

PROGRAM

THE FIRST DAY MORNING / July 9, 2019

12:00 - Registration

[Entrance Hall]

13:00 - 13:15 Opening Address

[Conference Room 202B]

13:15 - 15:00 Optical Materials

[Conference Room 202B]

Chair: H. Segawa, NIMS

1p-202B-01 **[Invited]** "Color tunable single phase phosphors for solid state lighting applications", ●**Joanna McKittrick**¹, Jungmin Ha¹, Won Bin Im², Yoon Hwa Kim², Olivia A. Graeve¹, Ekaterina Novitskaya¹, Shyue Ping Ong¹, Zhenbin Wang¹ // ¹UC San Diego, La Jolla, CA, USA, ²Chonnam Natl. Univ., Gwangju, Korea

1p-202B-03 **[Invited]** "Novel soft chemistry, water-assisted solid-state reaction", **Kenji Toda** // Grad. Sch. Sci. & Tech., Niigata Univ., Niigata, Japan

1p-202B-05 "Photoluminescent and photocatalytic of ZnWO₄ nanorods via controlled hydrothermal reaction", ●**Meiting Li**^{1,2,3}, Qinghong Meng^{1,2}, Siyuan Li^{1,2}, Fan Li^{1,2}, Qi Zhu^{1,2}, Byung-Nam Kim³, Ji-Guang Li³ // ¹Anisotropy & Texture of Materials, Northeastern Univ., Shenyang, China, ²Inst. of Ceramics & Powder Metallurgy, Northeastern Univ., Shenyang, China, ³Res. Ctr. Functional Materials, NIMS, Tsukuba, Japan

Chair: K. Toda, Niigata Univ.

1p-202B-06 "Systematic synthesis for REVO₄ single-crystal squares with highly exposure of {001} planes (RE=La-Lu lanthanides and Y)", ●**Sai Huang**^{1,2,3}, Qi Zhu^{1,2,3}, Ji-Guang Li³ // ¹ATM, Northeastern Univ., Shenyang, China, ²Inst. of Ceramics & Powder Metallurgy, Northeastern Univ., Shenyang, China, ³ Res. Ctr. Functional Materials, NIMS, Tsukuba, Japan

1p-202B-07 "A general method for synthesizing NaLn(MoO₄)₂ (Ln=La-Lu and Y) nano-/microcrystals: crystal structures, anisotropic growth, and luminescent properties", ●**Zhixin Xu**^{1,2,3}, Qi Zhu^{1,2}, Ji-Guang Li³ // ¹Key Lab. for Anisotropy & Texture of Materials, Northeastern Univ., Shenyang, China, ²Inst. of Ceramics & Powder Metallurgy, Northeastern Univ., Shenyang, China, ³Res. Ctr. Functional Materials, NIMS, Tsukuba, Japan

15:00 - 15:30 Coffee Break

15:30 - 16:00 Optical Materials

[Conference Room 202B]

Chair: K. Toda, Niigata Univ.

- 1p-202B-08 "Fluorescence properties of Eu-doped oxynitride glasses", ●[Hiroyo Segawa](#)^{1,2}, Natalia Wójcik^{2,3}, Kohsei Takahashi¹, Naoto Hirotsuki¹, Sharafat Ali² // ¹NIMS, Tsukuba, Japan, ²LNU, Växjö, Sweden, ³GUT, Gdansk, Poland
- 1p-202B-09 "Growth of sulfide nanophosphors by self-reduction in one process", Chen-Yu Wu¹, Chien-Ming Lei², Rudder Wu³, ●[Hornng-Yi Chang](#)¹ // ¹DME, NTOU, Keelung, Taiwan (ROC), ²DCME & GIN, CCU, Taipei, Taiwan (ROC), ³RCSM, NIMS, Tsukuba, Japan

16:00 - 17:15 Chemical Processes

[Conference Room 202B]

Chair: T. Uchikoshi and N. Saito, NIMS

- 1p-202B-10 **[Invited]** "Metal oxide nanomaterials: preparation, surface modification and applications", [Yoshiyuki Sugahara](#)^{1,2} // ¹Dept. Applied. Chem., Waseda Univ., Tokyo, Japan, ²Kagami Memorial Inst. Mater. Sci. Technol., Waseda Univ., Tokyo, Japan
- 1p-202B-12 **[Invited]** "Enhancing visible light photocatalytic activity of high concentration Nb doped TiO₂ through high-temperature heat treatment", ●[Takamasa Ishigaki](#)¹, Tetsuo Uchikoshi², Yoshihiro Tsujimoto², Hironori Ogata¹, Chenning Zhang², Dong Hao¹ // ¹Hosei Univ., Koganei, Japan, ²NIMS, Tsukuba, Japan
- 1p-202B-14 "Solvothermal synthesis of barium titanate nanocubes and their assembly", Shintaro Ueno, Sakuya, Hatakeyama, Mutsuki Watanabe, Tsukasa Chikata, Ichiro Fujii, ●[Satoshi Wada](#) // Univ. Yamanashi, Kofu, Japan

13:15 - 15:00 Opto-electronic Materials

[Conference Room 401]

Chair: I. Sakaguchi and Y. Adachi, NIMS

- 1p-401-01 **[Invited]** "Plasmonic devices for mid-infrared application", [Hideki T. Miyazaki](#) // NIMS, Tsukuba, Japan
- 1p-401-03 "Persistent photo-dielectric effect in Zn:BaAl₂O₄", ●[Takayuki Nagai](#)¹, Ichiro Terasaki², Hiroki Taniguchi^{1,2} // ¹MCES, Tokyo Tech., Yokohama, Japan, ²Dept. of Phys., Nagoya Univ., Nagoya, Japan
- 1p-401-04 **[Invited]** "Excitonic stimulated emission process in ZnO thin films: Effect of temperature, thickness and excitation energy", [Takashi Uchino](#) // Kobe Univ., Kobe, Japan
- 1p-401-06 "Ultraviolet sensors using wide band gap semiconductors prepared by a sputtering method", ●[Yuta Matsushima](#), Daisuke Fukushima, Chiharu Onishi, Yuta Takeuchi // Yamagata Univ., Yonezawa, Japan
- 1p-401-07 "Electronic structure and band alignment of ternary wurtzite-type oxide semiconductor, β-CuGaO₂", ●[Issei Suzuki](#)¹, Naoki Ohashi², Andreas Klein³, Takahisa Omata¹ // ¹IMRAM, Tohoku Univ., Sendai, Japan, ²NIMS, Tsukuba, Japan, ³Technische Universität Darmstadt, Darmstadt, Germany

15:00 - 15:30 Coffee Break

15:30 - 16:15 Opto-electronic Materials

[Conference Room 401]

Chair: I. Sakaguchi and Y. Adachi, NIMS

- 1p-401-08 **[Invited]** "Hf based ferroelectric fluoride thin films for memory and logic device applications", Jiyoung Kim // Univ. of Texas at Dallas, TX, USA
- 1p-401-10 "High-power piezoelectric properties of Ba(Zr,Ti)O₃-(Ba,Ca)TiO₃ based lead-free piezoelectric ceramics with some additives", ●Hajime Nagata, Yuka Takagi, Tadashi Takenaka // Tokyo Univ. Sci., Noda, Japan

13:15 - 15:00 Batteries

[Conference Room 405]

Chair: T. Ohnishi, NIMS

- 1p-405-01 **[Invited]** "Synthesis of synaptic transistors based on epitaxial LiCoO₂ films and combinatorial investigation of Li-alloys", Ichiro Takeuchi // Materials Sci. & Eng., Univ. Maryland, MD, USA
- 1p-405-03 **[Invited]** "Challenge toward co-sintering of all solid-state Li ion battery based on oxides", Ken Watanabe // Kyushu Univ., Kasuga, Japan
- 1p-405-05 "Ionic conductivity of Li-borates, Li₄B₇O₁₂Cl and Li₄B₄Al₃O₁₂X (X=Br,Cl)", ●Tetsuhiro Katsumata¹, Yuto Aoki¹, Koichiro Ueda² // ¹Tokai Univ., Hiratsuka, Japan, ²Gakushuin Univ., Tokyo, Japan
- 1p-405-06 "Development of operando X-ray photoelectron spectroscopy for all-solid-state batteries", ●Raimu Endo^{1,2}, Tsuyoshi Ohnishi³, Kazunori Takada³, Takuya Masuda^{1,2} // ¹GSCSE, Hokkaido Univ., Sapporo, Japan, ²AMCP, NIMS, Tsukuba, Japan, ³GREEN, NIMS, Tsukuba, Japan
- 1p-405-07 "Guest Li⁺ conduction in NaI-NaBH₄ system", ●Reona Miyazaki¹, Isao Sakaguchi, Takehiko Hihara // ¹Dept. Physical Sci. & Eng., Grad. Sch. Eng., Nagoya Inst. Tech., Nagoya, Japan, ²NIMS, Tsukuba, Japan

15:00 - 15:30 Coffee Break

15:30 - 16:00 Batteries

[Conference Room 405]

Chair: T. Ohnishi, NIMS

- 1p-405-08 "High performance of nitrogen-doped carbon derived from chitosan for a cathode of metal-air batteries", ●Ryunosuke Okuda¹, Koichi Suematsu², Ken Watanabe², Kengo Shimanoe² // ¹Interdisciplinary Grad. Sch. Eng. Sci., Kyushu Univ., Kasuga, Japan, ²Faculty Eng. Sci., Kyushu Univ., Kasuga, Japan
- 1p-405-09 "Annealing recovery of low resistive Li₃PO₄/LiCoO₂ solid-state interface", ●Shigeru Kobayashi¹, Ryota Shimizu^{1,2}, Kazunori Nishio¹, Taro Hitosugi¹ // ¹Dept. Chem. Sci. & Eng., Tokyo Tech., Tokyo, Japan, ²PREST, JST, Japan

16:00 - 17:30 Materials Design and Characterization via Computer

[Conference Room 405]

Chair: Y. Tateyama, NIMS

- 1p-405-10 **[Invited]** "Discovering cathode and coating materials for energy dense multivalent batteries from first-principles calculations", Pieremanuele Canepa // The Natl. Univ. Singapore, Singapore

- 1p-405-12 **[Invited]** "The acceleration of discovery new fast ionic conductors by high-throughput calculations", ●Ruijuan Xiao, Xuelong Wang, Hong Li, Liquan Chen // IOP, CAS, Beijing, China
- 1p-405-14 "Structure search and property analysis of interfaces between cathode and solid electrolyte in all-solid-state battery via DFT-CALYPSO method", ●Bo Gao¹, Randy Jalem¹²³⁴, Yanming Ma⁵, Yoshitaka Tateyama¹²³ // ¹CMI2, NIMS, Tsukuba, Japan, ²GREEN, NIMS, Tsukuba, Japan, ³ESICB, Kyoto Univ., Kyoto, Japan, ⁴PRESTO, JST, Saitama, Japan, ⁵SKLSM, Jilin Univ., Changchun, China
- 1p-405-15 "Exploring material spaces using high-throughput DFT calculations and bayesian optimization for discovery of all-solid-state battery materials", ●Randy Jalem^{1,2} // ¹GREEN, NIMS, Tsukuba, Japan, ²PRESTO, JST, Saitama, Japan

THE FIRST DAY EVENING / July 9, 2019

17:30 - 19:00 Poster Session 1

[Conference Room 201]

- 1P-01 "The luminescent property of Pr_{0.002}(Sr_{0.4}Ca_{0.6})_{0.997}TiO₃ free standing film", ●Takuro Dazai¹, Shintaro Yasui, Tsukasa Katayama, Tomoyasu Taniyama, Mitsuru Itoh // ¹MSL, Tokyo Tech., Yokohama, Japan, ²Dept. of Chem., The Univ. of Tokyo, Tokyo, Japan, ³Dept. of Phys., Nagoya Univ., Nagoya, Japan
- 1P-02 "Mechanoluminescence of europium coordination polymer crystal in PMMA", ●Kyohei Kobayashi, Takayuki Nakanishi, Kenichiro Iwasaki, Atsuo Yasumori // Tokyo Univ. Sci., Tokyo, Japan
- 1P-03 "Powder synthesis and luminescence properties of Ba₂LiSi_{7-x}Al_{1+x}N_{12-x}O_x:Eu phosphor", ●Takashi Takeda¹, Kousuke Kato², Hajime Kiyono², Naoto Hirosaki¹ // ¹NIMS, Tsukuba, Japan, ²Shibaura Tech., Tokyo, Japan
- 1P-04 "Afterglow properties of the co-doped zirconium oxide", ●Hiroaki Takahashi, Akihisa Aimi, Kenjiro Fujimoto // Tokyo Univ. Sci, Noda, Japan
- 1P-05 "Rapid and large area fabrication of 3D EPD colloidal crystal", ●Tran T.H. Giang¹³, Masaki Koike¹², Hiroshi Fudouzi¹, Tetsuo Uchikoshi¹³ // ¹NIMS, Tsukuba, Japan, ²Shibaura Inst. Tech., Tokyo, Japan, ³Hokkaido Univ., Sapporo, Japan
- 1P-06 "Adsorption property of CO₂ on hydrogen boride sheets with H-vacancy defects", ●Taiga Goto¹, Ryota Ishibiki¹, Shinichi Ito², Hideo Hosono²³, Takahiro Kondo²⁴ // ¹Grad. Pure & Appl. Sci., Uni. Tsukuba, Tsukuba, Japan, ²MCES, Tokyo Tech., Yokohama, Japan, ³IIR, Tokyo Tech., Yokohama, Japan, ⁴Fac. Pure & Appl. Sci., Uni. Tsukuba, Tsukuba, Japan
- 1P-07 "Oxygen separation performance of asymmetric membrane based on Ba_{0.5}Sr_{0.5}Co_{0.8}Fe_{0.2}O_{3-δ} prepared by sequential electrophoretic deposition process (EPD)", ●Kento Ishii¹², Chika Matsunaga², Adam J. Stevenson³, Caroline Tardivat³, Tetsuo Uchikoshi¹² // ¹Hokkaido Univ., Sapporo, Japan, ²NIMS, Tsukuba, Japan, ³Saint-Gobain CREE, Cavaillon, France
- 1P-08 "Synthesis of visible light-active Nb doped TiO₂ photocatalyst by a mechanochemical method", ●R. Kato¹, N. Tarutani¹, T. Ishigaki¹, T. Uchikoshi² // ¹Dept. of Applied Chemistry, Hosei Univ., Koganei, Japan, ²NIMS, Tsukuba, Japan
- 1P-09 "Electronic structures and optoelectronic properties of rare-earth-doped amorphous oxide semiconductors", ●Keisuke Ide¹², Yuki Nishimagi¹, Naoto Watanabe¹, Junghwan Kim¹², Takayoshi Katase³, Hidenori Hiramatsu¹², Hideo Hosono¹², Toshio Kamiya¹² // ¹MSL Tokyo

- Tech., Yokohama, Japan, ²MCES, Tokyo Tech., Yokohama, Japan, ³PRESTO, JST, Tokyo, Japan
- 1P-10 "Oxygen diffusion in BaTiO₃ ceramics doped with Ho₂O₃", ● [Isao Sakaguchi](#)¹, Ken Watanabe², Noriko Saito¹, Taku T. Suzuki¹, Yutaka Adachi¹, Naoki Ohashi¹ // ¹NIMS, Tsukuba, Japan, ²Kyusyu Uni., Kasuga, Japan
- 1P-11 "Effects of doping on gas sensing properties of ZnO films", ● [Yutaka Adachi](#), Isao Sakaguchi, Noriko Saito, Taku T. Suzuki // NIMS, Tsukuba, Japan
- 1P-12 "Investigation of thermal behavior and phase formation of BaFe₂As₂ and Ba(Fe,Co)₂As₂ by TG-DSC analysis", ● [Shinnosuke Tokuta](#)¹, Akiyasu Yamamoto¹² // ¹Tokyo Univ. Agricul. & Technol., Koganei, Japan, ²MCES, Tokyo Tech., Yokohama, Japan
- 1P-13 "Percolation modeling of current transport in polycrystalline bulk iron-based superconductors", ● [Takuya Obara](#)¹, Akiyasu Yamamoto // ¹Tokyo Univ. Agricul. & Technol., Koganei, Japan, ²MCES, Tokyo Tech., Yokohama, Japan
- 1P-14 "Densification of SnO₂ ceramics added with In₂O₃ and ZnO and oxygen defect chemistry originated from additives", Minami Kuroda¹, ● [Isao Sakaguchi](#)², Hajime Nagata³, Naoya Sakamoto¹, Akio Watanabe² // ¹Hokkaido, Univ., Sapporo, Japan, ²NIMS, Tsukuba, Japan, ³Tokyo Univ. Sci., Noda, Japan
- 1P-15 "LiCoO₂-BaTiO₃-electrolyte interface after electrochemical treatment", ● [Sou Yasuhara](#)¹, Yumi Yoshikawa², Takashi Teranishi², Osami Sakata³, Shintaro Yasui¹, Tomoyasu Taniyama¹⁴, Mitsuru Itoh¹ // ¹MSL, Tokyo Tech, Yokohama, Japan, ²Grad. Sch. of Natural Sci. & Tech., Okayama Univ., Okayama, Japan, ³NIMS, Hyogo, Japan, ⁴Dept. of Physics, Nagoya Univ., Nagoya, Japan
- 1P-16 "Synthesis of LiFeSi₂O₆ by polymerized complex method and the electrochemical properties", ● [Takahiro Ao](#), Nahoko Sudo, Arata Nasu, Machiko Aiba, Yuma Kaminishi, Kazune Ban, Daisuke Mori, Koichiro Ueda, Yoshiyuki Inaguma // Dept. of Chem., Gakushuin Univ., Tokyo, Japan
- 1P-17 "Electrode property and cation mixing effect of layered rock-salt type Li (Ni,Co,Fe)_{0.9}Ti_{0.1}O₂", ● [Yuri Tanaka](#), Akihisa Aimi, Kenjiro Fujimoto // Fac. Sci. & Tech., Tokyo Univ. Sci., Noda, Japan
- 1P-18 "Structural optimization in LiCuTa₃O₉ by ab initio calculation and growth of thin films by pulsed-laser deposition", ● [Kotaro Ohashi](#)¹, Kazumasa Yamamoto¹, Kei Shigematsu¹, Hena Das¹², Masaki Azuma¹ // ¹MSL, Tokyo Tech., Yokohama, Japan, ²WRHI, Tokyo Tech., Yokohama, Japan
- 1P-19 "Spin-orbit coupling effects on band structures and effective masses of compound semiconductors", ● [Kou Harada](#), Yuichiro Kuroiwa, Yuichiro Matsushita, Fumiyasu Oba // MSL, IIR, Tokyo Tech., Yokohama, Japan
- 1P-20 "Prediction of Curie temperature of perovskite-type ferroelectrics using machine learning", ● [Takuya Takahashi](#), Hiroaki Takeda, Takaaki Tsurumi, Takuya Hoshina // Sch. Mater. Chem. Tech., Tokyo Tech., Tokyo, Japan
- 1P-21 "Crystal structure simulation by assimilating incomplete experimental data", ● [Seiji Yoshikawa](#)¹, Naoto Tsujimoto¹, Daiki Adachi¹, Ryosuke Akashi¹, Syngge Todo¹²³, Shinji Tsuneyuki¹² // ¹Dept. of Physics, The Univ. of Tokyo, Tokyo, Japan, ²ISSP, The Univ. of Tokyo, Kashiwa, Japan, ³MaDIS, NIMS, Tsukuba, Japan
- 1P-22 "Molecular dynamics simulation of a primary knocked atom collision cascade on 3C-SiC ceramics at reactor-relevant temperatures", ● [Muzakkiy P. M. Akhir](#)¹, Katsumi Yoshida² // ¹Dept. of Materials Sci. & Eng., Tokyo Tech., Tokyo, Japan, ²LANE, IIR, Tokyo Tech., Tokyo, Japan
- 1P-23 "Strain-induced carrier effective mass modulation in 4H-SiC and GaN: a first-principles study", ● [Yuichiro Kuroiwa](#)¹, Yu-ichiro Matsushita¹², Kou Harada¹, Fumiyasu Oba¹³ // ¹IIR, Tokyo Tech., Yokohama, Japan, ²TAC-MI, Tokyo Tech., Tokyo, Japan, ³MaDIS, NIMS, Tsukuba, Japan

- 1P-24 "Machine learning model for predicting dielectric constants of oxides", ●[Jun Miyamoto](#)¹, Akira Takahashi¹, Yu Kumagai², Fumiyasu Oba¹ // ¹MSL, IIR, Tokyo Tech., Yokohama, Japan, ²MCES, Tokyo Tech., Yokohama, Japan
- 1P-25 "Density functional study on defects and doping in layered nitride semiconductor, SrTiN₂", ●[Xinyi He](#)¹, Zewen Xiao²³, Takayoshi Katase¹⁴, Keisuke Ide¹, Hideo Hosono², Toshio Kamiya¹² // ¹MSL, Tokyo Tech., Yokohama, Japan, ²MCES, Tokyo Tech., Yokohama, Japan, ³Wuhan Natl. Lab. Optoelectronics, Huazhong Univ. Sci. & Tech., China, ⁴PRESTO, JST, Tokyo, Japan
- 1P-26 "Small hole polarons in Ga₂O₃ polymorphs: a first-principles study", ●[Tomoya Gake](#)¹, Yu Kumagai², Fumiyasu Oba¹³ // ¹IIR, Tokyo Tech., Yokohama, Japan, ²MCES, Tokyo Tech., Yokohama, Japan, ³MaDIS, NIMS, Tsukuba, Japan
- 1P-27 "Phase relationship in the quasi-ternary LaO_{1.5}-SiO₂-NiO System at 1573 K", ●[Yuzo Nishimoto](#)¹, Kiyoshi Kobayashi², Takaya Akashi¹, Tohru S. Suzuki² // ¹Hosei Univ., Tokyo, Japan, ²NIMS, Tsukuba, Japan
- 1P-28 "Fabrication and properties of titanium-based ternary materials", ●[Yanzhou Hou](#)¹, Anna Gubarevich², Katsumi Yoshida² // ¹MAT, Tokyo Tech., Tokyo, Japan, ²LANE, IIR, Tokyo Tech., Tokyo, Japan
- 1P-29 "Effect of particle orientation on lattice parameter and recovery changes in aluminum nitride", ●[Thanataon Pornphatdetaudom](#)¹, Katsumi Yoshida², Tohru Suzuki³, Toyohiko Yano² // ¹Dept. of Materials Sci. & Eng., Tokyo Tech., Tokyo, Japan, ²Lab. Advanced Nuclear Energy, Tokyo Tech., Tokyo, Japan, ³NIMS, Japan
- 1P-30 "Growth condition dependence of crystallinity and electric properties of ScN films on r-plane sapphire substrates", ●[Takeshi Ohgaki](#), Isao Sakaguchi, Naoki Ohashi // NIMS, Tsukuba, Japan
- 1P-31 "Growth mode mapping of TiN molecular beam epitaxy", ●[Isao Ohkubo](#)¹²³, Takashi Aizawa¹², Takao Mori¹² // ¹Res. Ctr. Functional Materials, NIMS, Tsukuba, Japan, ²MANA, NIMS, Tsukuba, Japan, ³CMI², NIMS, Tsukuba, Japan
- 1P-32 "Structural and electrical properties of In₂O₃ grown by mist CVD on various substrates", ●[Hirokazu Yokoo](#), Takuya Kobayashi, Kenichirou Rikitake, Tomohiro Yamaguchi, Takeyoshi Onuma, Tohru Honda // Kogakuin Univ., Hachioji, Tokyo, Japan
- 1P-33 "Liquid phase epitaxy of GaN single crystals using flux-film-coated Na flux method (FFC-LPE)", ●[Fumio Kawamura](#), Takashi Taniguchi // High pressure group, NIMS, Tsukuba, Japan
- 1P-34 "Epitaxial strain-induced enhancement of thermoelectric power-factors in strongly correlated transition metal oxide", ●[Takayoshi Katase](#)¹², Keisuke Ide¹, Hidenori Hiramatsu¹³, Hideo Hosono¹³, Toshio Kamiya³ // ¹MSL, Tokyo Tech., Yokohama, Japan, ²PRESTO, JST, Tokyo, Japan, ³MCES, Tokyo Tech., Yokohama, Japan
- 1P-35 "Investigation on the growth mechanism of metastable β-Bi₂O₃ epitaxial thin films", ●[Zaichun Sun](#)¹, Daichi Oka¹, Tomoteru Fukumura¹² // ¹Dept. Chem., Grad. Sch. Sci., Tohoku Univ., Sendai, Japan, ²WPI-AIMR & Core Res. Cluster, Tohoku Univ., Sendai, Japan
- 1P-36 "Power-factor enhancement by breaking trade-off relation of thermopower and electrical conductivity in epitaxially strained lanthanum nickelate", ●[Yuhi Higuchi](#)¹, Takayoshi Katase¹², Keisuke Ide¹, Hidenori Hiramatsu¹, Hideo Hosono, Toshio Kamiya¹ // ¹MSL, Tokyo Tech., Yokohama, Japan, ²PRESTO, JST, Tokyo, Japan, ³MCES, Tokyo Tech., Yokohama, Japan
- 1P-37 "Epitaxial structure and phonon-drag thermoelectric properties of FeSb₂ thin film on SrTiO₃ (001) substrate", ●[Chihiro Yamamoto](#)¹, Kota Hanzawa¹, Keisuke Ide¹, Takayoshi Katase¹², Hidenori Hiramatsu³, Hideo Hosono¹³, Toshio Kamiya¹³ // ¹MSL, Tokyo Tech., Yokohama, Japan, ²PRESTO, JST, Tokyo, Japan, ³MCES, Tokyo Tech., Yokohama, Japan
- 1P-38 "Ferroelectric and ferromagnetic domain switching using in-plane electric field in BiFe_{0.9}Co_{0.1}O₃ thin film", ●[Marin Katsumata](#)¹, Haruki Shimizu¹, Keisuke Shimizu², Kei Shigematsu¹, Masaki Azuma¹ // ¹MSL, Tokyo Tech., Yokohama, Japan, ²IIR, Tokyo Tech., Yokohama, Japan

- 1P-39 "Structural phase transition and optoelectronic properties of Ba(Sn,Ce)O₃ oxide semiconductor solid-solution system", ●[Yutaro Kobayashi](#)¹, Keisuke Ide¹, Takayoshi Katase¹², Hidenori Hiramatsu¹³, Hideo Hosono¹³, Toshio Kamiya¹³ // ¹MSL, Tokyo Tech., Yokohama, Japan, ²PRESTO, JST, Tokyo, Japan, ³MCES, Tokyo Tech., Yokohama, Japan
- 1P-40 "Hydrogen doping and carrier transport properties of amorphous Ga-O", ●[Yurika Kasai](#)¹, Keisuke Ide¹², Takayoshi Katase¹³, Hidenori Hiramatsu¹², Hideo Hosono², Toshio Kamiya¹² // ¹MSL, Tokyo Tech., Yokohama, Japan, ²MCES, Tokyo Tech., Yokohama, Japan, ³PRESTO, JST, Tokyo, Japan
- 1P-41 "Surface band bending of polar ZnO by hard X-ray photoemission combined with X-ray total reflection", [Shigenori Ueda](#) // NIMS, Hyogo, Japan

THE SECOND DAY MORNING / July 10, 2019

9:00 - 10:15 Solid State Chemistry

[Conference Room 202B]

Chair: R. Sereika, Ctr. High Pressure Sci. & Tech. Advanced Res.

- 2a-202B-01 **[Invited]** "Various topological and helical spin structures in centrosymmetric perovskites synthesized by high pressure oxygen annealing", [Shintaro Ishiwata](#) // Div. Materials Physics & Ctr. Spintronics Res. Network (CSRN), Grad. Sch. Eng. Sci., Osaka Univ., Osaka, Japan
- 2a-202B-03 "Negative thermal expansion in ferroelectric-palaelectric transition driven by intermetallic charge transfer in BiNi_{1-x}Fe_xO₃", ●[Takumi Nishikubo](#)¹, Yuki Sakai¹², Akihiko Machida³, Tetsu Watanuki³, Hajime Hojo⁴, Takashi Mizokawa⁵, Masaki Azuma¹ // ¹MSL, Tokyo Tech., Yokohama, Japan, ²KISTEC, Ebina, Japan, ³QST, Sayo, Japan, ⁴Kyushu Univ., Kasuga, Japan, ⁵Waseda Univ., Shinjuku, Japan
- 2a-202B-04 "Negative thermal expansion in PbTiO₃-based ferroelectrics", ●[Zhao Pan](#)¹², Jun Chen², Masaki Azuma¹ // ¹Tokyo Tech., Yokohama, Japan, ²Univ. of Sci. & Tech., Beijing, China
- 2a-202B-05 "The vertical shift: another aspect of exchange bias effect in the disordered antiferromagnet", ●[Biswajit Dalal](#)¹, Suman Kalyan Pradhan², Subodh Kumar De³ // ¹NIMS, Tsukuba, Japan, ²Dept. of Materials Sci., IACS, Jadavpur, India

10:15 - 10:45 Coffee Break

10:45 - 12:00 Solid State Chemistry

[Conference Room 202B]

Chair: S. Ishiwata, Osaka Univ.

- 2a-202B-08 **[Invited]** "Fluorooxoborates: novel candidates for deep-UV nonlinear optical materials", [Shilie Pan](#) // Shilie Pan, Xinjiang Technical Inst. of Physics & Chemistry, China
- 2a-202B-10 "Visible-light emission and n- & p-type carrier conduction in ternary sulfide semiconductor AEHfS₃ (AE = Sr & Ba) at room temperature", ●[Kota Hanzawa](#)¹, Soshi Iimura², Hidenori Hiramatsu¹², Hideo Hosono² // ¹MSL, Tokyo Tech., Yokohama, Japan, ²MCES, Tokyo Tech., Yokohama, Japan
- 2a-202B-11 **[Invited]** "Ultrafast nonlinear spectroscopy in electronic ferroelectric iron oxides", [Yoichi Okimoto](#) // Dept. of Chemistry, Tokyo Tech., Tokyo, Japan

9:00 - 10:15 Engineering Ceramics

[Conference Room 401]

Chair: S. Nishimura, NIMS

- 2a-401-01 **[Invited]** "High entropy ceramics in oxides, carbides, borides and silicides", Guo-Jun Zhang // Donghua Univ., Shanghai, China
- 2a-401-03 "3D processing-induced defects formed during sintering of alumina observed by multiscale X-ray CT", ●Gaku Okuma¹, Shuhei Watanabe¹, Kan Shinobe¹, Norimasa Nishiyama¹, Fumihiko Wakai¹, Akihisa Takeuchi², Kentaro Uesugi², Satoshi Tanaka³ // ¹IIR, Tokyo Tech., Yokohama, Japan, ²JASRI/SPring-8, Hyogo, Japan, ³Nagaoka Univ. Tech., Nagaoka, Japan
- 2a-401-04 "3-Dimensional intermittent observation of coarse defects evolution during sintering in alumina ceramics", Satoshi Tanaka // Nagaoka Univ. Tech., Nagaoka, Japan
- 2a-401-05 "Study of Al₂O₃ addition effect on densification of B₄C textured using rotating strong magnetic field by slip-casting", ●Muhammad Fajar¹, Tohru S. Suzuki², Katsumi Yoshida¹, Toyohiko Yano¹, Anna Hubarevich¹ // ¹LANE, Tokyo Tech., Tokyo, Japan, ²NIMS, Tsukuba, Japan

10:15 - 10:45 Coffee Break

10:45 - 12:00 Engineering Ceramics

[Conference Room 401]

Chair: G. Zhang, Donghua Univ.

- 2a-401-08 **[Invited]** "Ultra-hard 'brittle' boron-suboxide (B₆O) ceramic with enhanced flexural strength by reaction-driven SPS", ●Oleg Vasylykiv¹, Dmytro Demirskyi², Hanna Borodianska¹, Yoshio Sakka¹ // ¹NIMS, Tsukuba, Japan, ²Advanced Inst. for Materials Res. (AIMR), Tohoku Univ., Sendai, Japan
- 2a-401-10 **[Invited]** "Improving the mechanical performance of ceramic composites by phase and structure engineering via spark plasma consolidation", ●Dmytro Demirskyi^{1,2,3}, Tohru S. Suzuki², Hanna Borodianska², Toshiyuki Nishimura², Oleg Vasylykiv², Kyosuke Yoshimi³ // ¹WPI-AIMR, Tohoku Univ., Sendai, Japan, ²NIMS, Tsukuba, Japan, ³Dept. Mat. Sci. & Eng., Tohoku Univ., Sendai, Japan
- 2a-401-12 "Good coincidence between torsion strength and bending strength after precise calibration of effective surface area", ●Fan-Jie Feng¹, George D. Quinn², Kouichi Yasuda¹ // ¹Dept. of Material Sci. & Eng., Tokyo Tech., Tokyo, Japan, ²Ceramics Div., NIST, Maryland, USA

9:00 - 10:15 Materials Design and Characterization via Computer

[Conference Room 405]

Chair: K. Sodeyama, NIMS

- 2a-405-01 **[Invited]** "Phase-field modeling and high-performance computing of dendritic growth", Munekazu Ohno // Hokkaido Univ., Sapporo, Japan
- 2a-405-03 "High-throughput first-principles calculations of band positions at binary oxide surfaces", ●Yoyo Hinuma^{1,2}, Yu Kumagai³, Tomoya Gake⁴, Isao Tanaka⁵, Fumiyasu Oba^{2,4} // ¹Ctr. Frontier Sci., Chiba Univ., Chiba, Japan, ²CMI², MaDIS, NIMS, Tsukuba, Japan, ³MCES, Tokyo Tech., Yokohama, Japan, ⁴Inst. of Innovative Res., Tokyo Tech., Yokohama, Japan, ⁵Dept. of

Materials Sci. & Eng., Kyoto Univ., Kyoto, Japan

- 2a-405-04 "Ammonia synthesis mechanism using Ru/Ca₂NH catalyst; a first-principles study", ● Takuya Nakao, Tomofumi Tada, Hideo Hosono // MCES, Tokyo Tech., Yokohama, Japan
- 2a-405-05 "Molecular adsorption and electronic properties of doped graphene", ● Yoshitaka Fujimoto¹, Susumu Saito // ¹Dept. Phys., Tokyo Tech., Tokyo, Japan, ²RCQN, Tokyo Tech., Tokyo, Japan, ³MCES, Tokyo Tech., Yokohama, Japan

10:15 - 10:45 Coffee Break

10:45 - 12:00 Growth and Physical Properties of Thin Films and Single Crystals

[Conference Room 405]

Chair: I. Ohkubo, NIMS

- 2a-405-08 **[Invited]** "Rich electric and magnetic functionalities in rare earth binary oxides", Tomoteru Fukumura¹²³⁴ // ¹AIMR & Core Res. Cluster, Tohoku Univ., Sendai, Japan, ²Dept Chem. Grad Sch. Sci., Tohoku Univ., Sendai, Japan, ³CSIS, Tohoku Univ., Sendai, Japan, ⁴CSRN, Tohoku Univ., Sendai, Japan
- 2a-405-10 "SmFeAsO_{1-x}H_x epitaxial films grown by topotactic chemical reaction", ● Jumpei Matsumoto¹, Kota Hanzawa¹, Masato Sasase², Silvia Haindl³, Takayoshi Katase¹, Hidenori Hiramatsu¹², Hideo Hosono¹² // ¹MSL, Tokyo Tech., Yokohama, Japan, ²MCES, Tokyo Tech., Yokohama, Japan, ³WRHI, Tokyo Tech., Yokohama, Japan
- 2a-405-11 "Rapid beam deflection PLD using a galvanometer mirror scanner", ● Shingo Maruyama¹, Naoki Sannodo¹, Ryoma Harada¹, Yuto Anada¹, Ryota Takahashi², Mikk Lippmaa³, Yuji Matsumoto¹ // ¹Dept. of Applied Chem., Tohoku Univ., Sendai, Japan, ²College of Eng., Nihon Univ., Koriyama, Japan, ³ISSP, The Univ. of Tokyo, Chiba, Japan
- 2a-405-12 "Growth of SiC thin films by a rapid beam deflection pulsed laser deposition via a nanoscale Si-based alloy flux", ● Naoki Sannodo, Shingo Maruyama, Yuji Matsumoto // Tohoku Univ., Sendai, Japan

THE SECOND DAY AFTERNOON / July 10, 2019

13:30 - 15:00 Poster Session 2

[Conference Room 201]

- 2P-01 "Unusual spin structures in quadruple and simple exotic perovskites", ● Alexei A. Belik¹, Roger D. Johnson², Lei Ding³, Dmitry D. Khalyavin³, Pascal Manuel³, Fabio Orlandi³, Lei Zhang¹⁴, Kazunari Yamaura¹⁴ // ¹NIMS, Tsukuba, Japan, ²Univ. Oxford, UK, ³ISIS Facility, UK, ⁴Hokkaido Univ., Japan
- 2P-02 "Topotactic fluorination of the chromium perovskite SrCrO₃ via a super-structured oxide", ● Yoshihiro Tsuijimoto¹, Yu Su¹, Kazunari Yamaura¹, Kotaro Fujii², Masatomo Yashima², Yuji Masubuchi³ // ¹NIMS, Tsukuba, Japan, ²Tokyo Tech., Tokyo, Japan, ³Hokkaido Univ., Sapporo, Japan
- 2P-03 "Thermal conductivity switching material by utilizing metal-to-insulator transition", ● Suguru Kitani, Hitoshi Kawaji // MSL, Tokyo Tech., Yokohama, Japan

- 2P-04 "Reversible phase transition and irreversible topochemical reaction in a perovskite-type CuNbO_3 ", ●[Masayuki Fukuda](#)¹, Ikuya Yamada², Hidenobu Murata², Hajime Hojo³, Katsuhisa Tanaka¹, Koji Fujita¹ // ¹Dept. Material Chemistry, Kyoto Univ., Kyoto, Japan, ²Dept. Material Sci., Osaka Prefect. Univ., Sakai, Japan, ³Dept. Advanced Materials Sci. & Eng., Kyushu Univ., Kasuga, Japan
- 2P-05 "Exchange bias and magnetoresistance effects in $\text{La}_{2-x}\text{Sr}_x\text{CoMnO}_6$ ($0.05 \leq x \leq 0.5$)", [Xing Lei](#)^{1,2}, Qihang Li¹, Mingxiang Xu¹ // ¹Sch. Physics & Key Lab. MEMS of the Ministry of Education, Southeast Univ., Nanjing, China, ²NIMS, Tsukuba, Japan
- 2P-06 "Flux crystal growth approach toward non-centrosymmetric materials", ●[Hong Yan](#)¹, Yoshihiro Tsujimoto¹, Hans-Conrad zur Loye², Kazunari Yamaura¹ // ¹NIMS, Tsukuba, Japan, ²USC, Columbia, USA
- 2P-07 "Crystal structures and magnetic properties of A-site columnar-ordered quadruple perovskites $\text{Y}_2\text{MnGa}(\text{Mn}_{4-x}\text{Ga}_x)\text{O}_{12}$ ", ●[Ran Liu](#)^{1,2}, Yoshio Katsuya³, Masahiko Tanaka³, Kazunari Yamaura^{1,2}, Alexei A. Belik¹ // ¹Res. Ctr. Functional Materials, NIMS, Japan, ²Grad. Sch. Chemical Sci. & Eng., Hokkaido Univ., Japan, ³Synchrotron X-ray Station at SPring-8, NIMS, Japan
- 2P-08 "Formation of H^- -doped $12\text{CaO} \cdot 7\text{Al}_2\text{O}_3$ crystals under high pressure", ●[Masashi Miyakawa](#)¹, Hidenobu Murata², Motoharu Imai¹ // ¹ Res. Ctr. Functional Materials, NIMS, Tsukuba, Japan, ²Dept. Mater. Sci., Osaka Prefect. Univ., Sakai, Japan
- 2P-09 "Release behavior of helium gas in the He-implanted highly microstructure-controlled B_4C -based ceramic neutron absorber", ●[Ryosuke S. S. Maki](#)¹, Muhammad Fajar¹, Jelena Maletaskic¹, Anna Gubarevich¹, Tatsuya Katabuchi¹, Toyohiko Yano¹, Katsumi Yoshida¹, Tohru S. Suzuki², Tetsuo Uchikoshi³ // ¹LANE, Tokyo Tech., Tokyo, Japan, ²Ceramics Processing Group, NIMS, Tsukuba, Japan, ³Fine Particle Processing Group, NIMS, Tsukuba, Japan
- 2P-10 "Characterization of $\text{CaFe}_2\text{O}_4 \cdot 2\text{FeO}$, mixed valence homologous series of ferrite", ●[Kento Teraguchi](#)¹, Shintaro Yasui¹, Chikako Moriyoshi², Yoshihiro Kuroiwa², Shigeo Mori³, Tomoyasu Taniyama^{1,4}, Mitsuru Itoh¹ // ¹MSL, Tokyo Tech, Yokohama, Japan, ²Dept. of Physical Sci., Hiroshima Univ., Higashi-hiroshima, Japan, ³Dept. of Materials Sci., Osaka Prefect. Univ., Sakai, Japan, ⁴Dept. of Physics, Nagoya Univ., Nagoya, Japan
- 2P-11 "Hydrogen state in MnO_2 simulated by muon", ●[Hirotaka Okabe](#)¹, Ryosuke Kadono¹, Masatoshi Hiraishi¹, Akihiro Koda¹, Soshi Takeshita¹, Kenji M. Kojima², Ichihiko Yamauchi³, Hirohiko Sato⁴ // ¹IMSS, KEK, Tsukuba, Japan, ²CMMS, TRIUMF, Vancouver, Canada, ³Grad. Sch. Sci. & Eng., Saga Univ., Saga, Japan, ⁴Dept. of Physics, Chuo Univ., Tokyo, Japan
- 2P-12 "Charge ordering and lone pair effect in $\text{Bi}_{0.5}\text{Pb}_{0.5}\text{MnO}_3$ ", ●[Shogo Wakazaki](#)¹, Yuki Sakai^{1,2}, Takumi Nishikubo¹, Masaki Azuma¹ // ¹MSL, Tokyo Tech., Yokohama, Japan, ²KISTEC, Ebina, Japan
- 2P-13 "A new solid acid catalyst of hydrogen boride sheets", A. Fujino¹, R. Ishibiki¹, S. Ito², J. N. Kondo³, T. Fujitani^{4,5}, J. Nakamura^{4,6}, H. Hosono^{2,3}, ●[T. Kondo](#)^{2,4,6} // ¹Grad. Sch. Pure & Applied Sci., Univ. Tsukuba, Tsukuba, Japan, ²MCES, Tokyo Tech., Yokohama, Japan, ³IIR, Tokyo Tech., Yokohama, Japan, ⁴Faculty of Pure & Applied Sci., Univ. Tsukuba, Tsukuba, Japan, ⁵Interdisciplinary Res. Ctr., AIST, Tsukuba, Japan, ⁶TREMS, Univ. Tsukuba, Tsukuba, Japan
- 2P-14 "Thermal stability of two-dimensional hydrogen boride sheets", ●[Ryota Ishibiki](#)¹, Iwao Matsuda², Shin-ichi Ito³, Junji Nakamura⁴, Hideo Hosono^{3,5}, Takahiro Kondo^{3,4} // ¹Grad. Sch. Pure & Applied Sci., Univ. Tsukuba, Japan, ²Inst. for Solid State Physics, The Univ. of Tokyo, Japan, ³MCES, Tokyo Tech., Japan, ⁴Faculty of Pure & Applied Sci., Univ. Tsukuba, Japan, ⁵IIR, Tokyo Tech., Japan
- 2P-15 "Enhancement of electrochemical activity for Fe-Co mixed oxides", ●[Masaya Kinoshita](#)¹, Ikuya Yamada¹, Shogo Kawaguchi², Shunsuke Yagi³ // ¹MSE Univ. Osaka Prefect., Osaka, Japan, ²JASRI, Hyogo, Japan, ³IRCSEM Tokyo Univ., Tokyo, Japan
- 2P-16 "3D phase-field modeling of grain-boundary formation during solid-state sintering", ●[Yuki](#)

- Okada¹, Akiyasu Yamamoto¹², Akimitsu Ishii¹, Akinori Yamanaka¹ // ¹Tokyo Univ. Agri. & Tech, Koganei, Japan, ²MCES, Tokyo Tech., Yokohama, Japan
- 2P-17 "Destabilization of giant tetragonal distortion of BiCoO₃ by means of electron doping through Ti substitution", ● Hayato Ishizaki¹, Hajime Yamamoto², Yuki Sakai¹³, Masaki Azuma¹ // ¹MSL, Tokyo Tech., Yokohama, Japan, ²Inst. of Multidisciplinary Res. Advanced Materials, Tohoku Univ., Sendai, Japan, ³Kanagawa Inst. of Industrial Sci. & Tech., Ebina, Japan
- 2P-18 "Superconductivity in Pb-doped NbSr₂RECu₂O_z (z≈8; RE: rare-earth element)", ● Toshihiko Maeda, Yoshihiro Yamada, Keisuke Ozaki, Taisei Nakamura // Kochi Univ. Tech., Kochi, Japan
- 2P-19 "Electronic correlation in the two-dimensional electrode Y₂C", ● Masatoshi Hiraishi¹, Kenji M. Kojima¹², Ichihiko Yamauchi¹, Hiroataka Okabe¹, Soshi Takeshita¹, Akihiro Koda¹², Ryosuke Kadono¹², Xiao Zhang³, Satoru Matsuishi⁴, Hideo Hosono³⁴, Kazuto Hiraita⁵, Shigeki Otani⁵, Naoki Ohashi⁵ // ¹KEK-IMSS, Tsukuba, Japan, ²SOKENDAI, Tsukuba, Japan, ³MSL, Tokyo Tech., Yokohama, Japan, ⁴MCES, Tokyo Tech., Yokohama, Japan, ⁵NIMS, Tsukuba, Japan
- 2P-20 "The algorithm for automatic and reliable crystal structural refinement method using the Rietveld analysis", ● Akihisa Aimi, Kenjiro Fujimoto // Tokyo Univ. Sci., Noda, Japan
- 2P-21 "Dynamic high pressure technique for surface analysis of gas sensors in quasi-operating condition", ● Taku T. Suzuki, Yutaka Adachi, Isao Sakaguchi // NIMS, Tsukuba, Japan
- 2P-22 "Electrical characteristics of Cu/Ni double-layered ribbon fabricated by lithography method", ● Yasuo Azuma, Yusaku Kobayashi // MSL, Tokyo Tech., Yokohama, Japan
- 2P-23 "Hydrogen gas detection by WO₃-based nanosheet thin films", ● Hideyuki Ohashi¹, Akihisa Aimi¹, Isao Sakaguchi², Taku Suzuki², Kenjiro Fujimoto¹ // ¹Faculty of Sci. & Tech., Tokyo Univ. Sci., Noda, Japan, ²NIMS, Tsukuba, Japan
- 2P-24 "Crystal plane-dependent ethanol sensing properties of single crystalline ZnO and their modification by Bi, Eu, and Sn ion implantation", ● Minoru Nakamura¹, Yutaka Adachi², Noriko Saito², Isao Sakaguchi², Kenjiro Fujimoto¹, Akihisa Aimi¹, Taku Suzuki² // ¹Tokyo Univ. Sci., Noda, Japan, ²NIMS, Tsukuba, Japan
- 2P-25 "The effect of hydrothermal conditions on gas permeability of carbon membrane", ● Yosuke Nakamura, Shoya Sano, Yuta Shimamura, Sachiko Matsushita, Akira Nakajima, Toshihiro Isobe // Dept. Mater. Sci. Eng., Tokyo Tech., Tokyo, Japan
- 2P-26 "Microstructure observation of hydrothermally treated Mg alloy for biodegradability", ● Shun Nagai, Yuta Kubota, Tetsuo Kishi, Tetsuji Yano, Nobuhiro Matsushita // Dept. of Material Sci. & Eng., Tokyo Tech., Japan
- 2P-27 "Self-organized formation of various 2D patterns with calcite nanorods", ● Makoto Tago, Mihiro Takasaki, Yuki Tokura, Seimei Shiratori, Yuya Oaki, Hiroaki Imai // Keio Univ., Yokohama, Japan
- 2P-28 "Fabrication of c-plane oriented hydroxyapatite sintered body using reactive diffusion method", Shimada Yuji, Toshiyuki Ikoma // Tokyo Tech., Tokyo, Japan
- 2P-29 "Rare metal-doped hydroxyapatite nanocrystals for tumor cell therapy by gamma-ray irradiation", ● Kenta Matsumoto, Toshiyuki Ikoma // Tokyo Tech., Tokyo, Japan
- 2P-30 "Bioactive and antibacterial properties of Ag doped sodium titanate nanomesh layer", ● Yusuke Fujii, Yuta Kubota, Tetsuo Kishi, Tetsuji Yano, Nobuhiro Matsushita // Dept. of Materials Sci. & Eng., Tokyo Tech., Japan
- 2P-31 "In situ analysis of protein adsorption and cell attachment on modified mesoporous silica thin films", ● Chieko Ichikawa, Toshiyuki Ikoma // Tokyo Tech., Tokyo, Japan
- 2P-32 "Surface observation of streptavidin modified FTO electrode for electrochemical biosensor", ● Michihiko Uemura, Tetsuo Kishi, Tetsuji Yano, Yuta Kubota, Nobuhiro Matsushita // Dept. of Materials Sci. & Eng., Tokyo Tech., Japan
- 2P-33 "Fabrication and biological property of glycosylated fish scale collagen membrane and its

- composite of hydroxyapatite", ●[Yuka Chino](#), Toshiyuki Ikoma // Tokyo Tech., Tokyo, Japan
- 2P-34 "Photoelectron spectroscopic characterizations of TiO₂ thin films grown by magnetron sputtering", ●[Alexis Delanoë](#)¹, Takeo Ohsawa¹, Herve Montigaud², Naoki Ohashi¹² // ¹NIMS, Tsukuba, Japan, ²Saint-Gobain CNRS NIMS International Collaboration Ctr., Tsukuba, Japan
- 2P-35 "Growth condition optimization of non-polar AlN on sapphire substrate deposited by reactive RF sputtering", Kota Tatejima¹², ●[Kazunori Kurishima](#)¹²³, Keiji Ishibashi²⁴, Kenichiro Takahashi²⁴, Setsu Suzuki⁴, Atsushi Ogura¹, Toyohiro Chikyow⁵, Takahiro Nagata¹² // ¹Meiji Univ. Kawasaki, Japan, ²MANA, NIMS, Tsukuba, Japan, ³JSPS, Tokyo, Japan, ⁴COMET. Inc, ⁵MaDIS, NIMS, Tsukuba, Japan
- 2P-36 "Crystal and electronic structures of (Ga_xIn_{1-x})₂O₃ composition spread thin film prepared by combinatorial method", ●[Takeshi Hoga](#)¹², Kazunori Kurishima²³, Toyohiro Chikyow⁴, Takahiro Nagata² // ¹NIT, Tsuruoka College, Tsuruoka, Japan, ²MANA, NIMS, Tsukuba, Japan, ³JSPS, Tokyo, Japan, ⁴MaDIS, NIMS, Tsukuba, Japan
- 2P-37 "Electronic states and polar structures of ZnO/Ag junctions by X-ray photoelectron spectroscopy", ●[Takumi Hosaka](#)¹², Takeo Ohsawa¹, Herve Montigaud³, Takamasa Ishigaki², Naoki Ohashi¹ // ¹NIMS, Tsukuba, Japan, ²Hosei Univ., Tokyo, Japan, ³Saint-Gobain CNRS NIMS International Collaboration Ctr., Tsukuba, Japan
- 2P-38 "Tuning the electrical properties of zinc tin nitride thin films for a photovoltaic absorber", ●[Yong Wang](#)¹, Takeo Ohsawa², Xiangyue Meng³, Fahad Alnjiman⁴, Jean-Francois Pierson⁴, Naoki Ohashi² // ¹ICYS, NIMS, Tsukuba, Japan, ²Res. Ctr. Functional Materials, NIMS, Tsukuba, Japan, ³GREEN, NIMS, Tsukuba, Japan, ⁴IJL, CNRS, Nancy, France
- 2P-39 "Synthesis of spherical europium coordination polymer crystals and their photophysical properties", ●[Shunsuke Watanabe](#)¹, Takayuki Nakanishi¹, Kenichiro Iwasaki¹, Takuji Ube¹, Naoto Hirotsaki², Takashi Takeda², Atsuo Yasumori¹ // ¹Tokyo Univ. Sci., Tokyo, Japan, ²NIMS, Tsukuba, Japan

15:30 - 16:30 Solid State Chemistry

[Conference Room 202B]

Chair: Y. Okimoto, Tokyo. Tech.

- 2p-202B-01 **[Invited]** "Study of magnetically silent Na₂OsO₄ under high pressure", ●[Raimundas Sereika](#)¹, Kazunari Yamaura², Changqing Jin³, Myung Joon Han⁴, Yang Ding¹ // ¹Ctr. High Pressure Sci. & Tech. Advanced Res., Beijing, China, ²NIMS, Tsukuba, Japan, ³Inst. of Physics, Chinese Academy of Sci., Beijing, China, ⁴Dept. of Physics, KAIST, Daejeon, Korea
- 2p-202B-03 "High-pressure synthesis, crystal structure, and magnetic properties of hexagonal Ba₃CuOs₂O₉", ●[Jie CHEN](#)¹², Hai L. Feng³, Yoshitaka Matsushita¹, Alexei A. Belik¹, Yoshihiro Tsujimoto¹, Yoshio Katsuya¹, Masahiko Tanaka¹, Martin Jansen³, Kazunari Yamaura¹² // ¹NIMS, Tsukuba, Japan, ²Grad. Sch. Chemical Sci. & Eng., Hokkaido Univ., Japan, ³Max Planck Inst. for Chemical Physics of Solids, Dresden, Germany
- 2p-202B-04 "Controlling the local structures of mixed anion compounds", [Takafumi Yamamoto](#) // MSL, Tokyo Tech., Yokohama, Japan

16:30 - 17:00 Coffee Break

17:00 - 17:30 Solid State Chemistry

[Conference Room 202B]

Chair: S. Pan, Xinjian Technical Inst. of Physics & Chemistry

- 2p-202B-07 "Molecular exchange phase conversion process of dicarboxyl acid substituted octacalcium phosphate crystals in basic sodium phosphate solution", ●[Yuki Sugiura](#), Yoji Makita // HRI, AIST, Kagawa, Japan
- 2p-202B-08 "Negative thermal expansion in $\text{Bi}_{1-x}\text{Pb}_x\text{NiO}_3$ ($0.6 \leq x \leq 0.8$) induced by polar-nonpolar transition", ●[Yuki Sakai](#)¹², Takumi Nishikubo², Masaichiro Mizumaki³, Takashi Mizokawa⁴, Akihiko Machida⁵, Tetsu Watanuki⁵, Yoichi Okimoto⁶, Shin-ya Koshihara⁶, Masaki Azuma² // ¹KISTEC, Ebina, Japan, ²MSL, Tokyo Tech., Yokohama, Japan, ³JASRI, Sayo, Japan, ⁴Waseda Univ., Shinjuku, Japan, ⁵QST, Sayo, Japan, ⁶Tokyo Tech., Tokyo, Japan

15:30 - 16:30 Engineering Ceramics

[Conference Room 401]

Chair: T.S. Suzuki, NIMS

- 2p-401-01 **[Invited]** "Advanced silicon carbide products used in ceramic systems applications", Costana Bousquet // Saint-Gobain Res. Provence, Cavailon, France
- 2p-401-03 **[Invited]** "Pre-ceramic polymers as precursors of advanced functional ceramics", ●[Samuel Bernard](#), Maxime Balestrat, Abhijeet Lale // Inst. of Res. on Ceramics, CNRS-Univ. of Limoges, France

16:30 - 17:00 Coffee Break

17:00 - 17:30 Engineering Ceramics

[Conference Room 401]

Chair: D. Demirskyi, Tohoku Univ.

- 2p-401-07 "Enabling integration of PZT actuator array on active-matrix oxide thin-film transistor by a low-temperature solution-based process", ●[Tue T. Phan](#)¹², T. Shimoda¹, Y. Takamura¹ // ¹Sch. Materials Sci., Japan Advanced Inst. of Sci. & Tech., ²MSL, Tokyo Tech., Japan
- 2p-401-08 "Transparent luminescent nanocomposite solar concentrators based on molybdenum metal clusters", ●[Marion Dubernet](#)¹², Ngan T. K. Nguyen¹², Noee Dumait³, Stephane Cordier³, Iryna Gozhyk⁴, Fabien Grasset¹³, Tetsuo Uchikoshi¹² // ¹UMI 3629 LINK, NIMS, Tsukuba, Japan, ²Res. Ctr. Functional Materials, NIMS, Tsukuba, Japan, ³UMR 6226 ISCR, Universite de Rennes 1, Rennes, France, ⁴UMR 125 CNRS/Saint-Gobain, Surface du Verre et Interfaces, Aubervilliers, France

15:30 - 16:30 Growth and Physical Properties of Thin Films and Single Crystals

[Conference Room 405]

Chair: M. Tachibana, NIMS

- 2p-405-01 **[Invited]** "Single crystal growth of functional inorganic compounds", [YouGuo Shi](#)¹² // ¹IOP, CAS, Beijing, China, ²UCAS, Beijing, China
- 2p-405-03 "Multiferroic properties of orthorhombic $\text{Al}_x\text{Fe}_{2-x}\text{O}_3$ thin films", ●[Badari Narayana A. Rao](#)¹, Shintaro Yasui¹, Tsukasa Katayama², Mitsuru Itoh¹ // ¹MSL, Tokyo Tech., Yokohama, Japan, ²Dept. of Chemistry, The Univ. of Tokyo, Tokyo, Japan
- 2p-405-04 "Robust ferroelectricity in thick HfO_2 -based film", ●[Takao Shimizu](#)¹, Takanori Mimura¹, Hiroshi Funakubo¹² // ¹Sch. Materials & Chemical Tech., Tokyo Tech., Yokohama, Japan,

18:00 – 20:00 Banquet

[Conference Room 101 + 102]

THE THIRD DAY MORNING / July 11, 2019

9:00 - 10:15 Analysis and Characterization

[Conference Room 202B]

Chair: T.T. Suzuki, NIMS

- 3a-202B-01 **[Invited]** "Evolution of “defects” and its related effects in oxide nano materials", Subrata Majumder // Dept. of Physics, NIT, Patna, India
- 3a-202B-03 **[Invited]** "Micrometer-scaled spectroscopy and imaging of ion beam induced luminescence utilizing MeV-range focused proton microbeam", ● Wataru Kada¹, Takahiro Satoh², Taisei Higuchi^{1,2}, Shigeyuki Yokosawa¹, Yuki Akagami¹, Masashi Koka³, Naoto Yamada², Kenta Miura¹, Tomihiro Kamiya¹, Osamu Hanaizumi¹ // ¹Gunma Univ., Kiryu, Japan, ²QST-TARRI, Takasaki, Japan, ³Beam Operation Ltd., Takasaki, Japan
- 3a-202B-05 "Design of advanced hybrid bio composite for detection of heavy metal carcinogens", ● Chittatosh Pal, Subrata Majumder // NIT, Patna, India

10:15 - 10:45 Coffee Break

10:45 - 11:45 Analysis and Characterization

[Conference Room 202B]

Chair: T. Takeda, NIMS

- 3a-202B-08 "Simplification and high-throughput of synchrotron radiation X-ray measurement of powder library", ● Kenjro Fujimoto¹, Akihisa Aimi¹, Shingo Maruyama² // ¹Fac. Sci. & Tech., Tokyo Univ. Sci., Noda, Japan, ²Sch. Eng., Tohoku Univ., Sendai, Japan
- 3a-202B-09 "Viscoelasticity of alkali aluminophosphate glasses from transition to deformation temperatures", ● Naoyuki Kitamura¹, Takahiko Hayashido², Nana Matsushita², Kohei Fukumi¹, Hiroaki Uchiyama², Hiromitsu Kozuka² // ¹AIST, Osaka, Japan, ²Kansai Univ., Osaka, Japan
- 3a-202B-10 "THz dielectric property of relaxor ferroelectric PMN-PT crystal measured by far-infrared ellipsometry", ● Naoki Kuhara, Hiroaki Takeda, Takaaki Tsurumi, Takuya Hoshina // Sch. Mater. Chem. Tech., Tokyo Tech., Tokyo, Japan
- 3a-202B-11 "Investigation of metal/oxide interface by hard-x-ray photoemission spectroscopy", ● Naoki Ohashi^{1,2,3}, Takeo Ohsawa¹, Sakyō Hirose^{1,4}, Shigenori Ueda¹ // ¹NIMS, Tsukuba, Japan, ²MCES, Tokyo Tech., Yokohama, Japan, ³ASEM, Kyushu Univ., Kasuga, Japan, ⁴Murata Manufacturing Co. Ltd., Kyoto, Japan

9:15 - 10:15 Biorelated Ceramic-Based Materials

[Conference Room 401]

Chair: Y. Sugiura, AIST

3a-401-02 "Low-temperature fabrication of titania layer on PEEK for enhancing biocompatibility", ●[Yueli Zhai](#)¹², Fan Xiao¹, Yuki Shirosaki² // ¹Zhejiang Univ. Technol., Hangzhou, P.R. China, ²Kyutech, Fukuoka, Japan

3a-401-03 "Preparation of nanoporous silica/hydroxyapatite hybrid particles for effectively controlling protein-interactions", ●[Shota Yamada](#), Tania Guadalupe Penaflor Galindo, Motohiro Tagaya // Nagaoka Univ. Tech., Nagaoka, Japan

Chair: Y. Shirosaki, Kyutech

3a-401-04 **[Invited]** "Chemistry and applications of hydroxyapatite ceramics", [Hideki Aoki](#) // President, Internation Apatite Insitute Co. Ltd., Japan

10:15 - 10:45 Coffee Break

10:45 - 11:45 Biorelated Ceramic-Based Materials

[Conference Room 401]

Chair: M. Kikuchi, NIMS

3a-401-08 **[Invited]** "Ceramic-based adjuvants for cancer immunotherapy", ●[Atsuo Ito](#), Xiupeng Wang, Xia Li, Yu Sogo, Noriko M. Tsuji // AIST, Tsukuba, Japan

3a-401-10 "Synthesis and characterization of graphene oxide functionalized with magnetic nanoparticle via simple emulsion method", ●[Emmellie Laura Albert](#)¹², Che Azuranim Che Abdullah¹², Yuki Shirosaki³ // ¹Faculty Sci., UPM, Selangor, Malaysia, ²MSCL, UPM, Selangor, Malaysia, ³Kyutech, Kitakyushu, Japan

3a-401-11 "Effect of temperature, speed and duration on filler dispersion and mechanical properties of ultra-high molecular weight polyethylene (UHMWPE) / Nanofibrillated Cellulose (NFC) Biocomposite Fabrication", ●[Nur Sharmila Sharip](#)¹, Hidayah Ariffin¹, Yoshito Andou², Ezyana Kamal Bahrin¹ // ¹Universiti Putra Malaysia, Selangor, Malaysia, ²Kyutech, Kitakyushu, Japan

9:15 - 10:15 Transparent Semiconductors

[Conference Room 405]

Chair: T. Ohsawa, NIMS

3a-405-02 **[Invited]** "Halide vapor phase epitaxy of α -Ga₂O₃", [Yuichi Oshima](#) // NIMS, Tsukuba, Japan

3a-405-04 "Low-temperature fabrication of direct-current driven electroluminescent device using amorphous oxide semiconductor thin-film phosphor", ●[Naoto Watanabe](#)¹, Keisuke Ide¹², Takayoshi Katase¹³, Junghwan Kim², Shigenori Ueda⁴⁵, Koji Horiba⁶, Hiroshi Kumigashira⁶, Hidenori Hiramatsu¹², Hideo Hosono¹², Toshio Kamiya¹² // ¹MSL, Tokyo Tech., Yokohama, Japan, ²MCES, Tokyo Tech., Yokohama, Japan, ³PRESTO, JST, Tokyo, Japan, ⁴NIMS, Tsukuba, Japan, ⁵SPRING-8, Hyogo, Japan, ⁶KEK, Tsukuba, Japan

3a-405-05 "Characterization of float zone grown pure and Sn doped β -gallium oxide crystals", ●[Kumaragurubaran Somu](#)¹, Ganesamoorthy Sarveswaran², Ramakrishnan Veerabhahu³, Indranil Bhaumik⁴, Rajeev Bhatt⁴, Amit Saxena⁴, A K Karnal⁴ // ¹IISER TVM, India, ²IGCAR, India, ³Madurai Kamaraj Univ., India, ⁴RRCAT, India

10:15 - 10:45 Coffee Break

10:45 - 11:45 Transparent Semiconductors

[Conference Room 405]

Chair: T. Nagata, NIMS

- 3a-405-08 **[Invited]** "Transparent semiconducting oxides - bulk single crystals and basic properties", Zbigniew Galazka // IKZ, Berlin, Germany
- 3a-405-10 "Single crystal growth of cubic SrGeO₃ and estimation of intrinsic electron mobility", ●Christian A. Niedermeier¹, Yu Kumagai², Keisuke Ide¹², Takayoshi Katase¹², Fumiyaso Oba¹²³, Hideo Hosono¹², Toshio Kamiya¹² // ¹MSL, Tokyo Tech., Yokohama, Japan, ²MCES, Tokyo Tech., Yokohama, Japan, ³NIMS, Tsukuba, Japan
- 3a-405-11 "Investigation of intrinsic defects in titanium oxide surfaces using high-temperature photoemission spectroscopy", ●Takeo Ohsawa¹, Takumi Hosaksa¹², Takamasa Ishigaki², Naoki Ohashi¹ // ¹NIMS, Tsukuba, Japan, ²Hosei Univ., Tokyo, Japan

11:45 - 12:00 Closing Address

[Conference Room 202B]