless steel as current collector for 5V-class Li-ion secondary cell

15:40 to 16:00

Coffee Break

Chaired by: Minoru Mizuhata and Daniel Bélanger

16:00 to 16:20

Nae-Lih Wu (Chemical Engineering Department, National Taiwan University, Taipei, Taiwan)

Enhanced Performance of Li-Ion Battery Cathodes by Polymeric Artificial Solid-Electrolyte-Interphase Coatings

16:20 to 16:40

Jun Haruyama (CD-FMat, Advanced Industrial Science and Technology (AIST), Tsukuba, Japan), Tamio Ikeshoji, Minoru Otani

Li Insertion/Desorption Simulations at Li_xC_6/EC ($LiPF_6$ 1M) Interfaces Using Density Functional + Implicit Solvation Theory

16:40 to 17:00

Masashi Ishikawa (Department of Chemistry and Materials Engineering, Kansai University, Suita, Japan), Yukiko Matsui, Satoshi Uchida

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17:00 to 17:20

Yunwen Wu (Graduate School of Advanced Science and Engineering, Waseda University, Tokyo, Japan), Toshiyuki Momma, Hiroki Nara, Tetsuya Osaka, Tokihiko Yokoshima

Potentiostatic Pre-lithiation for Preparing Lithium Sulfide Cathode

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Sasan Ghashghaie (Department of Materials Science and Engineering, City University of Hong Kong, Hong Kong, China), Samson Ho-Sum Cheng, Jonathan Chi-Yuen Chung, Jie Fang, Robin Lok-Wang Ma, Hafiz Khurram Shahzad

Electric-Field Assisted Deposition of Carbon Nanostructures as a Binder-Free Approach to Fabricate High-Efficiency Li-S Batteries

17:40 to 18:00

Katarina Gavalierova (Dept of Physical Chemistry, Pavol Jozef Safarik University, Kosice, Slovakia), Pedro Gómez-Romero, Daniel Rueda, Andrea Straková Fedorková

Composite of S-MWCNTs-PPy-nanopipes as Cathode Material for Li-S Batteries

Materials engineering for energy devices: fuel cells & energy carriers

Room 1

Chaired by: Tilman Jurzinsky and Junichiro Otomo

14:00 to 14:20

Gumaa El-Nagar (Inst. of Chemistry and Biochemistry, Freie Berlin Universität, Berlin, Germany), Iver Lauermann, Christina Roth

Efficient Direct Formic Acid Fuel Cells (DFAFCs) Anode Derived from Seafood Waste: Spillover Mechanism

14:20 to 14:40

Eiji Higuchi (Department of Applied Chemistry, Osaka Prefecture University, Sakai, Japan), Masanobu Chiku, Naoki Hiratsuka, Hiroshi Inoue

Preparation of Pd-deposited Spherical Ag Electrocatalysts and Their Application to Alkaline Fuel Cells

14:40 to 15:00

Hee-Tak Kim (Chemical and Biomolecular Engineering, KAIST, Daejon, Korea)

Tuning the ionomer distribution in catalyst layer with scaling the ionomer aggregate size in dispersion for high performance PEMFC

15:00 to 15:20

Sana Ben Jadi (Chemistry, Faculty of Sciences - Ibn Zohr University, Agadir, Maroc), Zaynab Aouzal, El Arbi Bazzaoui, Mohammed Bazzaoui, Jadi, Mimouna Bouabdallaoui, Abdelqader El Guerraf, Abdelhadi El Jaouhari, Rongguang Wang

Effect of Conducting Polymers Coating on Nafion Methanol Crossover in Direct Methanol Fuel Cell (DMFC)

15:20 to 15:40

Raminta Stagniunaite (Department of Catalysis, Center for Physical Sciences and Technology, Vilnius, Lithuania), Virginija Kepeniene, Eugenijus Norkus, Loreta Tamasauskaite Tamasiunaite, Daina Upskuviene

Investigation of $AuCeO_2/C$ as electrocatalyst for alkaline fuel cells

15:40 to 16:00

Coffee Break

Chaired by: Petr Krtil and Gumaa El-Nagar

16:00 to 16:30 Invited

Avner Rothschild (Materials Science and Engineering, Technion - Israel Institute of Technology, Haifa, Israel)

The rust challenge: Iron oxide photoelectrodes for solar water splitting

16:30 to 16:50

Petr Krtil (Low Dimension Systems, J. Heyrovsky Institute of Physical Chemistry, Prague, Czech Republic), Ivano Castelli, Ladislav Kavan, Monika Klusackova, Katerina Macounova, Roman Nebel, Jan Rossmeisl

Activity and Selectivity Control of the Photo- electrochemical Behavior of Nanoparticulate n-semiconductors Based on Ti Oxides

16:50 to 17:10

Quinn Campbell (Materials Science and Engineering, The Pennsylvania State University, University Park, USA), Ismaila Dabo

Charge separation at electrified semiconductor-solution interfaces

17:10 to 17:30

Herman Kriegel (Institute of Materials Research, Helmholtz-Zentrum Geesthacht, Geesthacht, Germany), Iris Herrmann-Geppert, Thomas Klassen, Deirdre Olynick, Mauricio Schieda, Dmitriy Voronov

Effect of Structuring Geometry on the Photocurrent of Experimental Model Photoelectrode Surfaces

17:30 to 17:50

Yu-Chien Chueh (Chemical Engineering, National Cheng Kung University, Tainan, Taiwan), Chia-Yu Lin

Nanocomposite of $CuBi_2O_4$ and CuO as a highly efficient photocathode material for photoelectroc hydrogen evolution

Fabrication and diagnosis processes including theoretical analyses and modeling

Room 2

Chaired by: Yumi Yoshida and Shofu Matsuda

14:00 to 14:20

Nelson Stradiotto (Institute of Chemistry, São Paulo State University (UNESP), Araraquara, Brazil), Daniel Rodrigues da Silva, José Luiz da Silva

Electrooxidation of polyphenols at a glassy carbon electrode modified with electrochemically reduced graphene oxide and Fe nanoparticles

14:20 to 14:40

Barbara Jachimska (J. Haber Institute of Catalysis and Surface Chemistry, Polish Academy of Sciences, Krakow, Poland)

Self-Assembling Behavior of Proteins: Effect of the Interaction between Protein and Surface

14:40 to 15:00

Eduardo Luís Trindade da Silva (MagIC – Magnesium Innovation Centre, Helmholtz-Zentrum Geesthacht, Geesthacht, Germany), Filipe José Alves de Oliveira, Miguel Angelo Neto, Rui Ramos Ferreira e Silva, Mikhail Larionovich Zheludkevich

Boron Doped Diamond Microelectrodes as Amperometric Sensors for Studying Localized Corrosion on Mg and Mg Alloys

15:00 to 15:20

Yumi Yoshida (Faculty of Molecular Chemistry and Engineering, Kyoto Institute of Technology, Kyoto, Japan), Mao Fukuyama, Emi Kusakabe, Kohji Maeda, Yui Nakamura

Potential Stability of the Partially Oxidized Conducting Polymer-coated Electrode in Organic Phase for Application to an Amperometric Device

15:20 to 15:40

Yasuo Yoshimi (Department of Applied Chemistry, Shibaura Institute of Technology, Tokyo, Japan), Shunsuke Hayashi, Maki Seki, Rina Yamaguchi

Oil-assisted gate effect of molecularly imprinted polymer grafted directly on graphite particles in a paste electrode

15:40 to 16:00

Coffee Break

Materials engineering for sensing, electronic and photonic devices

Room 2

Chaired by: Yasushi Hasebe and Nelson Stradiotto

16:00 to 16:30 Invited

Tomokazu Matsue (Graduate School of Environmental Studies, Tohoku University, Sendai, Japan)

Nanoscale Electrochemical Imaging for Characterization of Functional Materials

16:30 to 17:00 Invited

Michael J. Schoening (Institute of Nano- and Biotechnologies (INB), FH Aachen, Juelich, Germany), Julio Arreola, Zaid Jildeh, Michael Keusgen, Jan Oberlaender, Patrick Wagner

MnO_2-based thin-film sensors for harsh environmental conditions

17:00 to 17:20

Lin-Chi Chen (Department of Bio-Industrial Mechatronics Engineering, National Taiwan University, Taipei, Taiwan), Yu-Fu Chen, Ching-Jung Yen

Electrodeposition of Polyaniline with High Hydrophobicity and Pseudo-capacitance for Multiplex Solid-contact Ion Sensing

17:20 to 17:40

Kenta Iitani (Graduate School of Medical and Dental Sciences, Tokyo Medical and Dental University, Tokyo, Japan), Takahiro Arakawa, Kohji Mitsubayashi, Koji Toma

Gas-imaging System (Sniff-cam) using NADH-dependent Alcohol Dehydrogenase for Assessment of Alcohol Metabolism

17:40 to 18:00

Yasushi Hasebe (Department of Life Science and Green Chemistry, Saitama Institute of Technology, Fukaya, Japan), Shin-ichi Seki, Yue Wang

Amperometric flow-through biosensor for uric acid using enzyme-modified carbon-felt based on oxidase and peroxidase-bienzyme system

Materials engineering for sensing, electronic and photonic devices

Room 3

Chaired by: Masatoshi Sakairi and Takashi Yanagishita

14:00 to 14:20

Mareike Haensch (Department of Chemistry, Carl von Ossietzky University Oldenburg, Oldenburg, Germany), Luis Balboa, Julian Behnken, Matthias Graf, Jörg Weissmüller, Gunther Wittstock

Nanoporous Gold - A Prototype for a Rational Design of Catalysts: Electrocatalysis and Transport

14:20 to 14:40

Takashi Yanagishita (Department of Applied Chemistry, Tokyo Metropolitan University, Tokyo, Japan), Masahiko Imaizumi, Toshiaki Kondo, Hideki Masuda

Preparation of Ordered Porous Alumina Spheres by Anodization of Small Al Particles

14:40 to 15:00

Shota Higashino (Graduate School of Energy Science, Kyoto University, Kyoto, Japan), Tetsuji Hirato, Takumi Ikenoue, Masao Miyake

Electrodeposition of Al-W Alloys and Surface Modification by Anodization

15:00 to 15:20

Masatoshi Sakairi (Faculty of Engineering, Hokkaido University, Sapporo, Japan), Toshiyuki Matsumoto

Fabrication of porous alumina filter by Sf-MDC and etching

15:20 to 15:40

Dihia Benaoudia (ITODYS, University Paris Diderot, Paris, France), Véronique Bennevault, Jalal Ghilane, Philippe Guégan, Jean-Christophe Lacroix, Jérôme Mathé, Fabien Montel

Chemical nanopores modification for smart filters

15:40 to 16:00

Coffee Break

Chaired by: Ladislav Kavan and Chun-Yi Chen

16:00 to 16:20

Ladislav Kavan (Electrochemical Materials, J. Heyrovsky Institute of Physical Chemistry, Prague, Czech Republic)

Electrochemical Characterization of Semiconducting Oxide Thin Films for Energy Applications: Solar Cells, Fuels, Batteries and Beyond

16:20 to 16:40

Jan Macak (Center of Materials and Nanotechnologies, University of Pardubice, Pardubice, Czech Republic), Milos Krbal, Jan Prikryl, Hanna Sopha, Raul Zazpe

Anodic TiO_2 Nanotube Layers: Superior Photoelectrochemical Performance due to Secondary Materials

16:40 to 17:00

Giovanni Zangari (Materials Science and Engineering, University of Virginia, Charlottesville, USA), Rasin Ahmed

Growth of Bismuth Selenide by Electrodeposition and SILAR: Materials for Photovoltaic and Photoelectrochemistry

17:00 to 17:20

Maryam Borghei (Bioproducts and Biosystems, Aalto University, Espoo, Finland)

Biobased aerogels of different surface charge as electrolyte interface in a quantum dot-sensitized solar cell

17:20 to 17:40

Chun-Yi Chen (Institute of Innovative Research, Tokyo Institute of Technology, Yokohama, Japan), Tso-Fu Mark Chang, Yi-Hsuan Chiu, Yung-Jung Hsu, Nobuhiro Matsushita, Mitsuo Niinomi, Kiyoshi Okada, Kazunari Ozasa, Masato Sone

Anodization of Ti-Nb-Ta-Zr-O Mixed-oxides Nanotube Arrays: A Promising Alternative Photoelectrode for Solar Conversion

Wednesday 18 April 2018 - Morning

Keynote

M. Ibuka Memorial Hall

Chaired by: Giovanni Zangari

09:30 to 10:10 Keynote

Yue Kuo (Thin Film Nano & Microelectronics Research Laboratory, Texas A&M University, College Station, USA), Noel Buckley

Electrochemical Reactions in Solid State Device Fabrication – Current and Future

Materials engineering for energy devices: batteries & capacitors

M. Ibuka Memorial Hall

Chaired by: Nathalie Herlin Boime and Kenji Kawaguchi

10:10 to 10:30

Nathalie Herlin Boime (IRAMIS, CEA CNRS UMR NIMBE, Saclay, France), John P. Alper, Pierre Bernard, Marion Chandesris, Antoine Desrues, N. Dufour, Cedric Haon

Interface Analysis of Si-based Anode in Li-ion Batteries through Electrochemical Impedance Spectroscopy and Equivalent Electrical Circuit Analysis

10:30 to 10:50

Fu-Ming Wang (Graduate Institute of Applied Science and Technology, National Taiwan University of Science and Technology, Taipei, Taiwan)

An Alternative Solution of Internal Short and Safety Problems in Lithium Ion Battery

10:50 to 11:10

Marketa Zukalova (Electrochemical Materials, J. Heyrovsky Institute of Physical Chemistry CAS, Prague, Czech Republic)

Novel synthesis of nanocrystalline $Na_2Ti_3O_7$ with improved performance for Na-ion batteries

11:10 to 11:30

Coffee Break

11:30 to 11:50

Daniel Stock (Institute of Physical Chemistry, Justus Liebig University Giessen, Giessen, Germany), Saustin Dongmo, Jürgen Janek, Daniel Schröder

Keeping anions where they belong: Increased cycling stability of zinc anodes with homogeneous anion-exchange ionomer coating

11:50 to 12:10

Ghoncheh Kasiri Bidhendi (Energiespeicher- und Energiewandlersysteme, Universität Bremen, Bremen, Germany), Amir Bani Hashemi, Fabio La Mantia

Synthesis and Characterization of New Improved Copper Hexacyanoferrate Nanoparticles for Zinc-Ion Batteries

Materials engineering for energy devices: fuel cells & energy carriers

Room 1

Chaired by: Kenji Sakamaki and Piotr Zabinski

10:10 to 10:30

Kenji Sakamaki (Department of Applied Chemistry and Biochemistry, Fukushima College, National Institute of Technology, Iwaki, Fukushima, Japan), Haruka Endo, Ryoko Kato, Honoka Matsuda, Wakana Sakashita, Masataka Sato, Sayuri Usui, Ayana Watanabe

Photoelectrochemical Visible Light Zero Bias Hydrogen Generation with Membrane-Based Cells Designed for Decreasing Overall Water Electrolysis Voltage and Water Dissociation (18)

10:30 to 10:50

Roudabeh Valiollahi (Department of Science and Technology, Linköping University, Norrköping, Sweden), Xavier Crispin, Amritpal Singh, Mikhail Vagin, Igor Zozoulenko

Vapor Phase Polymerized PEDOT for Electrochemical Hydrogen Evolution Reaction

11:10 to 11:30

Coffee Break

11:30 to 11:50

Chuan Zhao (School of Chemistry, UNSW, Sydney, Australia)

Nanostructuring Earth Abundant Electrocatalysts for Water Splitting

11:50 to 12:10

Piotr Zabinski (Faculty of Non-Ferrous Metals, AGH University of Science and Technology, Krakow, Poland), Iwona Dobosz, Karolina Kolczyk, Remigiusz Kowalik, Dawid Kutyla

External Magnetic Field Assisted Electrodeposition of Co-Ru Nanorods for Water Splitting Reaction

12:10 to 12:30

Yan Shen (Wuhan National Laboratory for Optoelectronics, Huazhong University of Science and Technology, Wuhan, China), Minglei Tao, Mingkui Wang, Xin Xiao

Electronic Modulation of Transition Metal Phosphide *via* Doping as Efficient and pH-universal Electrocatalysts for Hydrogen Evolution Reaction

Materials engineering for sensing, electronic and photonic devices

Room 2

Chaired by: Takeo Hyodo and Bo Yao

10:10 to 10:30

Takeo Hyodo (Graduate School of Engineering, Nagasaki University, Nagasaki, Japan), Kai Kamada, Yasuhiro Shimizu, Mari Takamori, Taro Ueda

Potentiometric Carbon Monoxide Sensors Employing Anion-Conducting Polymer Electrolyte and Oxide-Based Sensing Electrodes

10:30 to 10:50

Deng Pan (School of Medical, Southeast University, Nanjing, China), Yanfei Shen

A Sandwiched Immunosensor for Highly Selective and Sensitive Detection of Alpha-fetoprotein by Using CdTe@SiO_2/GO Electrochemiluminescence Probe

10:50 to 11:10

Chih-Yu Lai (Bio-Industrial Mechatronics Engineering, National Taiwan University, Taipei, Taiwan), Lin-Chi Chen

EIS Detection of MUC1 with Two Symmetric Aptamer/Au Electrodes

11:10 to 11:30

Coffee Break

11:30 to 11:50

Kosuke Ino (Graduate School of Engineering, Tohoku University, Sendai, Japan), Mai Gakumasawa, Hitoshi Shiku, Mayuko Terauchi

Electrodeposition of patterned hydrogels using an LSI-based electrochemical devices for biosensing and cell culture

11:50 to 12:10

Emmanuel Iwuoha (Chemistry, SensorLab, University of Western Cape, Cape Town, South Africa), Usisipho Feleni, Laura Pacoste

Patterns in the Nanoamperometry of Breast Cancer Drug Metabolism

12:10 to 12:30

Bo Yao (Chemistry, Zhejiang University, Hangzh, China)

Sensitive Gold Electrode Biosensors Fabricated on Plastic Substrate

Development of micro to large scale reactors including process optimization and industrial applications

Room 3

Chaired by: Woonsup Shin

10:10 to 10:30

Kangwoo Cho (Division of Environmental Science and Engineering, Pohang University of Science and Technology, Pohang, Korea), Seok Won Hong, William Na

Photoelectrochemical Reactor for Degradation of Organic Compounds and Disinfection Based on Self-doped TiO_2 Nanotubes

10:30 to 10:50

Mary Elizabeth Wagner (Department of Materials Science and Engineering, Massachusetts Institute of Technology, Cambridge, USA), Antoine Allanore

Electrochemistry of Precious Metals in Molten Sulfides

10:50 to 11:10

Jaromir Hnat (Department of Inorganic Technology, University of Chemistry and Technology Prague, Prague, Czech Republic), Karel Bouzek, Roman Kodym, Jakub Rutrle

Laboratory Zero-gap Alkaline Water Electrolyzer Stack: Development, Optimization and Mathematical Modeling

11:10 to 11:30

Coffee Break

11:30 to 11:50

Geir Martin Haarberg (Materials Science and Engineering, Norwegian University of Science and Technology, Trondheim, Norway), Babak Khalaghi, Ole Kjos, Tommy Mokkelbost

Reducing CO_2 Emissions from Aluminium Electrolysis Cells by Supplying Porous Anodes with Methane

11:50 to 12:10

Ying-Hsuan Chen (Interface Chemistry and Surface Engineering, Max-Planck-Institut fuer Eisenforschung GmbH, Dusseldorf, Germany), Andreas Erbe

The multiple roles of an organic corrosion inhibitor on copper investigated by a combination of electrochemistry-coupled optical *in situ* spectroscopies

12:10 to 12:30

Woonsup Shin (Chemistry, Sogang University, Seoul, Korea), Mijung Park

Electrochemical CO_2 to formic acid process based on dental amalgam electrode

Wednesday 18 April 2018 - Afternoon

Materials engineering for energy devices: batteries & capacitors

M. Ibuka Memorial Hall

Chaired by: Toshihiko Mandai and Alexandre Ponrouch

14:00 to 14:20

Kenji Kawaguchi (Organization for Research Initiatives and Development, Doshisha University, Kyoto, Japan), Tsukasa Gejo, Masatsugu Morimitsu

Polarization Behaviors and Cycle Performance of Air Electrode Using Water Repellent Film for Metal Hydride/Air Secondary Battery

14:20 to 14:40

Haoran Jiang (Department of Mechanical and Aerospace Engineering, The Hong Kong University of Science and Technology, Hong Kong, China), Wei Shyy, Maochun Wu, Jianbo Xu, Lin Zeng, Tianshou Zhao

Unraveling the Roles of Point Defects on Carbon Surfaces in Non-Aqueous Lithium-Oxygen Batteries

14:40 to 15:00

Tatsumi Ishihara (Department of Applied Chemistry, Faculty of Engineering, Kyushu University, Fukuoka, Japan), Shintaro Ida, Yuiko Inoishi, Takayashi Miyano

Mesoporous $La_{0.6}Ca_{0.4}CoO_3$ Perovskite Oxide for Oxygen Reduction and Oxygen Evolution Reaction for Reversible Zn-air Battery

15:00 to 15:20

Yi-Ting Lu (Chemical Engineering, National Tsing-Hua University, Hsin-Chu, Taiwan), Chi-Chang Hu

Enhanced Catalytic Performance of Ternary Spinel $Fe_xNi_{1-x}Co_2O_4$ / Activated Carbon Composite for the Air Cathode of Rechargeable Zinc-Air Batteries

15:20 to 15:40

Sviatlana Lamaka (Department of Corrosion and Surface Technology, Magnesium Innovation Center, Helmholtz-Zentrum Geesthacht, Geesthacht, Germany)

Electrolyte Additives for Improving Performance of Primary Mg-Air Batteries

15:40 to 16:00

Toshihiko Mandai (Chemistry and Biological Sciences, Iwate University, Morioka, Japan), Mizuki Hatta, Tatsuya Takeguchi

Novel Oxygen- and Chloride-free Magnesium Salt for Magnesium Rechargeable Batteries

16:00 to 16:20

Alexandre Ponrouch (QES, ICMAB-CSIC, Bellaterra, Spain)

Electrodeposition and Development of Mg and Ca Metal Anodes

Materials engineering for energy devices: fuel cells & energy carriers

Room 1

Chaired by: Natasa Vasiljevic and Kensaku Nagasawa

14:00 to 14:20

Hiroshi Ito (Research Institute for Energy Conservation, Natl Inst of Adv Ind Sci and Tech (AIST), Tsukuba, Japan), Natsuki Kawaguchi, Tetsuo Munakata, Akihiro Nakano, Satoshi Someya

Pressurized Hydrogen Production with Anion Exchange Membrane Electrolysis

14:20 to 14:40

Natasa Vasiljevic (School of Physics, H.H. Wills Physics Lab, University of Bristol, Tyndal, Bristol, United Kingdom)

Exploiting Hydrogen-sorption for Deposition of Platinum on Palladium Films

14:40 to 15:00

Maria Valnice Boldrin Zanoni (Analytical Chemistry, UNESP, Araraquara, Brazil)

CO_2 Photoelectroreduction at TiO_2 Nanotubes Electrodes Decorated with Nanoparticle/Nanocubes Silver

15:00 to 15:20

Kensaku Nagasawa (Institute of Advanced Sciences, Yokohama National University, Yokohama, Japan), Yuta Inami, Junpei Koike, Yoshiyuki Kuroda, Shigenori Mitsushima, Ichiro Yamanaka

Electro-catalytic Performance in Toluene Hydrogenation Electrolyzer for Energy Carrier Synthesis

15:20 to 15:40

Stefan Ringe (Department of Chemical Engineering, Stanford University, Stanford, USA), Karen Chan, Jens Nørskov

Impliciations of Transport and pH-Effects on Electrocatalytic CO_2 Reduction

15:40 to 16:00

Dan Shan (School of Environmental and Biological Engineering, Nanjing University of Science and Technology, Nanjing, China), Wen-Li Xin

Two-dimensional porphyrin-based metal-organic frameworks: The enhanced electrocatalysis of CO_2 reduction in aqueous solution

16:00 to 16:20

Qingli Hao (School of Chemical Engineering, Nanjing University of Science and Technology, Nanijng , China), Jiawei Fan, Wu Lei, Haitao Ye

Novel Catalyst for Electroreduction of CO_2 to Ethanol

Materials engineering for energy devices: batteries & capacitors

Room 2

Chaired by: Ying-Chih Liao and Qiong Cai

14:00 to 14:20

Tatsuya Ando (International Center of Materials Nanoarchitectonics, National Institute for Materials Science, Tsukuba, Japan), Toyohiro Chikyow

Enhancement of Sensitivity and Accuracy of Aqua Droplet Detection

14:20 to 14:40

Ying-Chih Liao (Department of Chemical Engineering, National Taiwan University, Taipei, Taiwan), Bendix Ketelsen, Florian Schulz, Chun-Hao Su, Tobias Vossmeyer, Mazlum Yesilmen

Highly Responsive Humidity Sensor Based on Gold Nanoparticle *via* Inkjet Printing Technology

14:40 to 15:00

Lin Zeng (HKUST Jockey Club Institute for Advanced Study, The Hong Kong University of Science and Technology, Hong Kong, China), Le Shi, Lei Wei, Jianbo Xu, Tianshou Zhao

Unravelling the Role of Oxygen-containing Functional Groups for Vanadium Electrochemistry

15:00 to 15:20

Abdulmonem Fetyan (Physical and Theoretical Chemistry, Freie Universität Berlin, Berlin, Germany), Igor Derr, Gumaa El-Nagar, Christina Roth

A Neodymium Oxide Nanoparticle-Doped Carbon Felt as Promising Electrode for Vanadium Redox Flow Batteries

15:20 to 15:40

Qiong Cai (Chemical and Process Engineering, University of Surrey, Guildford, United Kingdom)

Electrode Design for Redox Flow Batteries by Using a Three-Dimensional Multiphase Lattice Boltzmann Model

15:40 to 16:00

Matthäa Verena Holland-Cunz (Chemistry, Newcastle University, Newcastle upon Tyne, United Kingdom), Faye Cording, Robert Fleck, Jochen Friedl, Barbara Schricker, Ulrich Stimming, Holger Wolfschmidt

Asymmetric Polyoxometalate Electrolytes for Redox Flow Batteries

16:00 to 16:20

Marcus Worsley (Physical and Life Sciences Directorate, Lawrence Livermore National Laboratory, Livermore, USA), Victor Beck, Juergen Biener, Swetha Chandrasekaran Chandrasekaran, Eric Duoss, Ryan Hensleigh, Anna Ivanovskaya, Yat Li, Tianyu Liu, Bryan Moran, Fang Qian, Yu Song, Michael Stadermann, Dan Tortorelli, Seth Watts, Todd Weisgraber, Bin Yao, Xiaoyu Zheng, Cheng Zhu

3D Printing 2D Materials-Based Electrodes for Electrochemical Energy Storage and Conversion

Materials engineering for sensing, electronic and photonic devices

Room 3

Chaired by: Kangwoo Cho and Jaromir Hnat

14:00 to 14:20

Md Zaved H. Khan (Chemistry and Chemical Engineering, Henan University, Kaifeng, China), Xiuhua Liu

Synthesis of a Novel Reduced Graphene Oxide-copper-tin (rGO-Cu-Sn) hybrid nanocomposite with Enhanced Electrochemical Performance for Modified Electrode

14:20 to 14:40

Ken-ichi Fukui (Materials Engineering Science, Graduate School Eng. Sci., Osaka University, Toyonaka, Japan), Ken-ichi Bando, Hiroo Miyamoto, Hiroaki Nato, Daijiro Okaue, Sakuroko Ono, Kouta Sakamoto, Taiki Sato, Jun Takeya, Ichiro Tanabe, Yasuyuki Yokota

Correlation between the Interfacial Structure and Carrier Mobility for Electric Double Layer - Organic FET using Ionic Liquid

14:40 to 15:00

Przemyslaw Data (Department of Physical Chemistry and Technology of Polymers, Silesian University of Technology, Gliwice, Poland), Heather Cole

Electropolymerized Xanthone-Triarylamines for Used as TADF Emitters

15:00 to 15:20

Piret Pikma (Institute of Chemistry, University of Tartu, Tartu, Estonia), Eric Borguet, Parisa Yasini

Fabrication of Single Molecule Polycyclic Aromatic Hydrocarbon Switches at an Electrochemical Interface

15:20 to 15:40

Richard Beanland (Department of Physics, University of Warwick, Coventry, United Kingdom), Philip Bartlett, Ruomeng Huang, Reza Kashtiban, Gabriela Kissling, Kees de Groot

High-Density $Ge_2Sb_2Te_5$ Phase Change Memory by Electrodeposition

15:40 to 16:00

Gabriela Kissling (Physics and Astronomy, University of Southampton, Southampton, United Kingdom), Mohsin Aziz, Philip Bartlett, Andrew Hector, Gabriela Kissling, Andrew Lodge, Gill Reid, Wenjian Zhang

Electrodeposition of HgTe and related compounds from dichloromethane

16:00 to 16:20

Dongping Zhan (Chemistry, Xiamen University, Xiamen, China), Lianhuan Han, Zhong-Qun Tian, Zhao-Wu Tian

Electrochemical Micro/Nano-Machining on Semiconductor Wafers

Poster Presentations

Session 1 on Monday 11:10 to 12:40
s1-001 to s1-043
s5-001 to s5-004

Session 2 on Tuesday 12:40 to 14:00
s2-001 to s2-031
s3-001 to s3-001
s4-001 to s4-013
s5-005 to s5-006

Session 3 on Wednesday 12:40 to 14:00
s3-002 to s3-048

Materials engineering for energy devices: batteries & capacitors

s1-001

Po-Yu Chen (Chemical Engineering, National Tsing Hua University, Hsinchu, Taiwan)

Optimization of Alkali Ion-intercalated Manganese Oxide for Asymmetric Supercapacitors

s1-002

Jie Fang (Department of Materials Science and Engineering, City University of Hong Kong, Hong Kong, China), Samson Ho-Sum Cheng, Chi Yuen Chung, Sasan Ghashghaie, Hafiz Khurram Shahzad, Robin Lok-Wang Ma

Electrochemical Impedance Spectroscopy Study of Lithium-Sulfur Batteries: Effects of Electrolyte/Sulfur Ratios

s1-003

Kensuke Fujiwara (Graduate School of Engineering and Science, Shibaura Institute of Technology, Tokyo, Japan), Takahiro Ishizaki, Amane Kaneko, Hoonseung Lee

Effect of Carbon-Based Cathode Materials on Charge-Discharge Performance of Aprotic Li-O_2 Battery

s1-004

Matthäa Verena Holland-Cunz (Chemistry, Newcastle University, Newcastle upon Tyne, United Kingdom), Jochen Friedl, Ulrich Stimming

Heterogeneous and Homogenous Catalysis in an All-Vanadium Flow Battery

s1-005

Jingting Huang (Graduate Institute of Environmental Engineering, National Taiwan University, Taipei, Taiwan), Chia-Hung Hou

Electrodeposited MnO_2//Polyaniline on Electrospun Carbon Nanofibers for Asymmetric Electrochemical Capacitor in Water Desalination

s1-006

Shota Inoguchi (Department of Materials Science and Engineering, Kyoto University, Kyoto, Japan), Kazuhiro Fukami, Shota Inoguchi, Atsushi Kitada, Kuniaki Murase

HCP Metal Electrodeposition from Concentrated Aqueous Solution using a Hydrophobic Anion

s1-007

Heechan Jang (Chemical Engineering, Tokyo Institute of Technology, Tokyo, Japan), Izumi Taniguchi

Synthesis and Characterization of Carbon Modified $Li_2MnP_2O_7$/C Composites Prepared by Spray Pyrolysis

s1-008

Heechan Jang (Chemical Engineering, Tokyo Institute of Technology, Tokyo, Japan), Izumi Taniguchi

Synthesis and Electrochemical Characterization of Transition Metal Doped Li2$Fe_{0.975}M_{0.025}$P2O7/C (M=Co, Ni, or Cu)

s1-009

Ade Julistian (Chemical and Materials Engineering, National Chin-Yi University of Technology, Taichung, Taiwan), An-Ya Lo

Hydrothermal Synthesis of Copper Oxide and Carbon Nanotube (CuO/CNT) Nanocomposite to Enhance Supercapacitor Electrodes Performance

s1-010

Amane Kaneko (Department of Material Science and Engineering, Shibaura Institute of Technology, Tokyo, Japan), Takahiro Ishizaki, Hoonseung Lee, Camelia Miron, Yuta Wada

Electrocatalytic Activity for Oxygen Reduction Reaction of Nitrogen-containing Carbon Composites Synthesized *via* Solution Plasma Process

s1-011

Kazuki Kitta (Faculty of Science and Technology, Keio University, Yokohama, Japan), Hideto Imai, Yasushi Katayama, Tetsuo Nishida, Nobuyuki Serizawa, Naoki Tachikawa, Toshihiro Takekawa, Kazuki Yoshii

Influences of Lithium Species and Additional Cesium Ion on the Morphology of Lithium Deposited in Ionic Liquid Electrolytes

s1-012

Shinji Kondo (Department of Chemistry and Biotechnology, Yokohama National University, Yokohama, Japan), Kaoru Dokko, Shoshi Terada, Kazuhide Ueno, Masayoshi Watanabe

Effect of Divalent Cation in Highly Concentrated Aqueous Electrolytes for Li-Ion Batteries

s1-013

Na-Jung Kuo (Graduate Institute of Applied Science and Technology, National Taiwan University of Science and Technology, Taipei, Taiwan), Bing-Joe Hwang, Chun-Hong Kuo, Wei-Nien Su, Yi-Ying Tsai, Min-Hsin Yeh

Novel approaches to Synthesize S-PAN/FeS_2 Electrocatalyst for Hydrogen Evolution Reaction

s1-014

Ya-Ru Li (Chemical Engineering, Ming Chi University of Technology, New Taipei, Taiwan)

$LiFePO_4$/C Composite Cathode Materials with Different Types of Graphene Oxides and its Performance

s1-015

Sheng Chi Lin (Chemical Engineering, National Tsing-Hua University, Hsin-Chu, Taiwan), Chi-Chang Hu, Chen-Chi M. Ma

Asymmetric supercapacitors based on electrospun carbon nanofiber/sodium-pre-intercalated manganese oxide electrodes with high power and energy densities

s1-016

Xiaoxia Liu (Chemistry, Northeastern University, Shenyang, China), Xiang Cai, Yu Song

Partial Exfoliation of Graphite and its Integration with Pseudocapacitive Materials for Supercapacitor

s1-017

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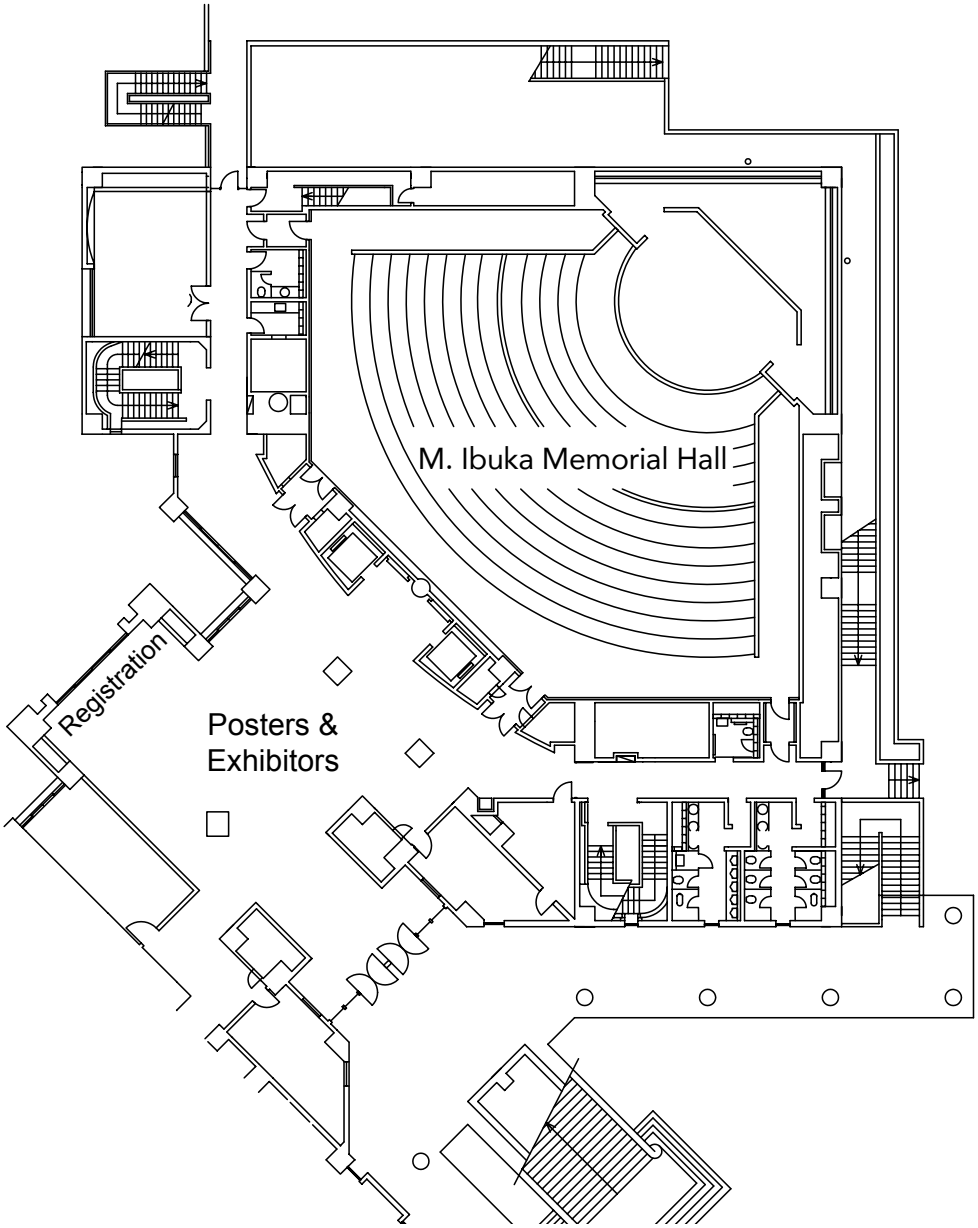

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