

December 12-14, 2023

Symposium A-4

New Materials Science on Nanoscale Structures and Functions of "Crystal Defect Cores"

[Organizers]

Katsuyuki Matsunaga (Department of Materials Physics, Nagoya University)
 Masato Yoshiya (Division of Materials and Manufacturing Science, Osaka University)
 Naoya Shibata (Institute of Engineering Innovation, The University of Tokyo)
 Hiromichi Ohta (Research Institute for Electronic Science, Hokkaido University)
 Teruyasu Mizoguchi (Institute of Industrial Science, The University of Tokyo)
 Atsutomo Nakamura (Department of Mechanical Science and Bioengineering, Osaka University)
 Xufei Fang (Division Nonmetallic-Inorganic Materials, Technische University of Darmstadt, Germany)
 Seungwu Han (Department of Materials Science and Engineering, Seoul National University, Korea)
 Si-Young Choi (Department of Materials Science and Engineering, Pohang University of Science and Technology, Korea)
 Emmanuel Guilmeau (Laboratoire de Cristallographie et Sciences des Matériaux, CNRS, France)
 Yi-Chia Chou (Department of Materials Science and Engineering, National Taiwan University, Taiwan)
 Hyoungjeen Jeon (Complex Matter Physics Laboratory, Pusan National University, Korea)
 Patrick Cordier (Unité Matériaux et Transformations, Université de Lille, France)
 Klaus van Benthem (Department of Materials Science and Engineering, University of California at Davis)

[Sponsors]

STAM Science and Technology of Advanced Materials

December 12, 2023

Oral Session

[A4-O201]

Time 10:00–12:00 Room Session 6 (Room F)

Chair Masato Yoshiya (Osaka University),
 Hyoungjeen Jeon (Pusan National University)

break
10:00–10:05

Announcements
10:05–10:10

A4-0201-01 ▶ Keynote 10:10–10:35

Electronic and Atomic Structures of Crystal Defect Cores in Advanced Materials

*Katsuyuki Matsunaga
 Nagoya Univ. (Japan)

A4-0201-02 ▶ Invited 10:35–10:55

Advanced Scanning Transmission Electron Microscopy for Crystal Defect Cores

*Naoya Shibata
 The Univ. of Tokyo (Japan)

A4-0201-03 10:55–11:10

Design of Intercalant-induced Function of Layered Intercalation Compounds via DFT Simulation and Machine Learning

*Naoto Kawaguchi, Kiyoo Shibata, Teruyasu Mizoguchi
 The Univ. of Tokyo (Japan)

A4-0201-04 11:10–11:25

Room-Temperature Solid-State Synthesis of $\text{Cs}_3\text{Cu}_2\text{I}_5$ Thin Films and Formation Mechanism for Its Unique Local Structure

*Masatake Tsuji¹, Masato Sasase¹, Soshi Iimura²,
 Junghwan Kim^{1,3,4}, Hideo Hosono^{1,2}

¹Tokyo Tech. (Japan), ²National Inst. for Mat. Sci. (NIMS) (Japan), ³Ulsan National Inst. of Sci. and Tech. (UNIST) (Korea), ⁴Precursory Res. for Embryonic Sci. and Tech. (PRESTO) (Japan)

A4-0201-05 11:25–11:40

Atomistic Study of the Effects of Chemical Ordering on Mechanical Properties of CrCoNi Medium-entropy Alloy using Neural Network Potential

*Jun-Ping Du, Shigenobu Ogata
 Osaka Univ. (Japan)

A4-0201-06 11:40–11:55

Atomic-Resolution STEM Observation of a PZT/SRO/Pt Epitaxial Thin Film

*Shinsuke Hashimoto¹, Takehito Seki^{1,2}, Yuichi Ikuhara^{1,3},
 Naoya Shibata^{1,3}

¹The University of Tokyo (Japan), ²PRESTO, Japan Science and Technology Agency (Japan), ³Nanostructures Research Laboratory (Japan)

break
11:55–12:00

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December 12, 2023

Oral Session
[A4-O202]
Time 14:00–16:05 **Room** Session 6 (Room F)

Chair Naoya Shibata (The University of Tokyo),
 Hitoshi Yusa (National Institute for Materials Science)

 break
 14:00–14:10

A4-O202-01 ▶ Invited 14:10–14:30

Stressing interfaces: understanding materials behavior atom-by-atom

 *Klaus van Benthem
 Univ. of California, Davis (United States of America)

A4-O202-02 ▶ Invited 14:30–14:50

Ferroelectricity by phonon-decoupled oxygen tetrahedra in brownmillerite oxides

 *Si-Young Choi, Jinhyuk Jang
 POSTECH (Korea)

A4-O202-03 14:50–15:05

Structure-function relationship of the ordered Ruddlesden-Popper-type layered perovskite oxide $\text{Li}_2\text{Sr}_{1-x}\text{Ca}_x(\text{Nb}_{1-x}\text{Ta}_x)_2\text{O}_7$

 *Akitoshi Nakano¹, Hirokazu Shirakuni¹, Takayuki Nagai², Yasuhide Mochizuki³, Fumiyasu Oba³, Shogo Kawaguchi⁴, Ichiro Terasaki¹, Hiroki Taniguchi¹
¹Nagoya Univ. (Japan), ²Tokyo Univ. (Japan), ³Tokyo Inst. of Tech. (Japan), ⁴JASRI (Japan)

A4-O202-04 15:05–15:20

Dynamic observations of phase transformation and precipitation in nanotwinned high entropy alloys by in situ TEM/STEM

 *Wenjun Lu
 Southern University of Science and Technology (China)

A4-O202-05 15:20–15:35

Effect of Impurity in Synthesis Solution on Crystallinity and Size of Cu Nanoparticles

 *Shohei Shiomi
 Kyoto Municipal Inst. of Indus. Tech. and Culture (Japan)

A4-O202-06 15:35–15:50

Absence of High On-to-Off Thermal Conductivity Ratio in the $\text{La}_x\text{Sr}_{1-x}\text{CoO}_y$ -based Thermal Transistors

 *Zhiping Bian¹, Mitsuki Yoshimura¹, Ahrong Jeong², Hiromichi Ohta²
¹Graduate School of Information Science and Technology, Hokkaido University (Japan), ²Research Institute for Electronic Science, Hokkaido University (Japan)

A4-O202-07 15:50–16:05

Application of High-Speed Scanning Probe Microscopy for Material Research -In-situ observation of photocatalytic processes-

 *Hayato Yamashita, Rina Amaki, Osamu Hisatomi, Masayuki Abe
 Osaka Univ. (Japan)

December 12, 2023

Oral Session
[A4-O203]
Time 16:30–18:30 **Room** Session 6 (Room F)

Chair Hidehiro Yoshida (The University of Tokyo),
 Si-Young Choi (POSTECH)

A4-O203-01 ▶ Invited 16:30–16:50

Application of machine learning potentials to material simulation and discovery

 *Seungwu Han
 Seoul National Univ. (Korea)

A4-O203-02 ▶ Invited 16:50–17:10

Machine learning for functional core characterization

 *Teruyasu Mizoguchi, Poyen Chen, Izumi Takahara, Naoto Kawaguchi, Kiyohi Shibata
 Univ of Tokyo (Japan)

A4-O203-03 17:10–17:25

A thin film model study of electrochemical reaction at LiFePO_4 cathode/solid electrolyte interface

 *Dongho Kang, Kotaro Ito, Keisuke Shimizu, Naoki Matsui, Kota Suzuki, Ryoji Kanno
 Tokyo Inst. of Tech. (Japan)

A4-O203-04 17:25–17:40

Two-dimensional Janus Nanomaterials: Strain And Doping Engineering For Energy Applications

 *Sri Kasi V N Rao MATTA¹, Ting Liao², Salvy P Russo³
¹University of Tsukuba (Japan), ²Queensland University of Technology (Australia), ³MIT University (Australia)

A4-O203-05 17:40–17:55

Adsorption of molecular water, carbon dioxide and carbon monoxide on ceria (111) investigated with high-resolution atomic force microscopy

 *Oscar Custance¹, Kyungmin Kim², Daiki Katsube³, Masayuki Abe², Shigeki Kawai¹
¹National Institute for Materials Science (NIMS) (Japan), ²Osaka Univ. (Japan), ³RIKEN (Japan)

A4-O203-06 17:55–18:10

High-pressure corundum and related structures of sesquioxide: doping and structural relaxation

 *Hitoshi Yusa¹, Masahi Miyakawa¹, Daisuke Yamazaki²
¹National Institute for Materials Science (Japan), ²Okayama University (Japan)

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break
18:10–18:30

December 13, 2023

Oral Session
[A4-O301]

Time 10:00–12:00 Room Session 6 (Room F)

Chair Atsutomo Nakamura (Osaka University),
Kazutoshi Inoue (Tohoku University)

break
10:00–10:05

Announcements
10:05–10:10

A4-0301-01 ▶ Keynote 10:10–10:35

Application of nanomechanical testing in mineral physics

*Patrick Cordier^{1,2}

¹University of Lille (France), ²Institut Universitaire de France (France)

A4-0301-02 ▶ Invited 10:35–10:55

Insights in dislocation transmission and dislocation emission at twin boundaries

Nataliya V Malyar², Maya K Kini², Juan Li¹, George M Pharr³,
*Christoph Kirchlechner¹

¹Karlsruher Institut of Technology (Germany), ²Max-Planck-Institut für Eisenforschung (Germany), ³Texas A&M University (United States of America)

A4-0301-03 10:55–11:10

From dislocation electron tomography to continuum mechanics: application to olivine

*Patrick Cordier^{1,2}, Timmo Weidner¹, Vincent Taupin³,
Alexandre Mussi¹

¹University of Lille (France), ²Institut Universitaire de France (France), ³LEM3 (France)

A4-0301-04 11:10–11:25

Dislocation configuration and evolution in wurtzite ZnO single crystals under nanoindentation

*Yan Li¹, Shihao Zhang¹, Eita Tochigi², Shigenobu Ogata¹,
Atsutomo Nakamura¹

¹Osaka University (Japan), ²The Univ. of Tokyo (Japan)

A4-0301-05 11:25–11:40

Atomistic segregation behaviors of Ti dopants in Al₂O₃ grain boundaries

*Chuchu Yang¹, Bin Feng¹, Naoya Shibata^{1,2}, Yuichi Ikuhara^{1,2}

¹The Univ. of Tokyo (Japan), ²Japan Fine Ceramics Center (Japan)

A4-0301-06 11:40–11:55

Non-contact atomic force microscopy imaging of line defect on rutile TiO₂(110)-(1×2)

*Daiki Katsube¹, Tatsuya Yokoi², Eiichi Inami³, Fengxuan Li⁴,
Katsuyuki Matsunaga², Masayuki Abe⁴

¹RIKEN (Japan), ²Nagoya Univ. (Japan), ³Kochi Univ. Tech. (Japan), ⁴Osaka Univ. (Japan)

Time adjustment
11:55–12:00

December 13, 2023

Oral Session
[A4-O302]

Time 14:00–16:05 Room Session 6 (Room F)

Chair Katsuyuki Matsunaga (Nagoya University),
Ken Niwa (Nagoya University)

break
14:00–14:10

A4-0302-01 ▶ Invited 14:10–14:30

Room-temperature dislocations in ceramic oxides: a mechanics-based engineering approach

*Xufei Fang^{1,2}

¹Technical University of Darmstadt (Germany), ²Karlsruhe Institute of Technology (Germany)

A4-0302-02 ▶ Invited 14:30–14:50

Impact of defect and dopant on the property of electronic and quantum materials

*Minseok Choi

Inha University (Korea)

A4-0302-03 14:50–15:05

Exploring Ground State Electronic Structure of materials through ELNES/XANES Spectra or SMILES Strings via machine learning

*Po-Yen Chen, Kiyou Shibata, Teruyasu Mizoguchi

Inst. of Indus. Sci., The Univ. of Tokyo (Japan)

A4-0302-04 15:05–15:20

Damage-tolerant Ceramics by Ultra High Dislocation Density

*Oliver Preuß¹, Enrico Bruder², Jiawen Zhang³, Wenjun Lu³,
Jürgen Rödel¹, Xufei Fang¹

¹Division Nonmetallic Inorganic Materials, Department of Materials and Earth Sciences, Technical Univ. of Darmstadt (Germany), ²Division Physical Metallurgy, Department of Materials and Earth Sciences, Technical Univ. of Darmstadt (Germany), ³Department of Mechanical and Energy Engineering, Southern Univ. of Sci. and Tech. (China)

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A4-0302-05 15:20–15:35
Hydrogen Effect Research about Void Formation and Growth in Alpha-iron with Database-driven Monte Carlo Method
 *Dan WEI, Shuhei SHINZATO, Shigenobu OGATA
 Osaka Univ. (Japan)

A4-0302-06 15:35–15:50
First principles study on the influence of multi-element doping on the mechanical properties of θ /Al interface in Al-Cu alloy
 *Chuan-Hui Zhang, Junkai Wang, Bingkang Li, Peng Shi, Liwu Jiang
 University of Science and Technology Beijing (China)

A4-0302-07 15:50–16:05
High-pressure synthesis, crystal chemistry, and ferromagnetism of novel incommensurate Nowotny chimney ladder Cr-Ge compounds
 *Takuya Sasaki, Koki Noda, Kota Kanie, Nico Alexander Gaida, Ken Niwa, Masashi Hasegawa
 Nagoya Univ. (Japan)

December 13, 2023

Oral Session

[A4-O303]**Time** 16:30–18:30 **Room** Session 6 (Room F)

Chair Xufei Fang (Technical University of Darmstadt), Yan Li (Osaka University)

A4-0303-01 ▶ Invited 16:30–16:50
Controlling phases in oxygen sponge $\text{SrFe}_{1-x}\text{Co}_x\text{O}_{3.6}$
 *Hyoungjeen Jeon, Joonhyuk Lee
 Pusan National University (Korea)

A4-0303-02 16:50–17:05
Unique Material Properties in Oxide Ceramics Induced by Strong Electric Field and Current
 *Hidehiro Yoshida¹, Hiroshi Masuda¹, Takahisa Yamamoto², Hidenobu Murata³, Atsush Nakahira³
¹The University of Tokyo (Japan), ²Nagoya University (Japan), ³Osaka Metropolitan University (Japan)

A4-0303-03 17:05–17:20
First-principles study on interfacial structure, strength and wear resistance of SiC/VC nano-layered hard coatings
 *Liwu Jiang, Peng Shi, Chuanhui Zhang
 University of Science and Technology Beijing (China)

A4-0303-04 17:20–17:35
Fabrication and Properties of Triply Periodic Hyperbolic Surface Scaffolds
 *Lu Han
 Tongji Univ. (China)

A4-0303-05 17:35–17:50
Void distribution in twist grain boundaries
 *Kazutoshi Inoue¹, Qian Chen¹, Kazuaki Kawahara², Mitsuhiro Saito², Motoko Kotani¹, Yuichi Ikuhara^{1,2}
¹Tohoku Univ. (Japan), ²The Univ. Tokyo (Japan)

Time adjustment

17:50–18:30

December 14, 2023

Oral Session

[A4-O401]**Time** 8:55–11:50 **Room** Session 6 (Room F)

Chair Teruyasu Mizoguchi (the University of Tokyo), Hayato Yamashita (Osaka University)

Announcements

8:55–9:00

A4-0401-01 ▶ Invited 9:00–9:20
Solid-State Electrochemical Thermal Transistors
 *Hiromichi Ohta
 Hokkaido Univ. (Japan)

A4-0401-02 ▶ Invited 9:20–9:40
Uphill diffusion in point contact reaction for silicide formation

*Yi-Chia Chou¹, Lih J Chen², King-Ning Tu³
¹National Taiwan University (Taiwan), ²National Tsing Hua University (Taiwan), ³City University of Hong Kong (Hong Kong)

Announcements

9:40–9:45

break

9:45–9:50

Poster Session

9:50–11:50

December 14, 2023

Poster Session

[A4-P401]

Time 9:00–12:00 Room Poster (Annex)

A4-P401-01

Nanoscale evaluation of light illumination influence on the basal slip in GaN single crystals

*Ryosuke Kinoshita¹, Yan Li¹, Hiroto Oguri¹, Eita Tochigi², Atsutomo Nakamura¹¹Osaka Univ. (Japan), ²Univ. Tokyo (Japan)

A4-P401-02

STEM observation for c-axis oriented apatite-type lanthanum silicon oxide thin film grown by magnetron sputtering

*Shigekazu Hidaka^{1,2}, Kenji Takagi³, Takahisa Yamamoto¹¹Nagoya Univ. (Japan), ²DENSO CORP. (Japan), ³SOOKEN INC. (Japan)

A4-P401-03

Energetic Stability Analysis of Si_xGe_{1-x} Using Genetic Algorithm and Density Functional Theory Calculation

*Hibiki Bekku, Yusuke Noda, Koji Sueoka

Okayama Prefectural Univ. (Japan)

A4-P401-04

ANN Potential Analysis Of Self-Interstitial Atom Cluster Formation In Si

*Kazuki Yamanaka¹, Eiji Kamiyama², Tatsuya Yokoi³, Yusuke Noda², Koji Sueoka²¹Graduate School of Computer Science and Systems Engineering, Okayama Prefectural Univ. (Japan),²Department of Information and Communication Engineering, Okayama Prefectural Univ. (Japan),³Department of Materials Physics, Nagoya Univ. (Japan)

A4-P401-05

Unveiling emergent phenomena in layered iridates by tailoring dimensionality and defects

*Lin Hao

High Magnetic Field Lab., Chinese Academy of Sci. (China)

A4-P401-06

Enhancing low-temperature SCR performance by doping vanadium oxide catalysts

*Changho Yeon^{1,2}, Sun-mi Hwang¹, Soon Kwan Jeong¹, Jungjoon Yoo¹, Chan-Woo Lee¹¹Korea Inst. of Energy Research (Korea), ²Korea Univ. (Korea)

A4-P401-07

Wide-field View Observation for Step Terrace Structure formed on (001) Surface of SrTiO₃ Single Crystal by Scanning Electron Microscopy

*Shunta Inagaki, Yutaro Katsuyama, Tomoharu Tokunaga, Takahisa Yamamoto

Nagoya University (Japan)

A4-P401-08

Microscopic thermal transport around dislocation core structures formed in oxides

*Wataru Sekimoto¹, Susumu Fujii^{1,2}, Masato Yoshiya^{1,2}¹Osaka Univ. (Japan), ²Japan Fine Ceramics Center (Japan)

A4-P401-09

Dislocation toughening in single crystal perovskites

*Oliver Preuß¹, Enrico Bruder², Wenjun Lu³, Fangping Zhuo¹, Christian Minnert², Jiawen Zhang³, Jürgen Rödel¹, Xufei Fang¹¹Div. Nonmetallic Inorganic Materials, Dept. Materials and Earth Sciences, Tech. Univ. of Darmstadt, (Germany), ²Div. Physical Metallurgy, Dept. Materials and Earth Sciences,Tech. Univ. of Darmstadt (Germany), ³Dept. Mechanical and Energy Eng., Southern Univ. of Sci. and Tech. (China)

A4-P401-10

Effect of Atomic Arrangements near Grain Boundaries of SrTiO₃ on Thermal Conductivity*Hiroki Isobe¹, Susumu Fujii^{1,2}, Masato Yoshiya^{1,2}¹Osaka Univ. (Japan), ²Japan Fine Ceramics Center (Japan)

A4-P401-11

Suppression of Phonon Thermal Conduction by Dislocations Grain Boundaries by Perturbed Molecular Dynamics

*Masato Yoshiya^{1,2}, Tomofumi Hara¹, Takaya Horikawa¹, Wataru Sekimoto¹, Susumu Fujii^{1,2}¹Osaka Univ. (Japan), ²JFCC (Japan)

A4-P401-12

The Effect of Dopants on the Structural Transitions in MgO Grain Boundaries

*Qian Chen¹, Mitsuhiro Saito², Kazuaki Kawahara², Kazutoshi Inoue¹, Atsutomo Nakamura³, Yuichi Ikuhara²¹Tohoku Univ. (Japan), ²The Univ. of Tokyo (Japan), ³Osaka Univ. (Japan)

A4-P401-13

Hydrogen Passivation of Acceptor Defects in delafossite CuMO₂ (M=Ga, In, Al): Insights for Enhanced p-Type ConductivityAroon Ananchuensook¹, Intuon Chatratin², Anderson Janotti², *Pakpoom Reunchan¹¹Kasetsart University (Thailand), ²University of Delaware (United States of America)

A4-P401-14

Mechanism behind reduction of thermal conduction in Ba_{1/3}CoO₂ by interlayer cations*Yusuke Matsushita¹, Masato Yoshiya^{1,2}, Susumu Fujii^{1,2}¹Osaka Univ. (Japan), ²Japan Fine Ceramics Center (Japan)

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A4-P401-15

Domain Switching Behavior of Bulk BaTiO₃ Single Crystals under Low Stress Compression at Room Temperature

*Takeshi Shibamoto¹, Yan Li¹, Kota Kasai², Kenji Shinozaki^{1,3}, Kenichi Tanigaki⁴, Keitaro Horikawa¹, Takahiro Shimada², Atsutomo Nakamura¹

¹Osaka Univ. (Japan), ²Kyoto Univ. (Japan), ³National Inst. of Advanced Indus. Sci. and Tech. (Japan), ⁴Osaka Electro-Communication Univ. (Japan)

A4-P401-16

Factors determining activation energies of proton conducting non-perovskite materials through first principles calculations

*Antony James Henderson^{1,2}, Masato Yoshiya¹, Susumu Fujii¹
¹Osaka Univ. (Japan), ²Japan Fine Ceramics Center (Japan)

A4-P401-17

Evaluation of basic properties in proton-conducting perovskite oxides by *ab initio* calculation

*Kazushi Tamatani¹, Susumu Fujii^{1,2}, Masato Yoshiya^{1,2}
¹Osaka Univ. (Japan), ²Japan Fine Ceramics Center (Japan)

A4-P401-18

Influence of softness of rotational phonons on ionic conduction in antiperovskite due to anharmonic effect

*Youngkyu Kim^{1,2}, Masato Yoshiya¹, Susumu Fujii¹
¹Osaka Univ. (Japan), ²Japan Fine Ceramics Center (Japan)

A4-P401-19

Li dendrite Suppression Effect by Introduction of Chloride into Grain Boundaries of Garnet-like Lithium Ionic conductor

*Kazuki Yonezawa, Daisuke Mori, Ryota Katsu, Sou Taminato, Nobuyuki Imanishi
Mie Univ. (Japan)

A4-P401-20

Synthesis and Characterization of Covalent Organic Framework Loading Gold Nanoparticle for Studying Photothermal Effect

*Yu-Shu Liao¹, Darieo Thankachan¹, Hsieh-Chih Tsai^{1,2,3}
¹National Taiwan Univ. of Sci. and Tech. (Taiwan),
²Advanced Membrane Materials Center (Taiwan), ³R&D Center for Membrane Tech. (Taiwan)

A4-P401-21

Deintercalation and Intercalation Behaviors of Ni-Al Layered Double Hydroxide Dense Bulks Prepared by Hydrothermal Hot-Pressing Method

*Kiyosuke Yone, Hidenobu Murata, Yasuaki Tokudome, Atsushi Nakahira
Osaka Metropolitan Univ. (Japan)

A4-P401-22

Effects of substitutional elements and their positions on electronic properties in Mn₃Si₄Al₂ by *ab initio* calculations

*Gaku Adachi¹, Masato Yoshiya^{1,2}, Susumu Fujii^{1,2}
¹Osaka Univ. (Japan), ²Japan Fine Ceramics Center (Japan)

A4-P401-23

Local coordination environments at grain boundaries of pure and yttria-stabilized tetragonal zirconia

*Katsuhiko Shimazaki¹, Susumu Fujii^{1,2}, Masato Yoshiya^{1,2}
¹Osaka Univ. (Japan), ²Japan Fine Ceramics Center (Japan)

A4-P401-24

High-pressure spark plasma sintering of YSZ and TaN ceramics

*Masashi Miyakawa, Hitoshi Yusa
National Institute for Materials Science (Japan)

A4-P401-25

Deintercalation And Intercalation Behaviors Of Ni-Al Layered Double Hydroxide Dense Bulks Prepared By Hydrothermal Hot-Pressing Method

*Kiyosuke Yone, Hidenobu Murata, Yasuaki Tokudome, Atsushi Nakahira
Osaka Metropolitan Univ. (Japan)

A4-P401-26

Enhancing the Charge Storage Capacity of MnO_x-Based Micro-Supercapacitors through Interfacial Interaction by Utilizing Reduced Graphene Oxide as a Charge Reservoir for Manganese Oxide

*Jungjoon Yoo¹, Chan-Woo Lee¹, Segi Byun¹, Yoonsu Shim²
¹Korea Inst. of Energy Res. (Korea), ²Korea advanced inst. of Sci. and Tech. (Korea)

A4-P401-27

Gas Detecting Performance of MoS₂@CNW Sensing Layer

*Chulsoo Kim, Seokhun Kwon, Hyunil Kang, Jihwan No, Taeho Shin, Wonseok Choi
Hanbat National Univ. (Korea)

December 14, 2023

Oral Session

[A4-O403]

Time 16:30–18:30 Room Session 6 (Room F)

Chair Hiromichi Ohta (Hokkaido Univ.),
Oscar Custance (National Institute for Materials Science (NIMS))

A4-O403-01 ▶ Invited

16:30–16:50

Multiscale chemical order/disorder in thermoelectric copper-based sulfides

*Emmanuel Guilmeau
CRISMAT/CNRS (France)

A4-O403-02

16:50–17:05

Synthesis of novel ternary nitrides using the high-pressure metathesis reaction.

*Fumio Kawamura¹, Hidenobu Murata², Naoomi Yamada³, Hitoshi Yusa¹
¹National Inst. for Materials Science (Japan), ²Osaka Metropolitan Univ. (Japan), ³Chubu Univ. (Japan)

A4-0403-03

17:05–17:20

Atomic-scale imaging of Anisotropic Rattling Motion in a Clathrate Compound by Scanning Transmission Electron Microscopy

*Koudai Tabata¹, Takehito Seki^{1,2}, Yuichi Ikuhara^{1,3}, Naoya Shibata^{1,3}

¹The University of Tokyo (Japan), ²JST PRESTO (Japan),

³Japan Fine Ceramics Center (Japan)

A4-0403-04

17:20–17:35

Effect of Oxygen Potential Gradient on Mass Transfer Through Grain Boundaries in Alumina Films

*Tsuneaki Matsudaira¹, Takafumi Ogawa¹, Miyuki Takeuchi², Jiake Wei^{3,2}, Bin Feng², Naoya Shibata^{2,1}, Yuichi Ikuhara^{2,1}, Satoshi KItaoka¹

¹Japan Fine Ceramics Center (Japan), ²The University of Tokyo (Japan), ³Dalian Institute of Chemical Physics (China)

A4-0403-05

17:35–17:50

Atomic Insight of Oxygen Vacancy Segregation at Grain Boundary in Two-Dimensional Indium Oxide Fabricated by Liquid Metal Printing

*Kuan-Hung Chen¹, Chang-Hsun Huang¹, Chen-Chih Hsiang¹, Chia-Yi Wu², Yi-Hsiang Yen¹, Yi-Chia Chou¹

¹Department of Materials Sci. and Eng., National Taiwan Univ. (Taiwan), ²Department of Electrophysics, National Yang Ming Chiao Tung Univ. (Taiwan)

A4-0403-06

17:50–18:05

High pressure synthesis, crystal chemistry and physical properties of novel early transition-metal nitrides

*Ken Niwa, Shuto Asano, Chang-Ching Chang, Takuro Yamamoto, Takuya Sasaki, Masashi Hasegawa Nagoya Univ. (Japan)

[Time adjustment
18:05–18:30]