Program (Room A)

September 13 (Tuesday)

9:00-9:45 Plenary Lecture

[1A-01P]

Developments of Lithium Solid Electrolytes with the LGPS structure

Ryoji Kanno, Satoshi Hori

(Tokyo institute of technology, Japan)

10:00-11:00 Lithium-ion Batteries (Chair: Masashi Kotobuki)

[1A-02] **Cancel**

Activation and Stabilization of Solid-State-Oxygen Redox in Antifluorite-type Lithium-Rich Iron Oxides

Hiroaki Kobayashi, Yuki Nakamura, Itaru Honma

(Tohoku University, Japan)

[1A-03]

Gas impurity in calcination atmosphere governing electrochemical properties of $LiNi_{0.8}Mn_{0.1}Co_{0.1}O_2$ cathode material for lithium ion batteries

Sanghoon Kim[1], Ronghui Wang[2], Francis Briand[3], Laurent Prost[1]

(1: Air Liquide Laboratories, Innovation Campus Tokyo, Japan, 2: Air Liquide Shanghai, Innovation Campus Shanghai, China, 3: Air Liquide R&D, Innovation Campus Paris, France)

[1A-04]

Unexpected Emergence of Phase Transition at Restarted Cycle Promoting the Performance Degradation

Binghao Zhang, Qi Liu

(City University of Hong Kong, China)

[1A-05]

Zn-Doped CuF_2 as a Cathode for Rechargeable Lithium-ion Battery

Yichun Zhao, Erte Ji, Qingxiao Hu, Chao Yang, Tianli Li, Zhiyong Yu, Hanxing Liu

(Wuhan University of Technology, China)

11:05-12:05 Solid Electrolyte (Lithium and Sodium) (Chair: Reona Miyazaki)

[1A-06]

Na^+ halide solid electrolyte using earth-abundant metal elements for all-solid-state Na ion batteries

Juhyoun Park, Jun Pyo Son, Hiram Kwak, Yeji Choi, Mu Chang Lee
(Yonsei University, Korea)

[1A-07]
High deformability and fast lithium diffusivity in metastable spinel chloride for rechargeable all-solid-state lithium ion batteries
Naoto Tanibata, Masashi Kato, Shuta Takimoto, Hayami Takeda, Masanobu Nakayama, Hirofumi Sumi
(1: Nagoya Institute of Technology, 2: National Institute of Advanced Industrial Science and Technology, Japan)

[1A-08]
Low interfacial resistance of an all-solid-state lithium battery with anti-perovskite type solid electrolyte Li_2OHBr
Keisuke Yoshikawa, Manoj Krishna Sugumar, Takayuki Yamamoto, Norikazu Ishigaki, Munekazu Motoyama, Yasutoshi Iriyama
(Nagoya University, Japan)

[1A-09]
Characterization of Lithium Ion Conductive Li_3BX_a (X = S, N, O) Glass Electrolytes
Takuya Kimura, Ayane Inoue, Kenji Nagao, Hiroe Kowada, Kota Motohashi, Atsushi Sakuda, Masahiro Tatsumisago, Akitoshi Hayashi
(Osaka Metropolitan University, Japan)

13:30-14:30 Sodium All Solid-State Batteries (Chair: Hirotoshi Yamada)

[1A-10I]
Solid electrolyte for all-solid-state battery
Masashi Kotobuki
(Ming Chi University of Technology, Taiwan)

[1A-11]
Design of solid-state sodium-ion batteries with high mass-loading cathode by porous-dense bilayer electrolyte
Hongjian Lai
(Shanghai Institute of Ceramics, China)

[1A-12]

Synthesis and Characterization of Sodium-Ion Conducting Solid Electrolytes in the Na_2S-In_2S_3 System

Kota Motohashi, Akira Nasu, Takuya Kimura, Chie Hotehama, Atsushi Sakuda,
Masahiro Tatsumisago, Akitoshi Hayashi
(Osaka Metropolitan University, Japan)

15:00-16:00 Lithium All Solid-State Batteries (Chair: Zhaoyin Wen)

[1A-13]

3D Operando Analysis of Cycle Degradation in Solid-state Battery Electrodes Using CT-XAFS

Su Huang[1], Yuta Kimura[1], Takashi Nakamura[1], Nozomu Ishiguro[1], Oki Sekizawa[2], Kiyofumi Nitta[2], Tomoya Uruga[2], Tomonari Takeuchi[3], Toyoki Okumura[3], Mizuki Tada[4,5], Yoshiharu Uchimoto[6], Koji Amezawa[1]
(1: Tohoku University, 2: Japan Synchrotron Radiation Research Institute, 3: National Institute of Advanced Industrial Science and Technology, 4: Nagoya University, 5: RIKEN SPring-8 Center, 6: Kyoto University, Japan)

[1A-14]

Pressure-less Sintering for Garnet-based All-solid-state Batteries

Hirotoshi Yamada, Tomoko Ito
(Nagasaki University, Japan)

[1A-15]

In Situ Curing of Thin-film Solid Electrolyte Enables High-Performance All-solid-state Lithium Metal Battery

Linchun He, Adams Stefan
(National University of Singapore, Singapore)

[1A-16]

Preparation of oxide-based all-solid-state battery by sintering process based on function sharing of the solid electrolyte

Miyuki Sakakura[1], Kazutaka Mitsuishi[2], Toyoki Okumura[3], Norikazu Ishigaki[1], Yasutoshi Iriyama[1]
(1: Nagoya University, 2: National Institute for Materials Science, 3: National Institute of Advanced Industrial Science and Technology, Japan)

16:05-16:50 Electrodes for Lithium-Sulfur Batteries and All Solid-State Batteries (Chair: Reona Miyazaki)

[1A-17]

Cl-Terminated MXene prepared a general Lewis acidic etching route for Li-S batteries

Tianlili Li, Cheng ian, Zhiyong Yu, Hua Hao, Hanxing Liu

(Wuhan University of Technology, China)

[1A-18]

Preparation and characterization of 3D Free-Standing TiC/CNFs Membrane Reactor for Lithium-Sulfur Batteries

Li Zheng

(Shanghai Institute of Ceramics, China)

[1A-19]

Fabrication and Electrochemical Properties of $Li_7P_2S_8I$ Solid Electrolyte Sheets Containing SiO_2 Fibers

Reiko Matsuda, Takuya Matsushita, Kazuhiro Hikima, Hiroyuki Muto, Atsunori Matsuda

(Toyohashi University of Technology, Japan)

September 14 (Wednesday)

9:00-9:45 Plenary Lecture

[2A-01P]

Solid electrolyte based batteries and modification strategies

Zhaoyin Wen

(Shanghai Institute of Ceramics, China)

10:00-11:00 Solid Electrolytes (Sulfide) (Chair: Ryoji Kanno)

[2A-02I]

Amine-Thiol Chemistry for Liquid-Phase Synthesis of Sulfide Solid Electrolytes for All-Solid-State Batteries

Jehoon Woo, Yong Bae Song, Hiram Kwak, Seunggoo Jun, Yoon Seok Jung

(Yonsei University, Korea)

[2A-03]

Rapid Liquid-Phase Synthesis of $Li_7P_3S_{11}$ Solid Electrolytes via Dynamic Sulfide Radical Anions

Hirotada Gamo, Atsushi Nagai, Kazuhiro Hikima, Atsunori Matsuda

(Toyohashi University of Technology, Japan)

[2A-04]

Experimental and First-Principles Study of $Li_9P_3S_9O_3$ with $Li_{10}GeP_2S_{12}$-type crystal structure

Subin Song, Satoshi Hori, Kota Suzuki, Masaaki Hirayama, Ryoji Kanno

(Tokyo institute of Technology, Japan)

11:05-12:05 Cathode of All Solid-State Batteries (Chair: Yang Ren)

[2A-05]

Electrochemical properties of $LiCoO_2$ (104) films with different thicknesses fabricated by RF sputtering method

Kotaro Ito, Naoki Matsui, Kota Suzuki, Ryoji Kanno, Masaaki Hirayama

(Tokyo institute of Technology, Japan)

[2A-06]

Design of Hi-Nickel NCM Cathode Material for Sulfide-based All-Solid-state Batteries

Woosuk Cho[1], Jae Yup Jung[1,2], Hyun-Seung Kim[1], Sora Kang[1], Kyung Su Kim[1], Ji-Sang Yu[1], Min-Sik Park[2]

(1: Korea Electronics Technology Institute, 2: Kyung Hee University, Korea)

[2A-07]

The characteristics of inevitably formed residual lithium compound on high-nickel contented positive electrode material as side reaction suppressing layer for all-solid-state batteries

Hyun-seung Kim[1], Sora Kang[1,2], Kyung Su Kim[1], Young-Jun Kim[2], Woosuk Cho[1]

(1: Korea Electronics Technology Institute, 2: Sungkyunkwan University, Korea)

[2A-08]

Ni-rich layered oxide cathodes using mixed catholytes of sulfide and halide for all-solid-state batteries

Jong Seok Kim, Jun Pyo Son, Yoon Jae Han, Hiram Kwak, Yoon Seok Jung

(Yonsei University, Korea)

13:30-14:30 Interface (Chair: Yasutoshi Iriyama)

[2A-9I]

Lithium-ion transfer at solid-solid interface

Takeshi Abe

(Kyoto University, Japan)

[2A-10]

Rapid computational screening of fast-ion conducting solids and interfaces

Stefan Adams

(National University of Singapore, Singapore)

[2A-11]

Computational studies on Li metal/garnet-type $Li_7La_3Zr_2O_{12}$ interface

Masanobu Nakayama, Rinon Iwasaki, Naoto Tanibata, Hayami Takeda

(Nagoya Institute of Technology, Japan)

15:00-16:00 Electrodes (Chair: Takeshi Abe)

[2A-12I]

Room-Temperature Synthesis of Metal-Carbon Nanocomposites for Energy-Related Applications

Tatsuya Akiyama[1], Wei Ming Lin[1], Yazid Bin Yaakob[2], Vikaskumar Pradeepkumar Gupta[1], Suresh Giri, Subash Sharma[1], Yosuke Ishii[1], Shinji Kawasaki[1], Noriyuki Sonoyama[1], Masaki Tanemura[1]

(1: Nagoya Institute of Technology, Japan, 2: University Putra Malaysia, Malaysia)

[2A-13]

Surface modification to improve electrochemical performance of nickel-rich NCM cathode material between -40 and 50 ^{o}C

Jincan Ren, Qi Liu

(City University of Hong Kong, China)

[2A-14]

In situ investigation of capacity decay mechanism in $LiNi_{0.5}Co_{0.2}Mn_{0.3}O_2$ cathode using synchrotron X-ray diffraction

Yalan Huang, He Zhu, Hekang Zhu, Jian Zhang, Yang Ren, Qi Liu

(City University of Hong Kong, China)

16:05-17:05 Operando measurements and Fundamental (Chair: Junichi Kawamura)

[2A-15I]l

In-situ and operando study of battery materials using synchrotron high-energy x-ray diffraction

Yang Ren

(City University of Hong Kong, China)

[2A-16]

Synthesis of Li-C Nanocomposite and In-Situ TEM Observation of Its Electrochemical Reaction with

Graphene

Wei Ming Lin[1], Yazid Bin Yaakob[2], Suresh Giri[1], Subash Sharma[1], Toru Asaka[1], Noriyuki Sonoyama[1], Masaki Tanemura[1]

(1: Nagoya Institute of Technology, Japan, 2: University Putra Malaysia, Malaysia)

[2A-17]

Ionic Conductivity, Fragility and Cooperativity in Structurally Disordered Materials: A Study based on the BSCNF Model

Masaru Aniya[1], Masahiro Ikeda[2]

(1: Kumamoto University, 2: National Institute of Technology, Oita College, Japan)

17:10-17:40 Fundamental (Chair: Koji Amezawa)

[2A-18I]

Charge attachment induced transport - Towards new paradigms in solid state electrochemistry

Karl-Michael Weitzel

(The Philipps University of Marburg, Germany)

September 15 (Thursday)

9:00- 10:00 All Solid-State Batteries and Solid Electrolytes (Chair: Woosuk Cho)

[3A-01]

Interfacial Evolution of Li Metal Anodes Protected with Electroless-Deposited In Coatings for All-Solid-State Li Metal Batteries

Haechannara Lim[1], Seunggo Jun[1], Ki Heon Baeck[1], Kyu Tae Kim[1], Hongyeul Bae[2], Jin Hong Kim[2], Yoon Seok Jung[1]

(1: Yonsei University, 2: Battery Materials Research Center, Research Institute of Industrial Science and Technology, Korea)

[3A-02]

Grain boundary engineering enabled high-performance garnet-type electrolyte for lithium dendrite free lithium metal batteries

Chujun Zheng

(Shanghai Institute of Ceramics, China)

[3A-03]

Intense Ion-Exchange Induced Surface Phase Transition Layer for Stabilizing Lithium Lanthanum Zirconium Oxide Solid Electrolyte in Air

Chenghao Cui, Fan Bai, Tao Zhang

(Shanghai Institute of Ceramics, China)

[3A-04]

Temperature dependence of structure and ionic conductivity in $LiTa_2PO_8$

Ruoyu Dai[1], Maxim Avdeev[2], Kim Seung-Joo[3], Stefan Adams[1]

(1: National University of Singapore, Singapore, 2: Australia's Nuclear Science and Technology Organisation, Australia, 3: Ajou University, Korea)

10:05- 11:05 Lithium-ion batteries and All Solid-State Batteries (Chair: Kazuhiro Hikima)

[3A-05]

Cage-like Silicene/CNT microspheres synthesized by a topochemical reaction as anodes for enhanced stable lithium-ion batteries

Qiang Chan

(Shanghai Institute of Ceramics, China)

[3A-06]

Highly-dense and smooth amorphous silicon films fabricated by arc plasma deposition and electrochemical properties

Sho Asano, Junichi Hata, Naoki Matsui, Kota Suzuki, Ryoji Kanno, Masaaki Hirayama

(Tokyo institute of Technology, Japan)

[3A-07]

Rapid ice crystal-assisted synthesis of zinc ferrite nano anode for Li-ion batteries

T. Kiruthika[1], D. Lakshmi[2], Michael Infanta Diana[1], K. Ajith[1], Adlin Helen P. Baskar[1], R. Saranya[1], P. Christopher Selvin [1]

(1: Bharathiar University, 2: PSG College of Arts and Science, India)

[3A-08]

Large-capacity All-solid-state Lithium Batteries by in-situ Formation of Hydride-type Li^+ ion Conductor

Atsushi Inoishi[1], Yixin Chen[1], Ryo Sakamoto[2], Ken Albrecht[1], Shigeto Okada[1], Hikari Sakaebe[1]

(1: Kyushu University, 2: Kyoto University, Japan)

11:10- 11:40 Solid Electrolytes (Chair: Atsushi Inoishi)

[3A-09I]

Hydride-based lithium ion conductors for all solid-state batteries

Sangryun Kim

(Gwangju Institute of Science and Technology, Korea)

[3A-10]

Ionic conductivity of NaI-LiI solid electrolytes doped with multivalent cations and the stability with Li metal

Reona Miyazaki, Takamasa Hirai, Takehiko Hihara

(Nagoya Institute of Technology, Japan)

11:45- 12:00 Closing

Program (Room B)

September 13 (Tuesday)

10:00-11:00 Fuel Cells (Chair: Tatsumi Ishihara)

[1B-01]

Elucidating the Discrepancy Factors between Oxygen Vacancy Concentration of LSCF Film and Bulk Electrode

Riyan Achmad Budiman[1,2], Daichi Oi[1], Keiji Yashiro[1], Yuta Kimura[1], Takashi Nakamura[1], Katherine Develos Bagarinao[3], Koji Amezawa[3], Tatsuya Kawada[1]

(1: Tohoku University, 2: National Research and Innovation Agency, 3: National Institute of Advanced Industrial Science and Technology, Japan)

[1B-02]

Enhanced Stability of PCFCs with BZYb Electrolyte by Introduction of Buffer Layer

Takayasu Uchi[1], Kazuo Nakamura[1], Motonobu Kawaguchi[2], Yuichi Sasamata[2], Yuichi Mikami[3], Yuki Nakata[3], Kosuke Yamauchi[3], Tomohiro Kuroha[3], Hiroyuki Shimada[4], Yasunobu Mizutani[4], Shun Kobayashi[5], Ryuma Malik Matsuda[5], Masashi Mori[5]

(1: Tokyo Gas Co. Ltd., 2: Toho Gas Co. Ltd., 3: Panasonic Holdings Corporation, 4: National Institute of Advanced Industrial Science and Technology, 5: Central Research Institute of Electric Power Industry, Japan)

[1B-03]

Investigation of Composite Effects on PCFC Cathodes by Utilizing Patterned Thin Film Model Electrodes

Zhuo Diao, Katsuya Nishidate, Takaaki Imaizumi, Yuta Kimura, Takashi Nakamura, Keiji Yashiro, Tatsuya Kawada, Koji Amezawa

(Tohoku University, Japan)

[1B-04]

High Performances of Protonic Solid Oxide Electrolysis Cells with $Ba_{0.95}La_{0.05}Fe_{0.8}Zn_{0.2}O_3$ Anode Functional Layer

Chunmei Tang, Sho Kitano, Hiroki Habazaki, Yoshitaka Aoki

(Hokkaido University, Japan)

11:05-12:05 Anion conductors (Chair: Craig Fisher)

[1B-05]

Fluoride Ion Dynamics studied via NMR in Tysonite structured fluoride ion conductors

Arunkumar Dorai, Junichi Kawamura, Takahisa Omata

(Tohoku University, Japan)

[1B-06]

Fluoride ion conductivity in BaLiF3 Perovskite doped with K

Tatsumi Ishihara[1,2], Kaito Kimura[1], Yuki Nyota[1]

(1: Kyushu University, 2: International Institute for Carbon Neutral Energy Research, Japan)

[1B-07]

Structure and Ionic Conductivity for Gel Material Containing Nano Size Layered Double Hydroxide

Noriyuki Sonoyama, Kohei Ogata, Genki Yamaguchi, Katsuhiro Yamamoto

(Nagoya Institute of Technology, Japan)

[1B-08]

Cancel

13:30-14:30 Proton/Hydride conductors (Chair: Yoshitaka Aoki)

[1B-09]

Hydration Enthalpies of Oxide Perovskites $LaMO_3$ (M = V-Ni) from First-Principles Calculations

Craig AJ Fisher, Ayako Taguchi, Takafumi Ogawa, Akihide Kuwabara

(Japan Fine Ceramics Center, Japan)

[1B-10]

Quantitative Investigation for Surface Proton Conduction on CeO_2 under H_2 Atmosphere by Adsorption Equilibrium Modeling

Taku Matsuda[1], Yoshiki Koshizuka[1], Hideaki Tsuneki[1], Truls Norby[2], Yasushi Sekine[1]

(1: Waseda University, Japan, 2: Oslo University, Norway)

[1B-11]

Theoretical and Experimental Approach to Fabricate the Organic Salts with High Proton Conductivity: Acidic Effects of Poly (4-vinylpyridinium salt)

Keiichiro Maegawa[1], Ibuki Yokoyama[1], Towa Bunno[1], Atsushi Nagai[1,2], Atsunori Matsuda[1]

(1: Toyohashi University of Technology, Japan, 2: Centre of Excellence ENSEMBLE3 sp. z o. o.,

Poland)

[1B-12]

Research and Development of Carbon-Based Catalytic Materials by Multiscale Approach

Jingsai Cheng, Hanxing Liu, Zhiyong Yu

(Wuhan University of Technology, China)

15:00-16:00 Polymer Electrolytes (Chair: Noriaki Kurita)

[1B-13]

Development of biomaterial as an electrolyte for electrochemical devices

Selvasekarapandian S[1,2], Chitra R[1,3], Vengadesh Krishna M[1,2], Muniraj @ Vignesh N[1,4], Suvranna K[1,5]

(1: Materials Research Center, Coimbatore, 2: Bharathiar University, 3: Kongu Arts and Science College, 4: Mannar Thirumalai Naicker College, 5: PSGR Krishnammal College for Women, India)

[1B-14]

Poly (Ethylene Oxide)-Tetramethyl Succinonitrile Blend as a Matrix for Solid Polymer Electrolytes

Ravindra Kumar Gupta, Ahamad Imran, Hamid Shaikh, Idriss Bedja, Abdullah Saleh Aldwayyan

(King Saud University, Saudi Arabia)

[1B-15]

Preparation And Investigation of Cellulose Acetate and Sodium Perchlorate Based Solid Biopolymer Electrolyte for Sodium ion Battery

Minimala Natarajan Selvarajan[1,2], Sankaranarayanan R[1,2], Selvasekarapandian S[2,3],

Aafrin Hazaana S[2,4], Muniraj @ Vignesh N[2,5], Meera Naachiyar R[2,4]

(1: Saraswathi Narayanan College, 2: Materials Research Centre, Coimbatore, 3: Bharathiar University, 4: Fatima College, 5: Mannar Thirumalai Naicker College, India)

[1B-16]

Uniform Lithium Deposition Induced by Sulfonated poly (ether ether ketone) (SPEEK)-Li-PEO Polymer Electrolyte

Zhaofeng Jiang

(Shanghai Institute of Ceramics, China)

16:05-16:50 Polymer Electrolytes (Chair: Sou Taminato)

[1B-17]

Development and Investigations of a Plant Gum Based Flexible Solid Electrolyte Membranes for

Sustainable Solid-state Batteries and Fuel Cells

Vengadesh Krishna M.[1], S. Selvasekarapandian[1,2], Ilanchelian Malaichamy[1]

(1: Bharathiar University, 2: Materials Research Center, Coimbatore, India)

[1B-18]

Investigation on Plantain Stem as solid electrolyte membrane for Electrochemical device applications

kavitha P[1], Muniraj @ Vignesh N[1,2], Selvasekarapandian S[2,3]

(1: Mannar Thirumalai Naicker College, 2: Materials Research Center, Coimbatore. 3: Bharathiar University, India)

[1B-19]

Electrochemical Property of Solid-State Manganese Oxide-Zinc Battery Using Fluoride-Ion-Doped MnO_2 and Polyacrylamide Hybridized with Layered Double Hydroxide

Patrick Kimilita Dedetemo, Yu Yoshimi, Noriyuki Sonoyama

(Nagoya Institute of Technology, Japan)

September 14 (Wednesday)

10:00- 11:00 Proton/Hydride conductors (Chair: Kazuaki Kisu)

[2B-01]

Direct preparation of barium titanate oxyhydride exhibiting H^-/e^- mixed conduction

Fumitaka Takeiri[1,2,3], Tasuku Uchimura[1,2,3], Takashi Saito[4], Takashi Kamiyama[4], Genki Kobayashi[1,2,3]

(1: Institute for Molecular Science, 2: The Graduate University for Advanced Studies,3: Institute of Physical and Chemical Research, 4: High Energy Accelerator Research Organization, Japan)

[2B-02]

Effect of ZnO sintering aid on microstructure and electrical conductivity of Ba $(Ce,Zr)O_3$

Malik Ryuma Matsuda[1], Kaoru Nakamura[1], Masashi Mori[1], Julian Dailly[2]

(1: Central Research Institute of Electric Power Industry, Japan, 2: European Institute for energy Research, Germany)

[2B-03]

Experimental Study Of The Effect Of WO_3 On Proton Mobility And Thermal Stability Of Proton Conducting Phosphate Glasses

Aman Sharma, Issei Suzuki, Takahisa Omata

(Institute of Multidisciplinary Research for Advanced Materials, Tohoku University, Japan)

[2B-04]

H^- conduction property of fluorite-type $La_{1-x}Sr_xH_{3-x}$

Yoshiki Izumi[1,2,3], Fumitaka Takeiri[1,2,3], Kei Okamoto[1,2,3], Takashi Saito[4], Takashi Kamiyama[4,5], Genki Kobayashi[1,2,3]

(1: Institute for Molecular Science, 2: Department of Structural Molecular Science, The Graduate University for Advanced Studies, 3: Institute of Physical and Chemical Research, 4: High Energy Accelerator Research Organization, 5: Department of Materials Structure Science, The Graduate University for Advanced Studies)

11:05-12:05 Fuel Cells (Chair: Yasunobu Mizutani)

[2B-05]

Synthesis and Characterization of Pt@TiO_2 Core-Shell Nanoparticles as Electrocatalyst for Application in PEMFCs

Nurliyana Binti, Mohd Redzuan, Jin Nishida, Kazuhiro Hikima, Go Kawamura, Atsunori Matsuda

(Toyohashi University of Technology, Japan)

[2B-06]

Direct conversion of plastic wastes into electricity in an intermediate-temperature using $Sn_{0.9}In_{0.1}P_2O_7$ electrolyte

Tetsuya Hori[1,2], Kazuyo Kobayashi[2], Masahiro Nagao[2], Takashi Hibino[2]

(1: SOKEN, INC., 2: Nagoya University, Japan)

[2B-07]

Performance Analysis of Protonic Ceramic Fuel Cell Cogeneration System using Methane Fuel

Fumiyasu Suito[1], Kunpeng Li[1], Yohei Nagata[1], Takeru Murakami[1], Takuto Araki[1], Konosuke Watanabe[2], Hiroyuki Shimada[2], Yasunobu Mizutani[2], Masashi Mori[3]

(1: Yokohama National University, 2: National Institute of Advanced Industrial Science and Technology, 3: Central Research Institute of Electric Power Industry)

[2B-08]

A cathode-supported proton-conducting reversible solid oxide cells prepared by low temperature co-sintering

Chu Chen

(Shanghai Institute of Ceramics, China)

13:30-14:30 Solid Electrolyte (Divalent Cation) (Chair: Genki Kobayashi)

[2B-09I]

Hydride-based Electrolytes for Multivalent Battery Application

Kazuaki Kisu, Shinichi Orimo

(Tohoku University, Japan)

[2B-10]

Molecular Crystalline Electrolytes with Room Temperature Mg-Ion Conductivity

Sawako Mori, Takahito Obora, Mizuka Namaki, Takaaki Ota, Shota Uchiyama, Keiichi Tsukada, Mitsuru Kondo, Makoto Moriya

(Shizuoka University, Japan)

15:00-15:45 Capacitors

[2B-11]

Zn-doped NiO Films and a Zn^{2+}/Ferrocene Based Gel for an Electrochromic Device and an Asymmetric Supercapacitor

Ishita Naskar[1], Partha Ghosal[2]

(1: Indian Institute of Technology, Hyderabad, 2: Defence Metallurgical Research Laboratory, Defence Research and Development Organization India)

[2B-12]

Bismuth Sulphide Nanostructures: An Efficient Battery-type Negative Electrode for Supercapacitor Applications

Karthikeyan N[1], Johnson William J[1], Saravanakumar B[1], Periasamy P. A[1], Christopher Selvin P[2]

(1: Dr. Mahalingam College of Engineering and Technology, 2: Bharathiar University, India)

[2B-13]

Evaluation of spinel structured $MnCo_2O_4$ synthesized using ecologically sound tamarind extract for supercapacitor behavior

Adlin Helen P[1], Lakshmi D[2], Saranya R[1], Infanta Diana M[1], Ajith K, Kiruthika T[1], Gayathri H[1], Christopher selvin P[1]

(1: Bharathiar University, 2: PSG College of Arts and Science, India)

16:05-16:35 Battery Management (Chair: Nobuyuki Imanishi)

[2B-14I]

Battery Management System – A leap towards Operational Safety of EV Battery Packs

A. K. Thakur

(Indian Institute of Technology Patna, India)

September 15 (Thursday)

9:00-10:00 Sodium-ion Batteries (Chair: Masanobu Nakayama)

[3B-01]

Development of Na-Superrich Iron Oxide for Sodium-Ion Battery Cathodes

Sota Kodaki, Hiroaki Kobayashi, Itaru Honma

(Tohoku University, Japan)

[3B-02]

Construction of Hierarchical NiS@C/rGO Heterostructures for Enhanced Sodium Storage

Zhiyang Song

(Shanghai Institute of Ceramics, China)

[3B-03]

Effect of NB13 Glass-Ceramics on PEO-Based Sodium Ion Conducting Solid Polymer Electrolytes

Niranjan Kumar, Yugal Kishor Mahipal

(Pt. Ravishankar Shukla University, India)

[3B-04]

Robust biopolymer electrolyte membranes based on sodium alginate for all-solid-state sodium ion batteries

Infanta DianaM[1], Christopher Selvin P[1], Selvasekarapandian S[1,2], Lakshmi D[3], Adlin Helen P[1], K. Ajith[1]

(1: Bharathiar University, 2: Materials Research Center, Coimbatore, 3: PSG College of arts and science, India)

10:05-10:50 Oxide-ion Conductors (Chair: Naoto Tanibata)

[3B-05]

Mixed Conducting Properties of $BaCo_{0.4}Fe_{0.4}Y_{0.2-x}A_xO_{3-d}$ (x= 0, 0.1; A: Zr, Mg, and Zn) Perovskite

Md Saiful Alam[1,2], Isao Kagomiya[1], Kenichi Kakimoto[1]

(1: Nagoya Institute of Technology, Japan, 2: University of Chittagong, Bangladesh)

[3B-06]

Laser Heating Assisted Glass Crystallization Method for Extending the Solid Solubilities in Melilite and Mayenite Type Oxide ion conductors

Jungu Xu[1], Yun Lv[1], Alberto J. Fernandez-Carrion[1], Xiaojun Kuang[1], Mathieu Allix[2]

(1: Guilin University of Technology, China, 2: CNRS, UPR3079 CEMHTI, France)

[3B-07]

Oxide ion conductivity in bismuth substituted $Bi_2Ga_4O_9$

Maksymilian Pawel Kluczny[1], Tatsumi Ishihara[1,2]

(1: Department of Automotive Science, 2: International Institute for Carbon Neutral Energy Research, Japan)

Program (Poster)

September 13 (Tuesday)

17:30-19:30 (Chair: Nobuyuki Imanishi)

[P-01]

Exhaustive Search for Chloride Li Ion Conductors Using High Throughput Force Field Molecular Dynamics Calculations

Shin Aizu, Naoto Tanibata, Hayami Takeda, Masanobu Nakayama, Ryo Kobayashi
(Nagoya Institute of Technology, Japan)

[P-02]

Microstructure analysis of a Solid Oxide Fuel Cell by Microbeam X-Ray Diffraction

Hiroshi Nozaki, Hidehito Matsuo, Yujiro Hayashi, Hiroaki Kadoura, Satoru Fujita
(Toyota Central R&D Labs., Inc., Japan)

[P-03]

Surface Proton Conduction of $Ce_{1-x}Sm_xO_{2-\delta}$ Electrolyte Thin Films in Solid Oxide Fuel Cells Operating at Room Temperature

Go Notake[1], Daiki Nishioka[1], Minami Tani[1], Ukyo Kobayashi[1], Hideaki Murasawa[1], Daisuke Shiga[2], Hiroshi Kumigashira[2], and Tohru Higuchi[1]
(1: Tokyo University of Science, 2: Tohoku University, Japan)

[P-04]

Thermal stability and proton conductivity of the tunnel phosphate at the intermediate temperature

Jun Nakajima[1], Naoya Ueta[1], Daisuke Mori[2], Shinya Higashimoto[1], Yasuaki Matsuda[3]
(1: Osaka Institute of Technology, 2: Mie University, 3: Chiba Institute of Technology, Japan)

[P-05]

Crystal structure and proton conductivity of $NaM_{1-x}Li_{1-x}H_x(PO_3)_3 \cdot yH_2O$ (M : Mg^{2+} and Ni^{2+})

Naoya Ueta[1], Tomoya Kawase[1], Jun Nakajima[1], Shinya Higshimoto[1], Daisuke Mori[2], Yasuaki Matuda[3]
(1: Osaka Institute of Technology, 2: Mie University, 3: Chiba Institute of Technology, Japan)

[P-06]

Compositional optimization of NASICON-type solid electrolyte using Bayesian optimization-guided experiments

Hiroko Fukuda[1], Koki Nakano[1], Naoto Tanibata[1], Hayami Takeda[1], Masanobu Nakayama[1], Yasuharu Ono[2], Takaaki Natori[2]
(1: Nagoya Institute of Technology, 2: TOAGOSEI CO., LTD., Japan)

[P-07]

Drawing a materials map with autoencoder for Li conductive fluorides

Yudai Yamaguchi, Risa Yasuda, Taruto Atsumi, Naoto Tanibata, Hayami Takeda, Masanobu Nakayama
(Nagoya Institute of Technology, Japan)

[P-08]

Development of Proton Conducting Biopolymer Electrolyte and its Characterizations using Gellan Gum and NH_4I for Electrochemical Device Applications

R. Meera Naachiyar[1,2], M. Ragam[1], S. Selvasekarapandian[2,3]
(1: Fatima College, 2: Materials Research Centre, Coimbatore, 3: Bharathiar University, India)

[P-09]

Grain boundary modification with LiCl in Garnet-like Lithium Ionic Conductors

Ryota Katsu, Daisuke Mori, Teruyuki Akatani, Sou Taminato, Nobuyuki Imanishi
(Mie University, Japan)

[P-10]

Fabrication of solid state Li-ion conducting battery using biopolymer electrolyte based on Agar-Agar/Lithium chloride

Aafrin Hazaana S[1, 2], Ancemma Joseph[1], Selvasekarapandian S[2, 3]
(1: Fatima College, 2: Materials Research Center, Coimbatore, 3: Bharathiar University, India)

[P-11]

Development and characterization of biopolymer electrolyte of Gellan gum with $NaClO_4$ for solid state sodium ion battery

Kani Ajay Babu M[1,2], Jayabalakrishnan S S[1], Selvasekarapandian S[2,3], Aafrin Hazaana S[2,4]
(1: Mannar Thirumalai Naicker College, 2: Materials Research Centre, Coimbatore, 3: Bharathiar University, 4: Fatima College, India)

[P-12]

Moringa Oleifera gum-based bio-membrane electrolyte for lithium-ion conducting battery

applications

Muniraj @ Vignesh N[1,2], Vengadesh Krishna M[1,3], Selvasekarapandian S[1,3]
(1: Materials Research Centre, Coimbatore, 2: Mannar Thirumalai Naicker College, 3: Bharathiar University, India)

[P-13]

High Energy Density All Solid State Batteries with Slurry Casting Electrode

KyungSu Kim, Kern-Ho Park, Yunchae Jung, Woosuk Cho
(Korea Electronics Technology Institute, Korea)

[P-14]

Investigation of Banana (Musa) Leaves as a Proton Conducting Solid Electrolyte Membrane for Proton Batteries and Fuel Cells

Vijayaragaventhiran Karthiketan[1], S Selvasekarapandian[1,2], Vengadesh Krishna M[1,2], Muniraj@Vignesh N[1], G. Boopathi[1], S Vanathi[1]
(1: Materials Research Centre, Coimbatore, 2: Bharathiar University, India)

[P-15]

Effect of chemical oxidation of spinel-type $LiNi_{0.5}Mn_{1.3}Ti_{0.2}O_4$ by soaking in HNO_3, HCl and H_2SO_4

Kenjiro Fujimoto, Yuki Kitajima, Akihisa Aimi
(Tokyo University of Science, Japan)

[P-16]

Proton uptake in $LaNiO_3$ and its protonic conductive properties

Kinsuke Okada, Isao Kagomiya, Ken-icni Kakimoto
(Nagoya Institute of Technology, Japan)

[P-17]

Li-ion Diffusion Coefficients of LAGP Above 300 °C Measured by Neutron Radiography

Honoka Takagi[1], Fangzhou. Song[1], Takeshi Yabutsuka[1], Shigeomi Takai[1], Takeshi. Yao[1], Hirotoshi Hayashida[2], Tetsuya Kai[3], Takenao Shinohara[3]
(1: Kyoto University, 2: Neutron Science and Technology Center, 3: J-PARC Center, Japan)

[P-18]

Electrochemical Performance and Durability of PCFC with Ni-anode Supported $BaZr_{0.8}Yb_{0.2}O_{3-\delta}$ Electrolyte

Shun Kobayashi[1], Malik Ryuma Matsuda[1], Kaoru Nakamura[1], Masashi Mori[1], Hiroyuki Shimada[2], Yasunobu Mizutani[2], Yuichi. Mikami[3], Kosuke Yamauchi[3], Tomohiro Kuroha[3]
(1: CRIEPI, 2: AIST, 3: Panasonic Holdings Corporation, Japan)

[P-19]

Formation and Electrical Conductivity of $PbWO_4$-$LaNbO_4$ Solid-Solution System with Oxide Ion Interstitials

Shigeomi Takai, Hironari. Sassa, Takeshi. Yabutsuka, Takeshi Yao
(Kyoto University, Japan)

[P-20]

Hydride-Ion Conduction in Perovskite Hydride $SrLiH_3$

Takashi Hirose[1], Takuya Mishina[1], Naoki Matsui[2], Kota Suzuki[1], Takashi Saito[2,3], Takashi Kamiyama[2], Masaaki Hirayama[1], Ryoji Kanno[1]
(1: Tokyo Institute of Technology, 2: High Energy Accelerator Research Organization (KEK),3: The Graduate University for Advanced Studies, SOKENDAI, Japan)

[P-21]

Effect of Li_2ZrO_3 modification on lithium intercalation rate at $LiCoO_2$/ organic electrolyte interfaces characterized by neutron reflectometry

Huangkai Zhou, Jun Izumi, Sho Asano, Kotaro ITO, Keisuke Shimizu, Kota Suzuki, Ryoji Kanno, Masaaki Hirayama
(Tokyo Institute of Technology, Japan)

[P-22]

Characterization of $Na_2Zn_2TeO_6$ Ceramic Electrolyte Densified by Hot Pressing

Ryoji Inada, Akihiro Itaya, Kazuki Yamamoto, Yuki Ono
(Toyohashi University of Technology, Japan)

[P-23]

Sputter-Deposited LiPSiO Thin Films as Solid Electrolyte for Thin Film Batteries

Rongbin Ye, Jun Tanabe, Koji Ohta, Mamoru, Baba
(Iwate University, Japan)

[P-24]

Study on Performance Enhancement Mechanism of Hydrogenated $Li_4Ti_5O_{12}$ using Ptychography

Ji-Yong Eom, Jongmin Kim , Seong In Kim, Yang Soo Kim

(Korea Automotive Technology Institute, Korea)

[P-25]

Study of biomaterial electrolyte based on Peltophorum pterocarpum for electrochemical devices

Leena Chandra M V[1,2], Mohanaa Muthuselvi P[1,2], Selvasekarapandian S[1,3] Vengadesh Krishna M[1,3], Muniraj @ Vignesh N[1,4]

(1: Materials Research Centre, Coimbatore, 2: Fatima College, 3: Bharathiar University, 4: Mannar Thirumalai Naicker College, India)

[P-26]

Development of biomaterial electrolyte using Mangifera Indica with Ammonium Formate and its application to primary proton conducting battery

Eswara Gomathy S[1,2], Selvasekarapandian S[1,3], Selvanayagam S[3], Muniraj @ Vignesh N[1,4], Aafrin Hazaana S[1,5], Meera Naachiyar R[1,5]

(1: Materials Research Center, Coimbatore, 2: Government Arts College, 3: Bharathiar University, 4: Mannar Thirumalai Naicker College, 5: Fatima College)

[P-27]

Effect of Particle Morphology on the Fast Charging Properties of High Ni Cathode Active Materials

Jongmin Kim Ji Yong Eom Chang Su Kim, Yong Min Kwon

(Korea Automotive Technology Institute, Korea)

[P-28]

Liquid phase synthesis of the oxide solid electrolyte, $LiTa_2PO_8$

Naruya Higashiura , Daisuke Mori, Sou Taminato, Nobuyuki Imanishi

(Mie University, Japan)

[P-29]

Stabilized Electrode / Electrolyte Interface Reaction in All-solid-state Lithium-ion Batteries using Anion-doped Chloride Electrolyte

Mariya Yamagishi, Chengchao Zhong, Yuki Orikasa

(Ritsumeikan University, Japan)

[P-30]

Comparison between chloride and sulfide based solid electrolytes of all-solid-state battery composite electrodes by X-ray CT

Ayaka Watanabe[1], Yuya Sakka[1], Hisao Yamashige[2], Yuki Orikasa[1]
(1: Ritsumeikan Univerversity, 2: Toyota Motor Corporation, Japan)

[P-31]

Effect of Sulfur Doping on $Li_{3.4}Ge_{0.4}V_{0.6}O_4$ Solid Electrolyte

Yu Shintomi, Chengchao Zhong, Yuki Orikasa
(Ritsumeikan University, Japan)

[P-32]

Photo-assist Electrochemical Lithiation Reaction of Germanium Electrode.

Shu Tsuchida, Nur Chamidah, Chengchao Zhong, Yuki Orikasa
(Ritsumeikan University, Japan)

[P-33]

Origin of “non-polarizing” oxygen-redox capacity of $Na_2Mn_3O_7$ cathode for sodium ion batteries

Akihisa Tsuchimoto[1], Xiang-Mei Shi[1], Kosuke Kawai[1], Benoit Mortemard de Boisse[1], Jun Kikkawa[2], Daisuke Asakura[3], Masashi Okubo[1,4], and Atsuo, Yamadaa[4]
(1: The University of Tokyo, 2: NationalInstitute for Materials Science, 3: National Institute of Advanced Industrial Science and Technology, 4: Kyoto University, Japan)

[P-34]

Microstructures and charge-discharge cycles of SnB_2O_4 glassy electrode composites for all-solid-state lithium batteries

Hirofumi Tsukasaki, Keigo Sakamoto, Yuki Hayashi, Takuya Kimura, Atsushi Sakuda, Akitoshi Hayashi, Shigeo Mori
(Osaka Metropolitan University, Japan)

[P-35]

Effects of Sm doped CeO_2 functional layer on power generation property of metal support protonic ceramic fuel cells

Hyo-Young Kim, ByeongSu Kang, and Tatsumi Ishihara
(Kyushu University, Japan)

[P-36]

Synthesis and Electrochemical Properties of $(Li_2TM)SO$ (TM=Co, Fe, Mn) Electrodes with Anti-Perovskite Structure in an All-Solid-State Battery

Kazuhiro Hikima, Masaya Miura, Hirotada Gamo, Atsunori Matsuda
(Toyohashi University of Technology, Japan)

[P-37]

Relationship between the crystal structure and constituent elements of mixed cation phosphates

Yasuaki Matuda[1], Rihito Nakamura[2], Souichiro Kondo[2], Tomoya Yoshimura[2], Naoya Ueta[2], Jun Nakajima[2], Daisuke Mori[3], Shinya Higshimoto[2]
(1: Chiba Institute of Technology, 2: Osaka Institute of Technology, 3: Mie University, Japan)

[P-38]

High-Pressure Synthesis of New Lithium-Containing Oxides Predicted by The Recommender System

Toshiya Nakayama[1], Kota Suzuki[1], Naoki Matsui[1], Atsuto Seko[2], Isao Tanaka[2], Ryoji Kanno[1], Masaaki Hirayama[1]
(1: Tokyo Institute of Technology, 2: Kyoto University, Japan)

[P-39]

A Mixed-Conductive Li_2S-Based Cathode Composite by a Liquid-Phase Process for All-Solid-State Lithium-Sulfur Battery

Peilu Jiang, Jinan Cui, Subin Song, Huangkai Zhou, Yumi Yamaguchi, Kota Suzuki, Ryoji Kanno, Masaaki Hirayama
(Tokyo Institute of Technology, Japan)

[P-40]

Synthesis of Na-rich Anti-perovskite Compounds and the Effects of Ca^{2+} Doping and Br^-/O^{2-} Non-stoichiometry on Ionic Conductivity

Shiori Ito, Reona Miyazaki, Takehiko Hihara
(Nagoya Institute of Technology, Japan)

[P-41]

Compositional dependence of ion transport properties of halide mixed Na-rich antiperovskite solid electrolytes

Kana Ishigami, Reona Miyazaki, Takehiko Hihara
(Nagoya Institute of Technology, Japan)

[P-42]

Barium cerate-zirconate electrolyte powder prepared by carbonate coprecipitation for high performance protonic ceramic fuel cells

Zidai Fan, Dan Cao, Mingyang Zhou, Ziyi Zhu, Jiang Liu

(South China University of Technology, China)

[P-43]

Solid oxide cells with cermet of silver and gadolinium-doped-ceria symmetrical electrodes for high-performance power generation and water electrolysis

Kai Tan[1], Xiaomin Yan[1], Ziyi Zhu[1], Mingyang Zhou[1], Fengyuan Tian[2], Jiang Liu[1]

(1: South China University of Technology, 2: Southwest Technology and Engineering Research Institute, China)

[P-44]

Electrochemical performance and chemical stability of proton-conducting $BaZr_{0.8-x}Ce_xY_{0.2}O_{3-\delta}$ electrolytes

Mingyang Zhou[1], Zhijun Liu[2], Meilong Chen[1], Ziyi Zhu[1], Dan Cao[1], Jiang Liu[1]

(1: South China University of Technology, China, 2: Georgia Institute of Technology, USA)

[P-45]

High performance and durable proton-conducting solid oxide cells operating at high steam partial pressure

Ziyi Zhu, Mingyang Zhou, Kai Tan, Zidai Fan, Jiang Liu

(South China University of Technology, China)

[P-46]

Stabilization of interface between PEO-based lithium solid polymer electrolyte and 4-volt class cathode

Daisuke Yamasaki[1], Sou. Taminato[1], Daisuke. Mori[1], Yasuo Takeda[1], Osamu. Yamamoto[1], Nobuyuki Imanishi[1], Keisuke Nomura[2], Shinichi Kumakura[2]

(1: Mie University, Japan, 2: UMICORE, Belgium)

[P-47]

Structural Stability of Li-Co-Sb-O System

Arvind Singh, A. K. Thakur

(Indian Institute of Technology Patna, India)

[P-48]

Density functional theory study of 5V cathode materials Li_2NiPO_4F and Li_2NiNbO_4F

Shamik Chakrabarti, A. K. Thakur

(Indian Institute of Technology Patna, India)

[P-49]

Structural, thermal, and electrical studies on protic ionic liquid based Proton conducting polymer electrolytes reinforced with MMT clay

Manjula G. Nair[1], Awalendra K. Thakur[2] Allisson Saiter-Fourcin[3], Saumya R. Mohapatra[4]

(1,2: Indian Institute of Technology Patna, India, 1,4: National Institute of Technology Silchar, India, 3: Normandie University, France)

[P-50]

Resistive Switching Response Mechanism in PVDF-Salt Complex

Shabana Tabassum, Awalendra K. Thakur

(Indian Institute of Technology Patna, India)