

KIFEE 9 Symposium Kyoto

Preliminary (22 February) Session Program for Electrolysis Systems and Advanced Inorganic Materials

March 8 - 9, 2017

Wednesday 8 March

Joint Session I

Chairs: Kouji Amezawa and Geir Martin Haarberg

- 13:30 – 13:50 Mari-Ann Einarsrud, NTNU: “Novel processing of cathode materials for PCFC”
- 13:50 - 14:10 Atsushi Mineshige, Hyogo Prefectural University: “Silicate-based inorganic membranes for fuel cell application”
- 14:10 - 14:30 Ana Maria Martinez, SINTEF Materials and Chemistry: "Electrolytic production of RE and RE-alloys"
- 14:30 - 14:50 Yasuhiro Fukunaka, Waseda University: “Electrolyte Circulation in Copper Refinery”
- 14:50 - 15:10 Sabrina Sartori, University of Oslo: “Metal hydrides for energy storage”
- 15:10 - 15:30 Hiroshi Ito, AIST: “Polymer membrane electrolyte electrolysis”
- 15:30 - 15:50 Abdel El-Kharbachi, IFE: “Contribution of hydride materials to Li-ion battery technology”
- 15:50 - 16:10 Break

Parallel Session Electrolysis Systems I

Chairs: Takuya Goto and Ana Maria Martinez

- 16:10 – 16:30 Ann Mari Svensson, NTNU: "Effect of a Boron Based Anion Receptor on Graphite Anode for Li-Ion Batteries"
- 16:30 – 16:50 Kazuhiro Fukami, Kyoto University: “Acceleration of Pt deposition within nanopores of porous silicon electrodes”
- 16:50 - 17:10 Frode Seland, NTNU: "Potential of zero total charge as a descriptor for electrocatalytic activity in PEM fuel cells"
- 17:10 - 17:30 Tetsuya Tsuda, Osaka University: “In situ electron microscope techniques for a Li metal deposition/stripping process”
- 17:30 – 17:50 Gurvinder Singh, NTNU: "Morphology and composition controlled multimetallic nanoparticles and their electrocatalytic activity"

17:50 – 18:10 Kenji Kawaguchi, Doshisha University: “Electrocatalysis of Nano/amorphous Hybrid Oxide for Anodic Reactions in Acidic Media”

Parallel Session Advanced Inorganic Materials I

Chairs: Yasushige Mori and Sabrina Santori

- 16:10 – 16:30 Sverre Magnus Selbach, NTNU: “Interstitial oxygen as a source of p-type conductivity in the hexagonal manganite YMnO_3 ”
- 16:30 – 16:50 Hironori Nakajima, Kyushu University: “Current Distribution in Solid Oxide Fuel Cells”
- 16:50 – 17:10 Didrik Småbråten, NTNU and NIMS, Tsukuba: “DFT as a tool for characterizing ferroelectric domain walls in YMnO_3 ”
- 17:10 – 17:30 Kazuaki Toyoura, Kyoto University: “Atomic-scale picture of proton conduction in oxides - A first-principles study”
- 17:30 - 17:50 Katherine Inzani, NTNU: “DFT studies of wide-band gap oxides for intermediate band photovoltaics”
- 17:50 - 18:10 Suzanne McEnroe, NTNU: "Nano-magnetism and exchange bias materials focusing on the ilmenite-hematite ($\text{FeTiO}_3\text{-Fe}_2\text{O}_3$)"

Thursday 9 March

Parallel Session Electrolysis Systems II

Chairs: Toshiyuki Nohira and Frode Seland

- 13:00 – 13:20 Sathiyaraj Kandhasamy, NTNU: "Molten carbonate thermocell for industrial waste heat harvesting and off-gas utilization"
- 13:20 – 13:40 Tsuyoshi Murakami, CRIEPI: “Electrochemical behavior of Si in LiCl-KCl melt”
- 13:40 – 14:00 A. Chatzitakis, University of Oslo and SINTEF (Oslo): “ TiO_2 nanotubes as photoanode electrodes in solid-state photoelectrochemical cells”
- 14:00 – 14:20 Nobuyuki Serizawa, CRIEPI: “Infrared Spectroscopy of Molten Salt with a Diffuse Reflectance Optical System”

Parallel Session Advanced Inorganic Materials II

Chairs: Atsushi Meneshige and Sverre Magnus Selbach

- 13:00 – 13:20 Bjørn C. Hauback, IFE: “Structural studies of complex hydrides”

- 13:20 – 13:40 Yuta Kimura, Tohoku University: “Quantitative and Experimental Evaluation of Li Chemical Potential of Mechanically Stressed Electrode Materials for All Solid State Lithium Ion Batteries”
- 13:40 – 14:00 Kjell Wiik, NTNU: "All-oxide thermoelectric device”
- 14:00 – 14:20 Atsutaka Kato, Osaka Prefectural University: “SEM observation for morphology of Li/Li₃PS₄ interface modified with gold thin films in all-solid-state lithium batteries”
- 14:20 - 14:40 Break

Parallel Session Electrolysis Systems III

Chairs: Hiroshi Ito and Ann Mari Svensson

- 14:40 – 14:55 Ragnar Strandbakke, University of Oslo: “Development of oxygen-side electrodes for proton conducting fuel cells and electrolyzers”
- 14:55 – 15:10 Seiji Katakura, Kyoto University: “Relationship between double-layer capacitance and cationic orientation at the electrode interface of quaternary ammonium based ionic liquid: a molecular dynamics study”
- 15:10 - 15:25 Ingrid Roten Mattson, NTNU: "Birnessite MnO₂ for supercapacitors. Effect of electrolyte cation"

Parallel Session Advanced Inorganic Materials III

Chairs: Hironori Nakajima and Kjell Wiik

- 14:40 – 14:55 Nils Wagner, NTNU: “On Li-ion full cells based on silicon anodes”
- 14:55 – 15:10 Lee Wonrak, Osaka University: “Divalent calcium ion-conducting Novel solid electrolyte with three-dimensional NASICON type structure”
- 15:10 - 15:25 Carlos Bernuy-Lopez, NTNU: “Layered double perovskites as cathodes for proton conducting fuel cells”
- 15:25 – 15:35 Short break

Joint Session II

Chairs: Nobuhito Imanaka and Mari-Ann Einarsrud

- 15:35 – 16:35 Short (2 min) presentations for poster (P1 - P31)
- 16:35 – 18:00 Poster session

Poster presentations:

- P1. Ken Adachi, Graduate School of Engineering, Kyoto University: “Experimental and Simulation Studies of Nodulation in Copper Electrorefining”
- P2. Shota Inoguchi, Graduate School of Engineering, Kyoto University: “Additive-Free Smooth Electrodeposition of Cadmium from Concentrated Aqueous Solution Containing An Amide”
- P3. Hiroki Takashina, Graduate School of Engineering, Kyoto University: “Formation process of gold nanofibers at ionic liquid | water interface studied using in-situ spectroscopic ellipsometry”
- P4. Takeru Arai, Graduate School of Engineering, Kyoto University: “Structural relaxation of Li-doped ionic liquids in the electrical double layer studied by electrochemical SPR and MD simulation”
- P5. Yumi Katasho, Institute of Advanced Energy, Kyoto University: “Electrochemical Reduction of Simulated Glass in Molten CaCl_2 ”
- P6. Yutaro Norikawa, Institute of Advanced Energy, Kyoto University: “Electrodeposition of Metallic Titanium Films from the KF-KCl Eutectic Melt Containing Ti(III) Ions”
- P7. Anuwash Sharma, Department of Materials Science and Engineering, NTNU: "Magnetophoresis method for magneto-plasmonic nanoparticle assembly"
- P8. Ola Grendal, Department of Materials Science and Engineering, NTNU: “In situ studies of phase developments during hydrothermal synthesis of oxide piezoelectrics”
- P9. Kristine Bakken, Department of Materials Science and Engineering, NTNU: “Nucleation and growth mechanisms during chemical solution deposition of BaTiO_3 films”
- P10. Katie McCay, Department of Materials Science and Engineering, NTNU: "Tin Electroplating for BPPs in PEMFCs"
- P11. Even Rosenberg, Department of Materials Science and Engineering, NTNU: "Electrodeposition of zinc from sulfate electrolytes"
- P12. Yihan Tian, Graduate School of Engineering, Osaka Prefectural University: “Amorphous Manganese Dioxide as a Positive Electrode Material for Rechargeable Aluminum Batteries”
- P13. Shota Matsumura, Graduate School of Engineering, Osaka Prefectural University: “Development of Novel Electrolyte with a Wide Potential Window for Rechargeable Aluminum Battery”
- P14. Mai Phuong Tu, Graduate School of Engineering, Osaka Prefectural University: “Preparation of Structure-controlled Pt/Sn/Rh Nanoparticle Catalysts for Complete Ethanol Oxidation Reaction to CO_2 ”
- P15. Akihisa Ochi, Graduate School of Engineering, Osaka Prefectural University: “Analysis of Glycerol Oxidation Reaction on Ag-Modified Polycrystalline Pt Electrodes by in-situ Spectroelectrochemistry”
- P16. Kousuke Noi, Graduate School of Engineering, Osaka Prefectural University: “Liquid Phase Sintering of $\text{Na}_3\text{Zr}_2\text{Si}_2\text{PO}_{12}$ with Na_3BO_3 Additive”

- P17. Takamasa Asano, Graduate School of Engineering, Osaka Prefectural University: "Hydrothermal synthesis of LiMnPO_4 active material fine particles for application to all-solid-state lithium batteries"
- P18. Jacob Hadler-Jacobsen, Department of Materials Science and Engineering, NTNU: Photo-electrochemical characterization of dye sensitized solar cells with novel ruthenium-free dyes"
- P19. Nina Lu Thomassen, Department of Materials Science and Engineering, NTNU: "The current efficiency of aluminium deposition in molten cryolite alumina electrolytes with MgF_2 addition"
- P20. Nini Mo Karlsen, Department of Materials Science and Engineering, NTNU: "Corrosion of nickel coated steel (AISI 316L) in molten FLiNaK "
- P21. Morten Onsrud, Department of Materials Science and Engineering, NTNU: "Carbon Coating on Aluminum Current Collectors in Lithium-Ion Batteries"
- P22. Mats Jensen, Department of Materials Science and Engineering, NTNU: "Nucleation of nickel on titanium in an industrial electrolyte"
- P23. Olav Galteland, Department of Chemistry, Department of Materials Science and Engineering, NTNU: "Self-assembly of ellipsoidal colloids to create advanced materials"
- P24. Yoshinobu Fujimaki, Institute of Multidisciplinary Research for Advanced Materials, Tohoku University: "Quantitative Evaluation of Reaction Distribution in an Solid Oxide Fuel Cell Cathode by Using a Model Patterned thin film electrode"
- P25. Mahunnop Fakkao, Institute of Multidisciplinary Research for Advanced Materials, Tohoku University: "Dynamic visualization of the reaction distribution in the all-solid-state lithium-ion batteries' cathode by two-dimensional x-ray absorption spectroscopy"
- P26. Yosuke Shimizu, Graduate School of Science and Engineering, Doshisha University: "Electrochemical phase control of molybdenum silicide film form silica"
- P27. Yuta Suzuki, Graduate School of Science and Engineering, Doshisha University: "Electrochemical behavior of lithium on liquid Gallium electrode"
- P28. Shunichi Kimura, Graduate School of Science and Engineering, Doshisha University: "Electrochemical behavior of boride electrode in molten fluoride"
- P29. Yu Nishimura, Graduate School of Science and Engineering, Doshisha University: "Electrochemical hydrazine synthesis in organic solvent"
- P30. Masanao Ishijima, Graduate School of Engineering, The University of Shiga Prefecture: "Synthesis and investigation of the formation mechanism of Cu@Metal Nanowires by alcohol reduction technique"
- P31. Shintaro Sugiyama, Graduate School of Engineering, The University of Shiga Prefecture: "The synthesis of silver nanowires in mono alcohol reduction system for transparent conductive films"