

APAC-Silicide 2022 PROGRAM

All presentation times are JST (Japan Standard Time, UTC+9)

* Presentation by student: Candidates for Young Scientist Awards

July 30, 2022

13:00-13:10 *Opening address*

Prof. Yoshiaki Nakamura, Chair of APAC-Silicide 2022

Session 1-Sat-1 Thermoelectrics I

Chair : Yuzuru Miyazaki and Takahiro Yamada

13:15-13:45 Sat-p-11 (Invited)

Thermoelectric enhancement principles and development of some thermoelectric silicides

Dr. Takao Mori: National Institute for Materials Science (NIMS)

13:45-14:00 Sat-p-O1

Giant Peltier conductivity in Yb₃Si₅ single crystal

Kentaro Kuga^{1,2}, Masaharu Matsunami^{1,2,3} and Tsunehiro Takeuchi^{1,2,3}

¹Toyota Technological Institute, ²CREST, Japan Science and Technology Agency, ³MIRAI, Japan Science and Technology Agency

14:00-14:15 Sat-p-O2

Measurement of thermoelectric properties on Al-doped Mg₂Si under high-pressure by using the multi-anvil apparatus

Yoshihisa Mori, Kohki Ohya, and Kengo Nakai

Okayama University of Science

14:15-14:30 Sat-p-O3

Partially compensated (Ru, V) co-doped higher manganese silicide single crystals

Nagendra S. Chauhan, Ichiro Ono, Kei Hayashi, and Yuzuru Miyazaki

Tohoku University

14:30-14:45 Sat-p-O4

Rare-earth silicides as thermoelectric materials near room temperature

Sora-at Tanusilp^{1,2} and Ken Kurosaki^{2,3}

¹Khon Kaen University, ²Kyoto University, ³University of Fukui

14:45-15:00 Sat-p-O5

**Thermoelectric Properties in Group IV Ternary Alloy Thin Films Formed by Advanced Solid-phase Crystallization*

Shintaro Maeda, Tomoki Ozawa, Takashi Suemasu, and Kaoru Toko

University of Tsukuba, Institute of Applied Physics

15:00-15:15 Sat-p-O6

Thermal conductivity measurement of free-standing Si nanowire arrays using embedding organic medium

Kentaro Watanabe¹ and Yoshiaki Nakamura²

¹Shinshu University, ²Osaka University

Break 15:15-16:00

Session 2-Sat-2 Thermoelectrics II
Chair : Yoshiaki Nakamura and Takao Mori

16:00-16:30 Sat-p-12 (Invited)

Hybrid Photovoltaic-Thermoelectric Solar Harvesters: Technical and Economic Issues

Prof. Dario Narducci: University of Milano Bicocca

16:30-17:00 Sat-p-13 (Invited)

Lattice Dynamics of Iron Silicide Nanostructures from Nuclear Inelastic Scattering and Ab Initio Theory

Dr. Svetoslav Stankov: Karlsruhe Institute of Technology (KIT)

17:00-17:15 Sat-p-07

Phonon Diffraction in Silicon; Atomistic Simulations

Desmarchelier Paul¹, Nikidis Efstrátios², Kioseoglou Joseph², Tanguy Anne^{3,4}, Nakamura Yoshiaki⁵, Termentzidis Konstantinos

¹Univ Lyon, INSA Lyon, CNRS, CETHIL, ²Physics Department, Aristotle University of Thessaloniki, ³Univ Lyon, INSA Lyon, CNRS, LaMCoS, ⁴ONERA, University Paris-Saclay, Chemin de la Hunière, ⁵Graduate School of Engineering Science, Osaka University

17:15-17:30 Sat-p-08

Emergence of high thermoelectric power factor by deformation of silicene buckled structure in epitaxial CaSi_2 film

Tsukasa Terada¹, Yuto Uematsu¹, Takafumi Ishibe¹, Nobuyasu Naruse², Kazunori Sato³, Tien Quang Nguyen³, and Yoshiaki Nakamura¹

¹Osaka University, Graduate School of Engineering Science, ²Shiga University of Medical Science, ³Osaka University, Graduate School of Engineering

17:30-17:45 Sat-p-09

Demonstration of electron-phonon interaction-dominated thermoelectric power factor in Dirac-system CoSi film

Takafumi Ishibe¹, Yuto Uematsu¹, Katsuhiko Suzuki², Kazunori Sato², Takeshi Fujita³, Eiichi Kobayashi⁴, Yoshiaki Nakamura¹

¹Graduate School of Engineering Science, Osaka University, ²Graduate School of Engineering, Osaka University, ³Kochi University of Technology, ⁴Kyushu Synchrotron Light Research Center

18:00—20:00 Poster session I

Chair :Yoshihisa Mori

July 31, 2022

Session 3-Sun-1 Spin, Topology, Thin Films, Evaluation

Chair : Taizo Sado and Hiroshi Katsumata

9:00-9:30 Sun-a-I4 (Invited)

Emergence of spin-orbit coupled ferromagnetic surface state derived from Zak phase in a nonmagnetic insulator FeSi

Dr. Naoya Kanazawa: University of Tokyo

9:30-9:45 Sun-a-O1

**Solid-phase Crystallization of P-doped Amorphous Ge on Insulator Leading to the Highest Electron Mobility*

Koki Nozawa, Takeshi Nishida, Takashi Suemasu, and Kaoru Toko

University of Tsukuba

9:45-10:00 Sun-a-O2

**Automated and fast analysis of solid-phase growth properties using deep machine learning*

Takamitsu Ishiyama, Takashi Suemasu, and Kaoru Toko

University of Tsukuba

10:00-10:15 Sun-a-O3

**Effects of Layer Exchange Conditions of Multilayer Graphene on Anode Properties in Li-ion Batteries*

Taisei Suzuki, Takashi Suemasu, and Kaoru Toko

University of Tsukuba

10:15-10:30 Sun-a-O4

**Fabrication of SiGe/Ge microbridges based on Ge-on-Si(110) and observation of resonant light emission*

T. Inoue, Y. Wagatsuma, R. Ikegaya, A. Odashima, M. Nagao, K. Sawano

Tokyo City University

Break 10:30—10:45

Session 4-Sun-2 Spin, Topology, Thin Films, Evaluation

Chair : Kenji Yamaguchi and Motoharu Imai

10:45-11:15 Sun-a-I5 (Invited)

Atomic-Layer Resolved Magnetic Structure Analysis of Iron Thin Film Surface by In-situ Synchrotron Mössbauer Spectroscopy

Dr. Takaya Mitsui: National Institutes for Quantum Science and Technology (QST)

11:15-11:30 Sun-a-O5

Identification of Intrinsic and Extrinsic Defects in Barium Disilicide

Takuma Sato¹, Jean-Marie Mouesca², Motoharu Imai³, Serge Gambarelli², and Takashi Suemasu⁴

¹Hiroshima University, ²Univ. Grenoble Alpes, CNRS, ³National Institute for Materials Science (NIMS),

⁴University of Tsukuba

11:30-11:45 Sun-a-O6

**Surface photovoltage effect for n-type Mg₂Si (111)*

Taku Tanimoto¹, Mamoru Kitaura², Junpei Azuma³, Isamu Yamamoto³, Masaki Imamura³, Kazutoshi Takahashi³, Haruhiko Uono⁴, Kiyohisa Tanaka⁵ and Akimasa Ohnishi²

¹Yamagata University, Graduate School of Science and Engineering, ²Yamagata University, ³Saga University, Synchrotron Light Application Center, ⁴Ibaraki University, ⁵IMS/UVSOR

11:45-12:00 Sun-a-O7

**Analysis of Grain Growth Behavior of Multicrystalline Mg₂Si*

Takumi Deshimaru¹, Kenta Yamakoshi¹, Kentaro Kutsukake², Takuto Kojima³, Tsubasa Umehara⁴, Haruhiko Uono⁴, and Noritaka Usami¹

¹Graduate School of Engineering, Nagoya University, ²Center of Advanced Intelligence Project, RIKEN,

³Graduate School of Informatics, Nagoya University, ⁴Graduate School of Science and Engineering, Ibaraki University

12:00-12:15 Sun-a-O8

***Synthesis of $MnSi_{1.7}$ Nanosheet Bundles from $CaSi_2$ crystal powders in $MnCl_2$ molten salt**

Fumio Komeda¹, Shogo Itoh¹, Yosuke Shimura^{1,2}, Naohisa Takahashi³, Hirokazu Tatsuoka¹

¹Graduate School of Integrated Science and Technology, Shizuoka University, ²Research Institute of Electronics, Shizuoka University, ³YAMAHA MOTOR Co.,Ltd

Break 12:15—13:30

Session 5-Sun-3 Optoelectronics I

Chair : Hirokazu Tatsuoka and Yoshikazu Terai

13:30-14:00 Sun-p-I6 (Invited)

Semiconductor and Semimetallic Transparency in Calcium Silicide Films and Its Influence on Practical Applications

Prof. Nikolay G. Galkin: Far Eastern Branch of Russian Academy of Sciences (FEB-RAS)

14:00-14:15 Sun-p-O9

High quality thick p-type Mg_2Si film with high carrier mobility

Igor M. Chernev¹, Alexander S. Goualnik¹, Evgeny Y. Subbotin¹, Alexey G. Kozlov² and Andrey V. Gerasimenko³

¹Institute of Automation and Control Processes FEB RAS, ²Institute of High Technologies and Advanced Materials, Far Eastern Federal University, ³Institute of Chemistry FEB RAS

14:15-14:30 Sun-p-O10

****Evaluation of Spectral Photosensitivity of Mg_2Si -PDs with Ring or Ring-mesh Electrodes fabricated by metal etching and metal lift-off process***

Rikuto Nakamura¹, Yudai Ichikawa¹, Daiju Tsuya², Misa Yoshida², and Haruhiko Uono¹

¹Graduate School of Science and Engineering, Ibaraki University, ²National Institute for Materials Science (NIMS)

14:30-14:45 Sun-p-O11

****High-temperature post-annealing effect on B-doped p-type $BaSi_2/n$ -Si heterojunction solar cells grown by molecular beam epitaxy***

Shunsuke Narita, Sho Aonuki, Kaoru Toko and Takashi Suemasu

University of Tsukuba

14:45-15:00 Sun-p-O12

****First demonstration of B-ion-implanted p- $BaSi_2/n$ -Si heterojunction solar cells***

Sho Aonuki, Kaoru Toko and Takashi Suemasu

University of Tsukuba

15:00-15:15 Sun-p-O13

****Fabrication of p- NiO/n - $BaSi_2$ hetero-junction solar cells by radio-frequency sputtering***

H. Takenaka¹, H. Hasebe¹, K. Kido¹, R. Koitabashi¹, M. Mesuda², K. Toko¹, T. Suemasu¹

¹University of Tsukuba, ²Tosoh Corporation

15:15-15:30 Sun-p-O14

****Sputter-deposited $Zn_{1-x}Ge_xO_y$ for interlayers and electron transport layers of $BaSi_2$ solar cells***

Kaori Takayanagi¹, Yudai Yamashita¹, Kaoru Toko¹ and Takashi Suemasu

University of Tsukuba

Break 15:30-15:45

Session 6-Sun-4 Optoelectronics II

Chair : Takashi Suemasu and Tetsuji Kume

15:45-16:15 Sun-p-I7 (Invited)

Semiconducting Mg_2Si and Ca_2Si as perspective 2D and 1D materials

Prof. Dmitri Migas: Belarusian State University of Informatics and Radioelectronics

16:15-16:45 Sun-p-I8 (Invited)

Silicon clathrate films for optoelectronic and photovoltaic applications

Dr. Thomas Fix: Laboratoire ICube, CNRS - Université de Strasbourg

16:45-17:00 Sun-p-O15

Mechanochemically Assisted Close-Spaced Evaporation of BaSi₂ Films

Kosuke O. Hara, Chiaya Yamamoto, Junji Yamanaka, and Keisuke Arimoto
University of Yamanashi

17:00-17:15 Sun-p-O16

An Experimental Approach to the Optimization of Synthesis Condition of Type II Ge Clathrate Film

Rahul Kumar¹, Kouhei Yamada², Fumitaka Ohashi³, Himanshu Shekhar Jha³ and Tetsuji Kume³
¹National Institute of Technology, Gifu College, ²Department of Energy Engineering, Graduate School of Natural Science and Technology, Gifu University, ³Department of Electrical, Electronic and Computer Engineering, Faculty of Engineering, Gifu University

17:15-17:30 Sun-p-O17

****Optical and Electrical Properties of Ge Clathrate films with and without Al doping***

Tun Naing Aye¹, Yuto Kawaura², Rahul Kumar³, Fumitaka Ohashi⁴, Himanshu S. Jha⁴, Tetsuji Kume⁴
¹Intl. Joint Department of Integrated Mechanical Engineering, The Graduate School of Engineering, Gifu University, ²Department of Energy Engineering, Gifu University, ³National Institute of Technology, Gifu College, ⁴Department of Electrical, Electronic & Computer Engineering, Faculty of Engineering, Gifu University

17:30-17:45 Sun-p-O18

****Study on Photoluminescence Properties of Fe-silicide-NDs***

Haruto Saito¹, Katsunori Makihara¹, Yoshiaki Hara², Shuntaro Fujimori¹, Yuki Imai¹, Noriyuki Taoka¹, Akio Ohta¹, and Seiichi Miyazaki¹
¹Graduate School of Engineering, Nagoya University, ²National Institute of Technology, Ibaraki College

18:00—20:00 Poster session II

Chair :Kenji Yamaguchi

Aug 1, 2022

Session 7-Mon-1. Silicide and related materials

Chair : Haruhiko Udono and K.O. Hara

9:00-9:15 Mon-a-O1

Single crystal growth and physical properties of a topological nodal-line semimetal candidate NaAlSi

Takahiro Yamada¹, Daigorou Hirai², Toshiya Ikenobe², Hisanori Yamane¹, and Zenji Hiroi²

¹Institute of Multidisciplinary Research for Advanced Materials, Tohoku University, ²Institute for Solid State Physics, University of Tokyo

9:15-9:30 Mon-a-O2

****Enhanced Thermoelectric Performance of Holey Silicon Thin Films using F4-TCNQ Surface Doping***

Tianhui Zhu¹, Yunhui Wu², Shuai Li¹, Farjana Tonni¹, Masahiro Nomura² and Mona Zebarjadi¹

¹University of Virginia, ²The University of Tokyo

9:30-9:45 Mon-a-O3

Thermoelectric power factor enhancement of bulk silicon germanium by thermal management with resonant level effect

Shunya Sakane^{1,2}, Takafumi Ishibe², Takeshi Fujita³, Jun-ichiro Ohe⁴, Eiichi Kobayashi⁵, and Yoshiaki Nakamura²

¹Chuo University, ²Osaka University, Graduate School of Engineering Science, ³Kochi University of Technology, ⁴Toho University, ⁵Kyusyu Synchrotron Light Research Center

9:45-10:00 Mon-a-O4

Formation of GaSb film on Si(111) by solid phase epitaxy

S.V. Chusovitina¹, E.Y. Subbotin¹, E.A. Chusovitin¹, D.L. Goroshko¹, S.A. Dotsenko¹, S.A. Pyachin², I.A. Astapov², K.N. Galkin¹

¹Institute of Automation and Control Processes FEB RAS, ²Far Eastern State Transport University

10:00-10:15 Mon-a-O5

Substrate engineering for strain-controlled high-Sn-content Ge_{1-x}Sn_x epitaxy

Osamu Nakatsuka^{1,2}, Shigehisa Shibayama¹, Masashi Kurosawa¹, and Mitsuo Sakashita¹

¹Graduate School of Engineering, Nagoya University, ²Institute of Materials and Systems for Sustainability, Nagoya University

10:15-10:30 Mon-a-O6

Bulk moduli and bulk thermal expansion coefficients of silicide

Motoharu Imai and Takanobu Hiroto

National Institute for Materials Science (NIMS)

10:30-10:45 Mon-a-O7

Phase relation between supercooled liquid and amorphous Silicon

Junpei T. Okada¹, Patrick H.-L. Sit², Takehiko Ishikawa^{3,4}, Jinfan Chen², Y. Watanabe⁵, P.-F. Paradis³, Kaoru Kimura⁶, and Satoshi Uda¹

¹IMR Tohoku University, ²City University of Hong Kong Kowloon, ³Institute of Space and Astronautical Science, Japan Aerospace Exploration Agency (JAXA), ⁴The Graduate University for Advanced Studies (SOKENDAI), ⁵Advanced Engineering Services Co., Ltd., ⁶The University of Tokyo

10:45-11:00 Mon-a-O8

The study on the performance-recovery method by reverse-pulse voltage application in PID affected multicrystalline-silicon-based-PV module

Yasushi Sobajima, Naing Lin Htun, Shogo Hashimoto, Yuto Maehara

Gifu University, Department of Energy Engineering

11:30-12:00 Closing & Award Ceremony

Poster session I

Chair :Yoshihisa Mori

P-I-1

***Study of Deep Levels in the Mg₂Si Grown by Vertical Bridgeman Method**

Kouki Fukushima¹, Kenichiro Takakura¹, Naoki Mizunuma², Tatsuya Uematsu², Takaaki Sakaguchi¹, and Haruhiko Uono²

¹National Institute of Technology (KOSEN), Kumamoto College, ²Ibaraki University

P-I-2

***Crystal growth of 2-inch diameter Mg₂Si crystal by VGF method under Ar normal pressure**

Tsubasa Umehara, Naoki Mizunuma and Haruhiko Uono

Ibaraki University

P-I-3

Transient absorption spectroscopy of Mg₂Si crystals using a mid-infrared free electron laser

Mamoru Kitaura¹, Heishun Zen², Haruhiko Uono³

¹Yamagata University, ²Kyoto University, ³Ibaraki University

P-I-4

Phase relationship of Sr-Si system at Si concentrations ranging from 56 to 84 at. %

Motoharu Imai

National Institute for Materials Science (NIMS)

P-I-5

***Synthesis, crystal structures, and thermoelectric properties of NaMgX (X = Sb and Bi)**

Naoki Matsuo^{1,2}, Takahiro Yamada², Masanori Enoki² and Hisanori Yamane²

¹Graduate School of Engineering, Tohoku University, ²Institute of Multidisciplinary Research for Advanced Materials, Tohoku University

P-I-6

***Electronic Band Engineering of Mg₂Si by Isoelectronic Impurity Doping: A First-Principles Study for Enhancing Thermoelectric Properties**

Kiyoka Imai¹, Ryohei Ikebuchi¹, Naomi Hirayama¹ and Yoji Imai²

¹Shimane University, ²Tokyo University of Science

P-I-7

***Effect of spark plasma sintering temperature on microstructures across the interfaces between thermoelectric-material Mg₂Si and Ni electrode**

I. Murakami¹, T. Ishii¹, H. Sugawara¹, H. Kawada², S. Kurosu², H. Shimizu², H. Sato², T. Hanajiri², I. Ando³, K. Hayashi³, and Y. Miyazaki³

¹Tokyo Metropolitan University, ²Toyo University, ³Tohoku University

P-I-8

Development of high-performance CrSi₂ thermoelectric materials by means of high-energy-ball-milling and low-temperature-high-pressure sintering

Atsushi Hara¹, Seongho Choi¹, Keisuke Hirata¹, Kosuke Sato¹, Masaharu Matsunami^{1,2,3} and Tsunehiro Takeuchi^{1,2,3}

¹Department of Advanced Science and Technology, Toyota Technological Institute, ²Research Center for Smart Energy Technology, Toyota Technological Institute, ³CESTO-JST

P-I-9

***Effect of various impurities doped in melt grown Mg₂Sn crystals on thermoelectrical properties**

H. Motoki, N. Tsuchiya, S. Sato, M. Koyano and H. Uono

Ibaraki University

P-I-10

***High electron mobility of polycrystalline BaSi₂ films on insulating Si₃N₄ layers for thermoelectric applications**

K. Kido¹, H. Hasebe¹, R. Koitabashi¹, M. Mesuda², K. Toko¹, and T. Suemasu¹

¹University of Tsukuba, ²Tosoh Corporation

P-I-11

***Thermoelectric Properties of Nanostructured Si by Excess P Doping**

Yuichi Ashida¹, Tomonori Ishii¹, Satoshi Ichikawa², Hiroaki Muta¹ and Yuji Ohishi¹

¹Graduate School of Engineering, Osaka University, ²Research Center for Ultra-High Voltage Electron Microscopy, Osaka University

P-I-12

***Enhancement of thermoelectric power factor in CaSi₂ by endotaxially introducing metastable phase with high-buckled silicene**

Kotaro Minami¹, Tsukasa Terada¹, Takafumi Ishibe¹, Kazunori Sato², Tien Quang Nguyen², and Yoshiaki Nakamura¹

¹Graduate School of Engineering Science, Osaka University, ²Graduate School of Engineering, Osaka University

P-I-13

***Nanostructure design for simultaneous realization of enhancement of transverse Seebeck coefficient and reduction of thermal conductivity using ferromagnetic metal/ semiconductor multilayer film**

Reona Kitaura¹, Takafumi Ishibe¹, Himanshu Sharma², Masaki Mizuguchi², Yoshiaki Nakamura¹

¹Osaka University, ²Nagoya University

P-I-14

***Solution-based Impurity Doping into Free-Standing Si Nanowire Arrays for Thermoelectric Power Generators**

Ikutaroh Tanaka and Kentaro Watanabe

Shinshu University

P-I-15

***Development of high thermoelectric performance SiGe-based materials by introducing metal elements**

Ryosuke Hotta¹, Kosei Mizuta¹, Takafumi Ishibe¹, Takeshi Fujita², Yoshiaki Nakamura¹

¹Graduate School of Engineering Science, Osaka University, ²Kochi University of Technology

P-I-16

***First-Principles Calculation of Thermoelectric Property for Iron Silicides**

Takahiro Tominaga¹, Naoya Yamaguchi², Hikaru Sawahata², Susumu Minami², and Fumiyuki Ishii²

¹Graduate School of Natural Science & Technology, Kanazawa University, ²Nanomaterials Research Institute, Kanazawa University

P-I-17

***Vacuum level mapping of Si nanowire composite films under non-thermal equilibrium for developing high-performance thermoelectric materials**

Yuki Komatsubara¹, Yuji Miyato², Takafumi Ishibe¹, Yoshiaki Nakamura¹

¹Graduate School of Engineering Science, Osaka University, ²Faculty of Advanced Science and Technology, Ryukoku University

Poster session II

Chair :Kenji Yamaguchi

P-II-1

***Characterizations of B-doped polycrystalline BaSi₂ films formed by sputtering**

H. Hasebe¹, R. Koitabashi¹, K. Kido¹, Y. Yamashita¹, M. Mesuda², K. Toko¹, T. Suemasu¹

¹University of Tsukuba, ²Tosoh Corporation

P-II-2

***Passivation effect of a-SiC on BaSi₂ films for solar cell applications**

R. Du¹, H. Hasebe¹, K. Kido¹, M. Mesuda², K. Toko¹, and T. Suemasu¹

¹University of Tsukuba, ²Tosoh Corporation

P-II-3

***Diffusion of impurities in BaSi₂ thin films from low-resistivity Si substrates**

Fei Li¹, Rui Du² and Weijie Du¹

¹Shanghai Normal University, ²University of Tsukuba

P-II-4

***Optical properties of oxide thin films on Mg₂Si for antireflection coating in SWIR**

Naoki Imaizumi¹, Rikuto Nakamura¹, Daiju Tsuya², Misa Yoshida² and Haruhiko Udono¹

¹Ibaraki University, ²National Institute for Materials Science (NIMS)

P-II-5

***Large-grained GaAs Films Synthesized on Insulating Substrates for Flexible Solar Cells**

Takeshi Nishida^{1,2}, Takashi Suemasu¹, and Kaoru Toko¹

¹University of Tsukuba, ²JSPS Research Fellow

P-II-6

***Investigation of Raman depolarization ratio in topological insulator Bi₂Se₃ epitaxial films**

Tomohiro Kondo, Takamu Nozaki, Ryuya Kotabe and Yoshikazu Terai

Kyushu Institute of Technology

P-II-7

***Photoresponse properties of β-FeSi₂ pn homojunction grown by molecular beam epitaxy**

Hidekazu Kanda, Shintaro Ishitobi and Yoshikazu Terai

Kyushu Institute of Technology

P-II-8

***Growth of Ru-doped β-FeSi₂ polycrystalline thin films by RF magnetron sputtering**

Ren Yoshihara, Yuya Oishi and Yoshikazu Terai

Kyushu Institute of Technology

P-II-9

***Crack formations in SiGe/Ge MQW layers on Ge-on-Si(111) substrates**

Youya Wagatsuma¹, Rena Kanesawa¹, Md. Mahfuz Alam^{1,2}, Kazuya Okada¹, Michihiro Yamada³, Kohei Hamaya³, and Kentarou Sawano¹

¹Tokyo City University, ²University of Barisal, ³Osaka University

P-II-10

***Synthesis of Mg₂Si_{1-x}Ge_x solid solution nanosheet bundles from CaSi₂ crystal powders by thermal annealing with Ge and MgCl₂/Mg**

Kaito Sekino¹, Tomoya Koga¹, Yosuke Shimura^{1,2}, Naohisa Takahashi³, and Hirokazu Tatsuoka¹

¹Shizuoka University, ²Research Institute of Electronics, Shizuoka University, ³YAMAHA MOTOR

Co.,Ltd

P-II-11

***EPR as a tool to discriminate between Boron related defects in BaSi₂ : a preliminary DFT study**

Yuguang Cao^{1,2}, Jean-Marie Mouesca², Serge Gambarelli², and Takashi Suemasu¹

¹University of Tsukuba, ²University of Grenoble Alpes, CNRS

P-II-12

***Correlation between Plasma Color and Properties of Mg₂Si Thin Films formed by RF Magnetron Sputtering**

Yuto Hida, Syunta Owari, Kenta Uefuji and Hiroshi Katsumata

Meiji University

P-II-13

***Preliminary study for deposition of Mg₂Si thin films with high-power impulse magnetron sputtering**

K. Mukogawa¹, M. Fujiwara¹, T. Matsuoka¹, H. Sugawara¹, T. Shimizu¹, T. Yamamoto¹, N. Saito¹, T. Hattori¹, T. Hanajiri², S. Kurosu²

¹Tokyo Metropolitan University, ²Toyo University

P-II-14

***Wavelength Selective Transmission Thin Film using β-FeSi₂ for Thermophotovoltaic system**

Xuanwei Zhang, Kyoko Namura and Motofumi Suzuki

Kyoto University