

**JSPM International Conference  
on Powder and Powder Metallurgy  
~ 60th Anniversary ~  
(JSPMIC2017)**

**DATE : November 6 (Mon)~ November 9 (Thu), 2017**

**VENUE : Kyoto University, Clock Tower Centennial Hall, Kyoto, Japan**

**The Organizing Committee of JSPMIC2017**

JSPM International Conference on Powder and Powder Metallurgy ~ 60th Anniversary ~ (JSPMIC2017)

Conference Schedule

Registration Desk OPEN	6 Nov. (Mon)	15:00~17:00 (2F Foyer)
	7 (Tue) & 8 (Wed) Nov.	9:00~17:00 (1F Foyer)
	9 Nov. (Thu)	9:00~11:30 (2F Foyer)

**November 6 (Mon)**

15:00~17:00	Get Together (2F, International Conference Hall II)
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**November 7 (Tue)**

	Room A 1F, Centennial Hall	Room B F, International Conference Hall	Room C F, International Conference Hall	Room D F, International Conference Hall	Room E 2F, Conference Room III	Room F 2F, Conference Room IV
9:30~10:30	Opening Ceremony Plenary Lecture					
10:30~11:55	7A-A6: Powder Manufacturing and Treatment	7B-E8: Electronic Components and Materials	7C-E3: Nano and Ultra-fine Materials	7D-E6: Bio-Medical Materials	7E-C1: Synthesis, Processing, and Properties of Powder	7F-E5: Functionally Graded and Layered Materials
12:10~13:30	Lunch Time					
13:30~15:10	7A-D3: PIM (Powder Injection Molding)	7B-E8: Electronic Components and Materials	7C-E3: Nano and Ultra-fine Materials	/	7E-C1: Synthesis, Processing, and Properties of Powder	7F-E5: Functionally Graded and Layered Materials
15:00~15:30	Coffee Time					
15:30~17:10	7A-D3: PIM (Powder Injection Molding)	7B-E8: Electronic Components and Materials	7C-E2: Metallic glasses (Bulk, Rapidly quenched)	Poster Session	7E-C1: Synthesis, Processing, and Properties of Powder	7F-A3: Spark Plasma Sintering
17:30~18:50	7A-A2: Sintering and Post Processing	7B-A7: Mechanical Alloying -fundamental	7C-E2: Metallic glasses (Bulk, Rapidly quenched)		7E-C1: Synthesis, Processing, and Properties of Powder	7F-A3: Spark Plasma Sintering
19:00~20:00	Poter Coretime (2F, International Conference Hall III)					

**November 8 (Wed)**

	Room A 1F, Centennial Hall	Room B F, International Conference Hall	Room C F, International Conference Hall	Room D F, International Conference Hall	Room E 2F, Conference Room III	Room F 2F, Conference Room IV
9:20~11:30	8A-A2: Sintering and Post Processing	8B-A7: Mechanical Alloying -designing hetero-structure	8C-E2: Metallic glasses (Bulk, Rapidly quenched)	/	8E-E4: Optical Materials	8F-E7: Magnetic, Electric, Dielectric and Thermoelectric Materials
11:30~13:00	Lunch Time					
13:00~15:00	8A-A4: Iron and Steel Materials	8B-E1: Alloys, Composites, and Hybrids/Nanoparticles and Porous Materials	8C-D4: Additive Manufacturing with Powder Metallurgy	8D-A1: Modeling and Simulation	8E-E4: Optical Materials	8F-E7: Magnetic, Electric, Dielectric and Thermoelectric Materials
15:00~15:30	Coffee Time					
15:30~17:00	8A-A4: Iron and Steel Materials	8B-E1: Alloys, Composites, and Hybrids/Nanoparticles and Porous Materials	8C-D4: Additive Manufacturing with Powder Metallurgy	8D-B1: Hard Materials	8E-E4: Optical Materials	8F-E7: Magnetic, Electric, Dielectric and Thermoelectric Materials
17:00~17:30	JSPM 60th Anniversary Ceremony (1F, Centennial Hall)					
19:00~21:00	Conference Party (SODOH HIGASHIYAMA KYOTO)					

**November 9 (Thu)**

	Room A 1F, Centennial Hall	Room B F, International Conference Hall	Room C F, International Conference Hall	Room D F, International Conference Hall	Room E 2F, Conference Room III	Room F 2F, Conference Room IV
9:20~11:30	/	9B-E1: Alloys, Composites, and Hybrids/Nanoparticles and Porous Materials	9C-D4: Additive Manufacturing with Powder Metallurgy	9D-B1: Hard Materials	9E-A5 Non-ferrous Materials	9F-E7: Magnetic, Electric, Dielectric and Thermoelectric Materials

2F, Conference Room I & II  
Exhibition

# Program

**Tue. Nov. 7, 2017**

**Room A**

9:30 AM-10:20AM

## Opening Ceremony

Welcome Speech

Chairman of the JPMIC2017 Organizing Committee, Akira KAWASAKI

## Plenary Lecture

Chairperson: Akira KAWASAKI (Tohoku University, Japan)

**[Plenary-01]**

**Fabrication and Characterization of Cu/C Composite Materials Using An Innovative Solid-liquid Co-existent Phase Process**

**Jean-Francois SILVAIN (ICMCB-CNRS (France))**

Tue. Nov 7, 2017

Room A

Oral presentation | A | A-2:Sintering and Post Processing

**[7A-A2] Sintering and Post Processing**

Chairperson: Hideaki MATSUBARA (Tohoku University, Japan),

Chairperson: Katsuyoshi KONDOH (Osaka University, Japan)

5:30 PM - 6:30 PM Room A (1F, Centennial Hall)

**[7A-A2-01] Fabrication of Multiple and Tapered Nozzle****Holes for Diesel Engine by High-speed Centrifugal Compaction (HCP) Combined with 3D-Printed Cores, Part3**

Hiroyuki Y. Suzuki<sup>1</sup>, \*Taketoshi Wada<sup>2</sup>, Yoshio Zama<sup>3</sup> (1. Graduate School of Education, Hiroshima University (Japan), 2. Graduate School of Mechanical Engineering, Hiroshima University(Japan), 3. Graduate School of Mechanical Engineering, Gunma University(Japan))

5:30 PM - 5:50 PM

**[7A-A2-02] Development of All-ceramic Artificial Teeth Using a High-speed Centrifugal Compaction Process with a 3D printer**

Hiroyuki Y Suzuki<sup>2</sup>, \*Michiyoshi Ishii<sup>1</sup> (1. Mechanical engineering, Hiroshima university(Japan), 2. Graduate school of Education(Japan))

5:50 PM - 6:10 PM

**[7A-A2-03] Wear Resistance of Sintered Pure Iron Treated by Acetylene Gas Carburizing Process**

\*Muhammad Kozin<sup>1,2</sup>, Naoya Yamada<sup>3</sup>, Masatoshi Aramaki<sup>1</sup>, Yukiko Ozaki<sup>1</sup>, Osamu Furukimi<sup>1</sup> (1. Department of Materials Science and Engineering, Kyushu University(Japan), 2. Agency for the Assessment and Application of Technology(Indonesia), 3. Nihon Techno Corporation Limited(Japan))

6:10 PM - 6:30 PM

Oral presentation | A | A-6:Powder Manufacturing and Treatment

**[7A-A6] Powder Manufacturing and Treatment**

Chairperson: Norimitsu HIROSE (Hoganas Japan KK, Japan),

Chairperson: Naomichi NAKAMURA(JFE Steel Corporation, Japan)

10:30 AM - 11:55 AM Room A (1F, Centennial Hall)

**[7A-A6-01] [INVITED] High Precision Metal Powder Mix Concept Engineered for High Precision VWT Components**\*Ulf Engstrom<sup>1</sup> (1. Hoganas

(China)Co.,Ltd(China))

10:30 AM - 10:55 AM

**[7A-A6-02] [INVITED] A numerical analysis of the gas flow in an annealing furnace applied to steel powder production**

\*Naoya HONDA<sup>1</sup>, Itsuya SATO<sup>1</sup>, Yoshitomo SUZUKI<sup>1</sup>, Kazuhiro OTSUKA<sup>1</sup>, Akio KOBAYASHI<sup>1</sup>, Naomichi NAKAMURA<sup>1</sup> (1. JFE-Steel Corporation(Japan))

10:55 AM - 11:15 AM

**[7A-A6-03] The Sinterability of Cu-Al-Fe, Cu-Al-Ni and Cu-Al-Mn Alloy Powders**

\*Satoru Miyakawa<sup>1</sup>, Sachiko Masuoka<sup>1</sup>, Kazunari Ezaki<sup>1</sup>, Yoichiro Shimpō<sup>1</sup>, Yoshiro Arami<sup>1</sup> (1. Fukuda Metal Foil & Powder Co., Ltd.(Japan))

11:15 AM - 11:35 AM

**[7A-A6-04] Proposal of new fabrication method for metal nano-dots**

\*Yoichi OKAMOTO<sup>1,2</sup>, kenya NIMURA<sup>3</sup>, Hiroshi NAKASTUGAWA<sup>3</sup> (1. National Institute for Materials Science(Japan), 2. National Defense Academy(Japan), 3. Yokohama National University(Japan))

11:35 AM - 11:55 AM

Oral presentation | D | D-3:PIM (Powder Injection Molding)

**[7A-D3] PIM (Powder Injection Molding)**

Chairperson: Seong Jin PARK (Pohang University of Science and Technology (POSTECH), Korea), Chairperson: Hidefumi NAKAMURA (Epson Atmix Corporation, Japan)

1:30 PM - 3:10 PM Room A (1F, Centennial Hall)

**[7A-D3-01] [INVITED] Development of Super High Performance Injection Molded Ti Alloy Compacts**

\*Hideshi Miura<sup>1</sup>, Kentaro Kudo<sup>2</sup>, Toshiko Osada<sup>3</sup>, kazunari Shinagawa<sup>2</sup>, Yoshinori Itoh<sup>4</sup> (1. Research Center for Steel of Kyushu University(Japan), 2. Graduate school of Kyushu University(Japan), 3. Tokyo Metropolitan University(Japan), 4. Industrial Research Institute of Shizuoka Prefecture(Japan))

1:30 PM - 1:50 PM

**[7A-D3-02] [INVITED] Fabrication of High Performance and Cost Reduced  $\alpha + \beta$  type Ti Alloy Compacts by Metal Injection Molding**

\*Yoshinori ITOH<sup>1</sup>, Hideshi MIURA<sup>2</sup> (1. Hamamatsu Technical Support Center Industrial Research Institute of Shizuoka Prefecture(Japan), 2. Research

Center for Steel, Kyushu University(Japan))

1:50 PM - 2:10 PM

**[7A-D3-03] The influence of alpha plus beta region sintering on the mechanical properties of injection molded Ti-6Al-4V compacts**

\*Kentaro KUDO<sup>1</sup>, Toshiko OSADA<sup>2</sup>, Kazunari SHINAGAWA<sup>3</sup>, Hideshi MIURA<sup>4</sup> (1. Department of Mechanical Engineering, Graduate school of Kyushu University(Japan), 2. Department of Mechanical Engineering, Graduate School of Science and Engineering, Tokyo Metropolitan University(Japan), 3. Department of Mechanical Engineering, Kyushu University(Japan), 4. Research Center for Steel, Kyushu University(Japan))

2:10 PM - 2:30 PM

**[7A-D3-04] Graphene Nanoplatelets Reinforced Copper Matrix by using Powder Injection Molding Process**

\*Norhamidi MUHAMAD<sup>1</sup>, Nor Nabilla Kadiman<sup>1</sup>, Abu Bakar Sulong<sup>1</sup>, Natasha Emira Azaman<sup>1</sup>, Muhammad Omar Abdul Rashid<sup>1</sup> (1. UNIVERSITI KEBANGSAAN MALAYSIA(Malaysia))

2:30 PM - 2:50 PM

**[7A-D3-05] [INVITED] In Situ Observation of Deformation during Debinding and Sintering Process of MIM Parts**

\*Toshiko OSADA<sup>1</sup>, Satoshi KOBAYASHI<sup>1</sup>, Kazunari SHINAGAWA<sup>2</sup> (1. Tokyo Metropolitan University(Japan), 2. Kyushu University(Japan))

2:50 PM - 3:10 PM

Oral presentation | D | D-3:PIM (Powder Injection Molding)

**[7A-D3] PIM (Powder Injection Molding)**

Chairperson: Toshiko OSADA (Tokyo metropolitan university, Japan), Chairperson: Kenji DOI (Osaka Yakin Kogyo Co., Ltd., Japan)

3:30 PM - 5:15 PM Room A (1F, Centennial Hall)

**[7A-D3-06] [INVITED] Application of Powder Injection Molding Process for Industrial Fields**

Joo Won OH<sup>1</sup>, Daseul SHIN<sup>1</sup>, Jae Man PARK<sup>1</sup>, Chang Woo GAL<sup>1</sup>, \*Seong Jin Park<sup>1</sup> (1. Pohang University of Science and Technology (POSTECH)(Korea))

3:30 PM - 3:55 PM

**[7A-D3-07] [INVITED] Application of Metal Injection Molding to Aluminide Intermetallic Compounds**

\*kiyotaka KATOU<sup>1</sup> (1. Magnetic Powder Metallurgy

Research Center, National Institute of Advanced Science and Technology(Japan))

3:55 PM - 4:15 PM

**[7A-D3-08] Development of Inconel 713C by Metal Injection Molding**

\*Eiji Endo<sup>1</sup>, Hideki Nakayama<sup>1</sup>, Masaru Sakamura<sup>2</sup> (1. CASTEM CO.,LTD(Japan), 2. Hiroshima Prefectural Technology Research Institute(Japan))

4:15 PM - 4:35 PM

**[7A-D3-09] Characterization of Metal Injection Molding Feedstock using Mixing Torque Data**

\*Shinta VIRDHIAN<sup>1</sup>, Muhamad Aldino WIJAYA<sup>2</sup>, Bambang IRAWAN<sup>3</sup>, Bambang SUHARNO<sup>4</sup>, Sugeng SUPRIADI<sup>2</sup>, Najmi M BALFAS<sup>2</sup> (1. Balai Besar Logam dan Mesin, Ministry of Industry(Indonesia), 2. Dept. of Mechanical Engineering, University of Indonesia(Indonesia), 3. Dept. of Dental Material, University of Indonesia(Indonesia), 4. Dept. of Metalurgy and Material Engineering, University of Indonesia(Indonesia))

4:35 PM - 4:55 PM

**[7A-D3-10] New materials for Powder Injection Molding - High Entropy Alloys and Ceramic Matrix Composites**

\*Volker Piotter<sup>1</sup>, Klaus Plewa<sup>1</sup>, Metin Tueluemen<sup>1</sup> (1. Karlsruhe Institute of Technology(Germany))

4:55 PM - 5:15 PM

**Room B**

Oral presentation | A | A-7:Mechanical Alloying

**[7B-A7] Mechanical Alloying - fundamental**

Chairperson: Kei AMEYAMA (Ritsumeikan University, Japan), Chairperson: Keiichi N. ISHIHARA(Kyoto University, Japan)

5:30 PM - 6:40 PM Room B (2F, International Conference Hall I)

**[7B-A7-01] [INVITED] Current State and Proposed Scenarios of Phase****Transformations in Alloys at Mechanical Alloying**

\*Anatoly Yegorovich Yermakov<sup>1</sup>, Yuri Nikolaevich Gornostyrev<sup>1</sup>, Ilya Kimovich Razumov<sup>1</sup> (1. M.N. Miheev Institute of Metal Physics of Ural Branch of Russian Academy of Sciences(Russia))

5:30 PM - 5:55 PM

**[7B-A7-02] [Memorial Lecture of JSPM Award] The potential of mechanical alloying for new materials processing technology**

\*Keiichi N. ISHIHARA<sup>1</sup> (1. Graduate School of Energy Science, Kyoto University (Japan))  
5:55 PM - 6:20 PM

[7B-A7-03] **[INVITED] Application of Mechanical Alloying for Processing of Various Functional and Structural Materials**

\*Dariusz OLESZAK<sup>1</sup> (1. Faculty of Materials Science and Engineering, Warsaw University of Technology(Poland))  
6:20 PM - 6:40 PM

Oral presentation | E | E-8:Electronic Components and Materials

[7B-E8] **Electronic Components and Materials**

Chairperson: Masaki AZUMA (Tokyo Institute of Technology, Japan), Chairperson: Alexei A. BELIK (National Institute for Materials Science, Japan)

10:30 AM - 11:55 AM Room B (2F, International Conference Hall I)

[7B-E8-01] **[INVITED] Design of lead-free piezoceramic composites**

\*Juergen ROEDEL<sup>1</sup>, Lalitha VENKATARAMAN<sup>1</sup>, Lukas RIEMER<sup>1</sup>, Jurij KORUZA<sup>1</sup> (1. Technische Universitaet Darmstadt(Germany))  
10:30 AM - 10:55 AM

[7B-E8-02] **Electric reliability and segregated manganese behaviour on multilayered (Li,Na,K)NbO<sub>3</sub> piezoceramics with Pd electrodes**

\*Keiichi HATANO<sup>1</sup>, Hiroyuki SHIMIZU<sup>1</sup>, Yutaka DOSHIDA<sup>1</sup> (1. TAIYO YUDEN CO., LTD.(Japan))  
10:55 AM - 11:15 AM

[7B-E8-03] **[INVITED] Recent Progress in Lead-free Alkali Niobate Piezoceramics**

\*Ken-ichi KAKIMOTO<sup>1</sup> (1. Nagoya Institute of Technology(Japan))  
11:15 AM - 11:35 AM

[7B-E8-04] **[INVITED] Applications of Piezoelectric Devices for Internet of Things**

\*Junichiro MATAGA<sup>1</sup>, Masatake TAKAHASHI<sup>1</sup>, Katsumi KIKUCHI<sup>1</sup>, Yasuhiro SASAKI<sup>1</sup> (1. NEC Corporation(Japan))  
11:35 AM - 11:55 AM

Oral presentation | E | E-8:Electronic Components and Materials

[7B-E8] **Electronic Components and Materials**

Chairperson: Juergen ROEDEL (Technische Universitaet Darmstadt, Germany), Chairperson: Hiroshi KISHI (TAIYO YUDEN CO., LTD, Japan)

1:30 PM - 3:10 PM Room B (2F, International Conference Hall I)

[7B-E8-05] **[INVITED] properties and electric-field-induced lattice deformation of Bi(Mg<sub>1/2</sub>Ti<sub>1/2</sub>)O<sub>3</sub>-modified BaTiO<sub>3</sub>-BiFeO<sub>3</sub> ceramics**

\*Ichiro FUJII<sup>1</sup>, Tomoya AIZAWA<sup>1</sup>, Shintaro UENO<sup>1</sup>, Nobuhiro KUMADA<sup>1</sup>, Chikako MORIYOSHI<sup>2</sup>, Yoshihiro KUROIWA<sup>2</sup>, Satoshi WADA<sup>1</sup> (1. University of Yamanashi(Japan), 2. Hiroshima University(Japan))  
1:30 PM - 1:50 PM

[7B-E8-06] **[INVITED] Bi-based non-centrosymmetric perovskites**

\*Alexei A. BELIK<sup>1</sup> (1. National Institute for Materials Science(Japan))  
1:50 PM - 2:10 PM

[7B-E8-07] **Enhanced piezoelectric response due to polarization rotation in cobalt-substituted BiFeO<sub>3</sub> epitaxial thin films**

\*Keisuke SHIMIZU<sup>1</sup>, Hajime HOJO<sup>2</sup>, Yuichi IKUHARA<sup>3</sup>, Masaki AZUMA<sup>1</sup> (1. Tokyo Institute of Technology(Japan), 2. Kyushu University(Japan), 3. University of Tokyo(Japan))  
2:10 PM - 2:30 PM

[7B-E8-08] **Pyroelectric behavior of lead-free (Ba, Ca)(Ti, Zr)O<sub>3</sub> based materials**

\*Daisuke Ando<sup>1</sup>, Teruaki Fuchigami<sup>1</sup>, Ken-ichi Kakimoto<sup>1,2</sup> (1. Department of Life Science and Applied Chemistry, Nagoya Institute of Technology(Japan), 2. Frontier Research Institute for Materials Science, Nagoya Institute of Technology(Japan))  
2:30 PM - 2:50 PM

[7B-E8-09] **[INVITED] Observation of charged domain walls in improper ferroelectric materials**

Kousuke Kurushima<sup>2,1</sup>, S-W Cheong<sup>3</sup>, Yui Ishii<sup>1</sup>, \*Shigeo Mori<sup>1</sup> (1. Osaka Prefecture University(Japan), 2. Toray Research Center(Japan), 3. Rutgers Center of Emergent Materials, Rutgers University(United States of America))  
2:50 PM - 3:10 PM

Oral presentation | E | E-8:Electronic Components and Materials

[7B-E8] **Electronic Components and Materials**

Chairperson: Yuzo SHIMADA (Namics Corporation, Japan), Chairperson: Shigeo MORI (Osaka Prefecture University, Japan)

3:30 PM - 5:10 PM Room B (2F, International Conference Hall I)

[7B-E8-10] **[INVITED] Development of Functional Materials with Ubiquitous Oxides**

\*Hiroki Taniguchi<sup>1</sup> (1. Department of Physics, Nagoya University(Japan))  
3:30 PM - 3:50 PM

[7B-E8-11] **[INVITED] Features of Ga-doped ZnO tablets and unique properties of ZnO-based thin films**

\*Tetsuya YAMAMOTO<sup>1</sup>, Akira Senju<sup>2</sup>, Nobuyuki Kuroiwa<sup>2</sup>, Taisei Yamamoto<sup>2</sup>, Junichi Nomoto<sup>1</sup> (1. Kochi University of Technology(Japan), 2. Hakusui Tech Co.,Ltd.(Japan))  
3:50 PM - 4:10 PM

[7B-E8-12] **Effects of microstructure of dust cores on permeability under bias magnetic field**

\*Tomofumi KURODA<sup>1</sup> (1. Materials Development Center, TDK Corporation(Japan))  
4:10 PM - 4:30 PM

[7B-E8-13] **Fabrication of open-cell type porous carbon film as free-standing electrode for lithium-ion battery by liquid metal dealloying**

\*WONYOUNG PARK<sup>1</sup>, TAKESHI WADA<sup>2</sup>, HIDEMI KATO<sup>2</sup> (1. Graduate School of Engineering, Tohoku University(Japan), 2. Institute for Materials Research, Tohoku University(Japan))  
4:30 PM - 4:50 PM

[7B-E8-14] **[INVITED] Amorphous sulfide active materials with high capacity for all-solid-state rechargeable batteries**

\*Akitoshi HAYASHI<sup>1</sup>, Masahiro TATSUMISAGO<sup>1</sup> (1. Osaka Prefecture University(Japan))  
4:50 PM - 5:10 PM

## Room C

Oral presentation | E | E-2: Metallic glasses (Bulk, Rapidly quenched)

[7C-E2] **Metallic glasses (Bulk, Rapidly quenched)**

Chairperson: Junji SAIDA (Tohoku University, Japan),  
Chairperson: Teruo BITOH (Akita Prefectural University, Japan)  
3:30 PM - 4:55 PM Room C (2F, International Conference Hall II)

[7C-E2-01] **[INVITED] Size-dependent shear banding behavior in metallic glass particle**

S. Y. Kim<sup>1</sup>, J. W. Kim<sup>1</sup>, K. Nakayama<sup>2</sup>, \*Eun Soo Park<sup>1</sup>  
(1. Seoul National University(Korea), 2. Tohoku University(Japan))  
3:30 PM - 3:55 PM

[7C-E2-02] **Plastic Deformation Behavior of Zr-Cu-Ni-Al-NM (NM: Noble Metal) Bulk Metallic Glasses**

\*Tohru YAMASAKI<sup>1</sup>, Toshiyuki DOI<sup>2</sup>, Kazutaka FUJITA<sup>3</sup>, Hidemi KATO<sup>4</sup> (1. Department of Materials and Synchrotron Radiation Engineering, Graduate School of Engineering, University of Hyogo(Japan), 2. Graduate Student, University of Hyogo(Japan), 3. Department of Mechanical Engineering, National Institute of Technology, Ube College(Japan), 4. Institute for Materials Research, Tohoku University(Japan))  
3:55 PM - 4:15 PM

[7C-E2-03] **Influences of Casting Diameter, Surface Defect and Low Temperature Thermal Cycles on Improvement of Ductility in Bulk Metallic Glass**

\*Chihiro KISAKI<sup>1</sup>, Kazutaka FUJITA<sup>2</sup>, Yoshikatu YAMAZAKI<sup>2</sup>, Kenji AMIYA<sup>3</sup>, Tohru YAMASAKI<sup>4</sup>, Hidemi KATO<sup>5</sup> (1. Advanced Production System Engineering Course student, National Institute of Technology, Ube College(Japan), 2. Department of Mechanical Engineering, National Institute of Technology, Ube College(Japan), 3. Institute for Materials Research, Trans-Regional Corporation Center for Industrial Materials Research, Tohoku University(Japan), 4. Research Center for Nano-Micro Structure Science and Engineering, Graduate School of Engineering, University of Hyogo(Japan), 5. Institute for Materials Research, Tohoku University(Japan))  
4:15 PM - 4:35 PM

[7C-E2-04] **Impact of the thermal and mechanical processing on mechanical properties of Ti-Ni-Cu-Zr based crystal/glassy alloys**

\*JING JIANG<sup>1</sup>, Hidemi KATO<sup>2</sup>, Dmitri V LOUZGUINE-LUZGIN<sup>3</sup> (1. Graduate School of Engineering , Tohoku University.(Japan), 2. Institute for Materials Research, Tohoku University.(Japan), 3. Advanced Institute for Materials Research, Tohoku University.(Japan))  
4:35 PM - 4:55 PM

Oral presentation | E | E-2: Metallic glasses (Bulk, Rapidly quenched)

[7C-E2] **Metallic glasses (Bulk, Rapidly quenched)**

Chairperson: Tohru YAMASAKI (University of Hyogo, Japan),  
Chairperson: Eun Soo PARK (Seoul National University, Korea)  
5:30 PM - 6:30 PM Room C (2F, International Conference Hall II)

[7C-E2-05] **[INVITED] Mechanically-induced Structural Rejuvenation by HPT deformation in Zr-Cu-Al**

**Bulk Metallic Glass**

\*Koichi TSUCHIYA<sup>1,2</sup>, Jian QIANG<sup>1,2</sup>, Shinji KOHARA<sup>1</sup>, Yohei ONODERA<sup>3,1</sup>, Osami SAKATA<sup>1</sup> (1. National Institute for Materials Science(Japan), 2. University of Tsukuba(Japan), 3. Kyoto University(Japan))  
5:30 PM - 5:50 PM

[7C-E2-06] **[INVITED] Structural rejuvenation by thermal process and improved mechanical properties in Zr-based metallic glasses**

\*Junji SAIDA<sup>1</sup>, Wei GUO, Rui YAMADA (1. Tohoku University(Japan))  
5:50 PM - 6:10 PM

[7C-E2-07] **Relation between tensile plastic elongation and beta relaxation in severely deformed bulk metallic glass**

\*Nozomu Adachi<sup>1</sup>, Yoshikazu Todaka<sup>1</sup> (1. Toyohashi University of Technology(Japan))  
6:10 PM - 6:30 PM

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Oral presentation | E | E-3:Nano and Ultra-fine Materials

[7C-E3] Nano and Ultra-fine Materials

Chairperson: Kei AMEYAMA (Ritsumeikan University, Japan),  
Chairperson: Hidemi KATO (Tohoku University, Japan)  
10:30 AM - 12:30 PM Room C (2F, International Conference Hall II)

[7C-E3-01] **[INVITED] Severe Plastic Deformation under High Pressure: Powder Consolidation and Synthesis for Enhanced Mechanical Properties**

\*Zenji HORITA<sup>1,2</sup> (1. Department of Materials Science and Engineering, Kyushu University(Japan), 2. WPI, International Institute for Carbon-Neutral Energy Research (WPI-I2CNER), Kyushu University(Japan))  
10:30 AM - 10:50 AM

[7C-E3-02] **Segregation of Solute Atoms in Mg-Zn Alloys during Severe Plastic Deformation by HPT**

\*Koichi TSUCHIYA<sup>1</sup>, Alok SINGH<sup>1</sup>, Dudekla Althaf BASHA<sup>1</sup>, Fanqiang MENG<sup>1,2</sup>, Hidetoshi SOMEKAWA<sup>1</sup> (1. National Institute for Materials Science(Japan), 2. Ames laboratory, Iowa State University(United States of America))  
10:50 AM - 11:10 AM

[7C-E3-03] **Effect of Elemental Combination on Friction Stress and Hall-Petch Relationship in High / Medium Entropy Alloys Processed by Severe Plastic Deformation and Subsequent**

**Annealing**

\*Shuhei YOSHIDA<sup>1</sup>, Tilak BHATTACHARJEE<sup>1,2</sup>, Yu BAI<sup>1,2</sup>, Nobuhiro TSUJI<sup>1,2</sup> (1. Department of Materials Science and Engineering, Kyoto University(Japan), 2. Elements Strategy Initiative for Structural Materials (ESISM), Kyoto University(Japan))  
11:10 AM - 11:30 AM

[7C-E3-04] **Change in electrical resistivity of fcc metals caused by accumulative roll bonding**

\*Yoji MIYAJIMA<sup>1</sup> (1. Tokyo Institute of Technology(Japan))  
11:30 AM - 11:50 AM

[7C-E3-05] **Deformation behavior in ultrafine-grained pure Fe with a large uniform elongation**

\*SATO Hirokazu<sup>1</sup>, Adachi Nozomu<sup>1</sup>, Todaka Yoshikazu<sup>1</sup> (1. Toyohashi University of Technology(Japan))  
11:50 AM - 12:10 PM

[7C-E3-06] **Effect of colony size on tensile properties of lamellar and bi-lamellar microstructures in Ti-6Al-4V alloy**

\*Jangho Yi<sup>1</sup>, Yan CHONG<sup>1</sup>, Nobuhiro TSUJI<sup>1,2</sup> (1. Department of Materials Science & Engineering, Kyoto University(Japan), 2. Elements Strategy Initiative for Structural Materials (ESISM), Kyoto University(Japan))  
12:10 PM - 12:30 PM

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Oral presentation | E | E-3:Nano and Ultra-fine Materials

[7C-E3] Nano and Ultra-fine Materials

Chairperson: Zenji HORITA (Kyushu University, Japan),  
Chairperson: Koichi Tsuchiya TSUCHIYA (National Institute for Materials Science, Japan)  
1:30 PM - 3:10 PM Room C (2F, International Conference Hall II)

[7C-E3-07] **[INVITED] Nano-Meso Heterogeneous Microstructure Design for High Performance Metallic Materials**

\*Kei AMEYAMA<sup>1</sup> (1. Ritsumeikan University(Japan))  
1:30 PM - 1:50 PM

[7C-E3-08] **[INVITED] Suppressing Ligament Growth of Porous Metals during Liquid Metal Dealloying Process**

\*Hidemi KATO<sup>1</sup>, Takeshi WADA<sup>1</sup>, Masashi TSUDA<sup>1</sup> (1. Institute for Materials Research, Tohoku University(Japan))



1:50 PM - 2:10 PM

**[7C-E3-09] Creation of individual few-layer graphene incorporated in an aluminum matrix**

\*WEIWEI ZHOU<sup>1</sup>, Keiko KIKUCHI<sup>1</sup>, Naoyuki NOMURA<sup>1</sup>, Akira KAWASAKI<sup>1</sup> (1. Tohoku University(Japan))

2:10 PM - 2:30 PM

**[7C-E3-10] High-temperature pressurized sintering of yttria-stabilized tetragonal zirconia powder compacts by 28-GHz microwave irradiation**

\*Kozaburo TAI<sup>1</sup>, Tatsuo KUMAGAI<sup>1</sup> (1. National Defence Academy(Japan))

2:30 PM - 2:50 PM

**[7C-E3-11] Ring-like assembly of silica nanospheres in the presence of amphiphilic block copolymers**

\*Chisato ATSUMI<sup>1</sup>, Shintaro ARAOKA<sup>2</sup>, Ayae SUGAWARA-NARUTAKI<sup>1</sup>, Arihiro KANAZAWA<sup>2</sup>, Sadahito AOSHIMA<sup>2</sup>, Chikara OHTSUKI<sup>1</sup> (1. Nagoya University(Japan), 2. Osaka University(Japan))

2:50 PM - 3:10 PM

**Room D**

Oral presentation | E | E-6:Bio-Medical Materials

**[7D-E6] Bio-Medical Materials**

Chairperson: Chikara OHTSUKI (Nagoya University, Japan),  
Chairperson: Takeshi YABUTSUKA (Kyoto University, Japan)  
10:30 AM - 12:35 PM Room D\_Oral (2F, International Conference Hall III)

**[7D-E6-01] Incorporation behavior of alkylammonium into sheet-like calcium silicate hydrate**

\*Jin NAKAMURA<sup>1</sup>, Ayae SUGAWARA-NARUTAKI<sup>1</sup>, Chikara OHTSUKI<sup>1</sup> (1. Nagoya University(Japan))

10:30 AM - 10:50 AM

**[7D-E6-02] Effect of magnesia doping on phase change during sintering process of  $\alpha$ -tricalcium phosphate**

\*Takaharu KATSU<sup>1</sup>, Jin NAKAMURA<sup>1</sup>, Ayae SUGAWARA-NARUTAKI<sup>1</sup>, Chikara OHTSUKI<sup>1</sup> (1. Nagoya University(Japan))

10:50 AM - 11:10 AM

**[7D-E6-03] Design of osteoconductive materials derived from organic substances with incorporation of calcium ions and silanol groups**

\*Chikara OHTSUKI<sup>1</sup>, Jin NAKAMURA<sup>1</sup>, Ayae SUGAWARA-NARUTAKI<sup>1</sup> (1. Nagoya

University(Japan))

11:10 AM - 11:30 AM

**[7D-E6-04] Fabrication of bioactive ultrahigh molecular weight polyethylene by calcium phosphate nucleation in simulated body fluid**

\*Takeshi YABUTSUKA<sup>1</sup>, Shigeomi TAKAI<sup>1</sup>, Takeshi YAO<sup>2</sup> (1. Department of Fundamental Energy Science, Graduate School of Energy Science, Kyoto University(Japan), 2. National Institute of Technology, Kagawa College(Japan))

11:30 AM - 11:50 AM

**[7D-E6-05] [INVITED] Siloxane-doped calcium carbonate powders for bone regeneration**

\*Akiko OBATA<sup>1</sup>, Gavin JELL<sup>2</sup>, Toshihiro KASUGA<sup>1</sup> (1. Division of Advanced Ceramics, Nagoya Institute of Technology(Japan), 2. Division of Surgery and Interventional Science, Royal Free NHS Trust Hospital, University College London(UK))

11:50 AM - 12:10 PM

**[7D-E6-06] [INVITED] A new approach for bioceramic 3D printing**

\*Hui-Suk YUN<sup>1</sup> (1. Powder & Ceramics Division, Korean Institute of Materials Science(Korea))

12:10 PM - 12:35 PM

**Room E**

Oral presentation | C | C-1:Synthesis, Processing, and Properties of Powder

**[7E-C1] Synthesis, Processing, and Properties of Powder**

Chairperson: Takashi SHIRAI (Nagoya Institute of Technology, Japan), Chairperson: Miki INADA (Kyushu University, Japan)  
10:30 AM - 12:15 PM Room E (2F, Conference Room III)

**[7E-C1-01] [INVITED] From Colloidal Solution to Nanocomposite Materials: ZnO, SiO<sub>2</sub> and Transition Metal Cluster**

\*Fabien GRASSET<sup>1,2,4</sup>, Ngan.T.K. NGUYEN<sup>1,2</sup>, Wanghui CHEN<sup>1,2</sup>, Adele RENAUD<sup>3</sup>, Norio SAITO<sup>1,2</sup>, Benjamin DIERRE<sup>1,4</sup>, Noriko SAITO<sup>2</sup>, Noee DUMAIT<sup>3</sup>, Stéphane CORDIER<sup>3</sup>, Naoki OHASHI<sup>1,2,4</sup>, Tetsuo UCHIKOSHI<sup>1,2</sup> (1. LINK UMI 3629 CNRS-Saint Gobain-NIMS, NIMS(Japan), 2. Research Center for Functional Materials, NIMS(Japan), 3. ISCR UMR 6226 CNRS-University of Rennes (France), 4. NIMS-Saint-Gobain COE for Advanced Materials, NIMS(Japan))

10:30 AM - 10:55 AM

[7E-C1-02] **SHS-PRODUCED CAST REFRACTORY ALLOYS FOR REPROCESSING INTO MICRO GRANULES USED IN 3D ADDITIVE TECHNOLOGIES**

\*Vladimir Sanin<sup>1</sup>, Vladimir Yukhvid<sup>1</sup>, Dmitriy Andreev<sup>1</sup>, Denis Ikornikov<sup>1</sup>, Evgeniy Levashov<sup>2</sup>, Yury Pogozhev<sup>2</sup> (1. Institute of Structural Macrokinetics and Materials Science (ISMAN) (Russia), 2. National University of Science and Technology MISIS(Russia))

10:55 AM - 11:15 AM

[7E-C1-03] **Effect of silicate ions on mechanical properties of SiO<sub>2</sub>/graphite composite materials**

\*Satono Goto<sup>1,2</sup>, Chika Takai<sup>1,2</sup>, Hadi Razavi-Khosroshahi<sup>1,2</sup>, Masayoshi Fuji<sup>1,2</sup> (1. Nagoya institute of technology(Japan), 2. Advanced Ceramics Reseach Center(Japan))

11:15 AM - 11:35 AM

[7E-C1-04] **Effect of the PAA concentration on the hollow silica nanoparticles prepared by using the PAA/NH<sub>3</sub> emulsion template method**

\*Yuki NAKASHIMA<sup>1</sup>, Chika TAKAI<sup>1</sup>, Hadi Razavi<sup>1</sup>, Masayoshi FUJI<sup>1</sup> (1. Nagoya Institute of Technology(Japan))

11:35 AM - 11:55 AM

[7E-C1-05] **Chemical Processing of Garnet-type Ion Conductive Li<sub>7</sub>La<sub>3</sub>Zr<sub>2</sub>O<sub>12</sub> Powders by Sol-Mixing method for High Performance All Solid-type Li-ion Batteries**

\*Hisao SUZUKI<sup>1</sup>, Jeevan Kumar Padarti<sup>1</sup>, Mamoru Senna<sup>1</sup>, Takahiko Kawaguchi<sup>2</sup>, Naonori Sakamoto<sup>1</sup>, Naoki Wakiya<sup>1</sup> (1. Research Institute of Electronics, Shizuoka University(Japan), 2. Graduate School of Engineering, Shizuoka University(Japan))

11:55 AM - 12:15 PM

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Oral presentation | C | C-1:Synthesis, Processing, and Properties of Powder

[7E-C1] **Synthesis, Processing, and Properties of Powder**

Chairperson: Hisao SUZUKI (Shizuoka University, Japan),  
Chairperson: Chika TAKAI (Nagoya Institute of Technology, Japan)

1:30 PM - 3:10 PM Room E (2F, Conference Room III)

[7E-C1-06] **Photocatalytic properties and plastic degradation of synthetic rutile TiO<sub>2</sub> from natural ore**

\*Wanichaya Mekprasart MEKPRASART<sup>1</sup>, Titarat THONGPRADITH<sup>1</sup>, Wisanu PECHARAPA<sup>1</sup>, Keiichi N.

iSHIHARA<sup>2</sup> (1. College of Nanotechnology, King Mongkut's Institute of Technology Ladkrabang (KMITL)(Thailand), 2. Graduate School of Energy Science, Kyoto University(Japan))

1:30 PM - 1:50 PM

[7E-C1-07] **The synthesis of a porous-type of TiO<sub>2</sub> with rutile structure**

\*Yukiya Yamashita<sup>1,2</sup>, Kei Ishiguro<sup>1</sup>, Daisuke Nakai<sup>1</sup>, Masayoshi Fuji<sup>2</sup> (1. NIPPON AEROSIL(Japan), 2. Nagoya Institute of Tecnology(Japan))

1:50 PM - 2:10 PM

[7E-C1-08] **Synthesis and shell thickness control of TiO<sub>2</sub> hollow particles with enhanced photocatalytic activity**

\*Wenhao SHAO<sup>1</sup>, Chika TAKAI<sup>1</sup>, Hadi RAZAVI-KHOSROSHAHI<sup>1</sup>, Masayoshi FUJI<sup>1</sup> (1. Nagoya Institute of Technology(Japan))

2:10 PM - 2:30 PM

[7E-C1-09] **Processing and Properties of Silica Based Carbon-ceramic Nanocomposite by a Facile and Environmental Friendly Method**

\*Bo PENG<sup>1</sup>, Chika TAKAI<sup>1</sup>, Hadi RAZAVI-KHOSROSHAHI<sup>1</sup>, Masayoshi FUJI<sup>1</sup> (1. Nagoya Institute of Technology(Japan))

2:30 PM - 2:50 PM

[7E-C1-10] **[INVITED] Optimum combination of co-milling and subsequent heating for functional complex oxides**

\*Mamoru Senna<sup>1,2</sup>, Peter Billik<sup>3</sup>, Dariusz Oleszak<sup>4</sup>, Erika Tothova<sup>5</sup>, Martin Fabian<sup>5</sup>, Vladimir Sepelak<sup>6</sup>, Horst Hahn<sup>6</sup> (1. Keio University(Japan), 2. Shizuoka University(Japan), 3. Comenius University(Slovakia), 4. Warsaw University of Technology(Poland), 5. Institute of Geotechnics SAS(Slovakia), 6. Karlsruhe Institute of Technology(Germany))

2:50 PM - 3:10 PM

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Oral presentation | C | C-1:Synthesis, Processing, and Properties of Powder

[7E-C1] **Synthesis, Processing, and Properties of Powder**

Chairperson: Tetsuo UCHIKOSHI (National Institute for Materials Science, Japan), Chairperson: Masayoshi FUJI (Nagoya Institute of Technology, Japan)

3:30 PM - 5:15 PM Room E (2F, Conference Room III)

[7E-C1-11] **[Memorial Lecture of JSPM Award] Integrated composite particle - Fabrication device and applications -**

\*Hiroyuki MUTO<sup>1</sup>, Go KAWAMURA<sup>1</sup>, Atsunori MATSUDA<sup>1</sup> (1. Toyohashi University of Technology(Japan))  
3:30 PM - 3:55 PM

[7E-C1-12] **Visible-Light-Active Metal Oxide Photocatalysts by High-Pressure Torsion Processing Method**

\*Hadi RAZAVI-KHOSROSHAHI<sup>1</sup>, Kaveh EDALATI<sup>2</sup>, Yuki NAKASHIMA<sup>1</sup>, Zenji HORITA<sup>2</sup>, Masayoshi FUJI<sup>1</sup> (1. Nagoya Institute of Technology(Japan), 2. International Institute for Carbon-Neutral Energy Research (WPI-I2CNER), Kyushu University(Japan))  
3:55 PM - 4:15 PM

[7E-C1-13] **Activated Natural Ore Synthesized by Ultrasonic-assisted Ball-milling Process**

\*Wisanu PECHARAPA<sup>1</sup>, Chayanan KEAWSANGIN<sup>1</sup>, Weerachon PHOOHINKONG<sup>1</sup>, Wanichaya MEKPRASART<sup>1</sup> (1. College of Nanotechnology, King Mongkut's Institute of Technology Ladkrabang(Thailand))  
4:15 PM - 4:35 PM

[7E-C1-14] **Low temperature synthesis for nano particle of cage structured  $12\text{CaO}\cdot 7\text{Al}_2\text{O}_3$**

\*Naonori SAKAMOTO<sup>1</sup>, Shuto SUZUKI<sup>1</sup>, Shiori MANEYAMA<sup>1</sup>, Kenta KAMIMURA<sup>1</sup>, Goran DRAZIC<sup>2</sup>, Andreja BENCAN<sup>3</sup>, Barbara MALIC<sup>3</sup>, Takahiko KAWAGUCHI<sup>1</sup>, Naoki WAKIYA<sup>1</sup>, Hisao SUZUKI<sup>1</sup> (1. Shizuoka University(Japan), 2. National Institute of Chemistry(Slovenia), 3. Jozef Stefan Institute(Slovenia))  
4:35 PM - 4:55 PM

[7E-C1-15] **Morphological control of ceria-zirconia particles with high specific surface area by microwave-emulsion method**

\*Miki INADA<sup>1</sup>, Junichi HOJO<sup>2</sup> (1. Center of Advanced Instrumental Analysis, Kyushu University(Japan), 2. Faculty of Engineering, Kyushu University(Japan))  
4:55 PM - 5:15 PM

Oral presentation | C | C-1:Synthesis, Processing, and Properties of Powder

[7E-C1] **Synthesis, Processing, and Properties of Powder**

Chairperson: Naonori SAKAMOTO (Shizuoka University, Japan),  
Chairperson: Hadi RAZAVI KHOSROSHAHI (Nagoya Institute of Technology, Japan)  
5:30 PM - 6:30 PM Room E (2F, Conference Room III)

[7E-C1-16] **Structural effects of hollow silica nanoparticles on their fluorescent property**

\*Masashi Noritake<sup>1</sup>, Chika Takai<sup>1,2</sup>, Hadi Khosroshahi Razavi<sup>1,2</sup>, Masayoshi Fuji<sup>1,2</sup> (1. Nagoya Institute of Technology(Japan), 2. Advanced Ceramic Research Center(Japan))  
5:30 PM - 5:50 PM

[7E-C1-17] **Silica nanoparticle network induced by micro-phase separation through affinity control**

\*Chika TAKAI<sup>1,2</sup>, Hidenori NAGAMINE<sup>2</sup>, Masayoshi FUJI<sup>2</sup> (1. JSPS Research Fellow(Japan), 2. Nagoya Institute of Technology(Japan))  
5:50 PM - 6:10 PM

[7E-C1-18] Cancelled

[7E-C1-19] **[INVITED] Powder Processing by High-Pressure Torsion to Achieve Functionality**

\*Kaveh Edalati Edalati<sup>1</sup>, Zenji Horita<sup>1</sup> (1. WPI-I2CNER, Kyushu University(Japan))  
6:10 PM - 6:30 PM

**Room F**

Oral presentation | A | A-3:Spark Plasma Sintering

[7F-A3] **Spark Plasma Sintering**

Chairperson: Zhefeng XU (Hiroshima University, Japan),  
Chairperson: Hiroshi FUJIWARA (Shizuoka Institute of Science and Technology, Japan)  
3:20 PM - 5:10 PM Room F (2F, Conference Room IV)

[7F-A3-01] **[INVITED] AI-SUS316L composite materials manufactured by the spark plasma sintering process**

\*Hansang KWON<sup>1,2</sup>, Jehong Park<sup>2</sup>, Akira Kawasaki<sup>3</sup> (1. Pukyong National University(Korea), 2. Next Generation Materials Co., Ltd(Korea), 3. Tohoku University(Japan))  
3:20 PM - 3:45 PM

[7F-A3-02] **The effect of YSZ and cBN addition on the consolidation of WC-Co by spark plasma sintering**

\*Thabiso LANGA<sup>1</sup>, Peter OLUBAMBI<sup>1</sup>, Miltia LESUFI<sup>1</sup> (1. Centre for Nanoengineering and Tribocorrosion, School of Mining, Metallurgy and Chemical Engineering University of Johannesburg(South Africa))  
3:45 PM - 4:05 PM

[7F-A3-03] **Spark plasma sintering of Ni-graphite composite powder synthesized by electrical**

**explosion of wire in liquid and its properties**

\*THUYET MINH NGUYEN<sup>1</sup>, JIN-CHUN KIM<sup>1</sup>, JIN-HUYUNG KIM<sup>1</sup>, DONG-WAN LEE<sup>1</sup> (1. School of Materials Science and Engineering, University of Ulsan, Korea(Korea))

4:05 PM - 4:25 PM

[7F-A3-04] **Biocompatible Ti-based bulk metallic glassy composites produced by spark plasma sintering**

\*Guoqiang XIE<sup>1,2,3</sup>, Shengli ZHU<sup>4</sup>, Hiroyasu KANETAKA<sup>1,3</sup> (1. Graduate School of Dentistry, Tohoku University, Sendai 980-8575(Japan), 2. Shenzhen Graduate School, Harbin Institute of Technology, Shenzhen 518055(China), 3. Graduate School of Biomedical Engineering, Tohoku University, Sendai 980-8579(Japan), 4. School of Materials Science and Engineering, Tianjin University, Tianjin 300072(China))

4:25 PM - 4:45 PM

[7F-A3-05] **[INVITED] Spark Plasma Sintering of Mesoporous Powders**

\*Lianjun WANG<sup>1</sup>, Wan JIANG<sup>1</sup> (1. College of Material Science & Engineering, Donghua University(China))

4:45 PM - 5:10 PM

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Oral presentation | A | A-3: Spark Plasma Sintering

[7F-A3] **Spark Plasma Sintering**

Chairperson: :Hansang KWON (Pukyong National University, Korea), Chairperson: Kimihiro OZAKI (National Institute of Advanced Industrial Science and Technology (AIST), Japan)  
5:30 PM - 6:50 PM Room F (2F, Conference Room IV)

[7F-A3-06] **[INVITED] Fabrication of FeB-Fe/Ni system hard materials by spark plasma sintering and their characteristics**

\*Zhefeng XU<sup>1</sup>, Kazuhiro MATSUGI<sup>1</sup>, Shaoming KANG<sup>1</sup>, Yombum CHOI<sup>1</sup>, Jinku YU<sup>2</sup> (1. Graduate School of Engineering, Hiroshima University(Japan), 2. State Key Laboratory of Metastable Materials Science and Technology, Yanshan University(China))

5:30 PM - 5:50 PM

[7F-A3-07] **Evolution of microstructure heterogeneity during two-step PECS of polycrystalline alumina**

\*HIEN HUU NGUYEN<sup>1</sup>, MAKOTO NANKO<sup>1</sup> (1. Nagaoka University of Technology(Japan))

5:50 PM - 6:10 PM

[7F-A3-08] **Microstructural evolution studies of nanostructured Ti-Ta-Zr alloy during spark plasma sintering**

\*Moipone Linda LETHABANE<sup>1</sup>, Lubabalo M KUBONI<sup>1</sup>, Peter Apata OLUBAMBI<sup>2</sup>, Bamidele Lawrence BAYODE<sup>1</sup>, Mxolisi Brendon SHONGWE<sup>1</sup>, Munyadziwa Mercy RAMAKOKOVHU<sup>1</sup> (1. Institute for NanoEngineering Research, Department of Chemical, Metallurgy and Materials Engineering, Tshwane University of Technology(South Africa), 2. Centre for Nanoengineering and Tribocorrosion, School of Mining, Metallurgy and Chemical Engineering, University of Johannesburg(South Africa))

6:10 PM - 6:30 PM

[7F-A3-09] **Ti-Nb and Ti-Ni Shape Memory Alloys Produced by Powder Technology: Microstructure, Mechanical and Superelastic Properties**

\*Abdollah Bahador<sup>1</sup>, Esah Hamzah<sup>1</sup>, Katsuyoshi Kondoh<sup>2</sup>, Tuty Asma Abu bakar<sup>1</sup>, Farazila Yusof<sup>3</sup>, Junko Umeda<sup>2</sup>, Shota Kariya<sup>2</sup> (1. Universiti Teknologi Malaysia(Malaysia), 2. Osaka University(Japan), 3. University of Malaya(Malaysia))

6:30 PM - 6:50 PM

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Oral presentation | E | E-5: Functionally Graded and Layered Materials

[7F-E5] **Functionally Graded and Layered Materials**

Chairperson: Takashi GOTO (Tohoku University, Japan), Chairperson: Yoshikazu SHINOHARA (National Institute for Materials Science, Japan)  
10:30 AM - 12:15 PM Room F (2F, Conference Room IV)

[7F-E5-01] **[INVITED] Study of the optical, mechanical properties and sintering kinetics of transparent bulk YSZ and MgAl<sub>2</sub>O<sub>4</sub> ceramics**

\*Oleg KHASANOV<sup>1</sup>, Edgar DVILIS<sup>1</sup>, Zulfa BIKBAEVA<sup>1</sup>, Galina LYAMINA<sup>1</sup>, Alexey KHASANOV<sup>1</sup>, Vladimir PAYGIN<sup>1</sup> (1. Tomsk Polytechnic University(Russia))

10:30 AM - 10:55 AM

[7F-E5-02] **[INVITED] Thermoelectric materials with graded and uniform structures for thermoelectric power generation**

\*Yoshikazu SHINOHARA<sup>1</sup>, Masachika SHIBUYA<sup>1</sup>, Yoshiki TAKAGIWA<sup>1</sup> (1. National Institute for

Materials Science(Japan))

10:55 AM - 11:15 AM

**[7F-E5-03] Transparent YAG and YAG: Ce<sup>3+</sup> prepared by spark plasma sintering**\*Ying LI<sup>1</sup>, Hirokazu KATSUI<sup>1</sup>, Takashi GOTO<sup>1</sup> (1.

Institute for Materials Research, Tohoku

University(Japan))

11:15 AM - 11:35 AM

**[7F-E5-04] SiAlON coating by laser chemical vapor deposition for bond coat in EBC system**Takumi NAKANO<sup>1</sup>, \*Hirokazu KATSUI<sup>1</sup>, TakashiGOTO<sup>1</sup> (1. Institute for Materials Research, Tohoku

University(Japan))

11:35 AM - 11:55 AM

**[7F-E5-05] Electrical and thermal properties of nitrogen-doped SiC sintered body**\*Yukina TAKI<sup>1</sup>, Mettaya KITIWAN<sup>1</sup>, Hirokazu KATSUI<sup>1</sup>,Takashi GOTO<sup>1</sup> (1. Institute for Materials Research,

Tohoku university(Japan))

11:55 AM - 12:15 PM

Oral presentation | E | E-5:Functionally Graded and Layered Materials

**[7F-E5] Functionally Graded and Layered Materials**

Chairperson: Hirokazu KATSUI (Tohoku University, Japan),

Chairperson: Junichi TATAMI (Yokohama National University, Japan)

1:30 PM - 2:50 PM Room F (2F, Conference Room IV)

**[7F-E5-06] [INVITED] Recent Progress in Spark Plasma Sintering (SPS) Method and Cost-Effective Technology for Functionally Graded Materials (FGMs)**\*Masao TOKITA<sup>1</sup> (1. NJS Company

Limited(Japan))

1:30 PM - 1:50 PM

**[7F-E5-07] Spark plasma sintering of WC-diamond composites using SiC-coated diamond**\*Mettaya KITIWAN<sup>1</sup>, Hirokazu KATSUI<sup>1</sup>, TakashiGOTO<sup>1</sup> (1. Institute for Materials Research, Tohoku

University(Japan))

1:50 PM - 2:10 PM

**[7F-E5-08] [INVITED] Particle and Powder Designs for Graded Microstructure in Advanced Ceramics**\*Takuma TAKAHASHI<sup>1</sup>, Junichi TATAMI<sup>2</sup>, MotoyukiIIJIMA<sup>2</sup> (1. Kanagawa Institute of Industrial Science

and Technology(Japan), 2. Yokohama National

University(Japan))

2:10 PM - 2:30 PM

**[7F-E5-09] [INVITED] High-Temperature Strength and Room-Temperature Fracture Toughness of MoSiB<sub>2</sub>TiC Alloy**\*Kyosuke YOSHIMI<sup>1</sup>, Sadahiro TSUREKAWA<sup>2</sup>,Hiroyuki FUKUYAMA<sup>3</sup>, Takashi GOTO<sup>4</sup> (1. Tohoku

University, Department of Materials Science(Japan),

2. Kumamoto University, Division of Materials

Science, Faculty of Advanced Science and

Technology(Japan), 3. Tohoku University, Institute of

Multidisciplinary Research for Advanced

Materials(Japan), 4. Tohoku University, Institute for

Materials Research(Japan))

2:30 PM - 2:50 PM

Wed. Nov 8, 2017

Room A

Oral presentation | A | A-2:Sintering and Post Processing

**[8A-A2] Sintering and Post Processing**

Chairperson: Yong-Jin KIM (Korea Institute of Materials Science, Korea), Chairperson: Hiroyuki SUZUKI (Hiroshima University, Japan)

9:20 AM - 11:05 AM Room A (1F, Centennial Hall)

**[8A-A2-01] [INVITED] HIP Application and Trends in Korea**

\*Yong-Jin KIM<sup>1</sup>, Sangsun YANG<sup>1</sup>, Tae-Soo LIM<sup>1</sup> (1. Korea Institute of Materials Science(Korea))

9:20 AM - 9:45 AM

**[8A-A2-02] SLIMMER (A Novel Batch Powder**

**Manufacturing Process): A Comparative Life Cycle Analysis with Conventional Techniques**

\*Matthew OZOEMENA<sup>1</sup>, Gregory J. GIBBONS<sup>1</sup> (1. WMG, The University of Warwick(UK))

9:45 AM - 10:05 AM

**[8A-A2-03] Computer Simulation Studies on Liquid Phase Sintering by Molecular Dynamics and Monte-Carlo Methods**

\*Shuji MATSUMOTO<sup>1</sup>, Masayoshi SHIMIZU<sup>4</sup>, Hiroshi NOMURA<sup>3</sup>, Hideaki MATSUBARA<sup>2,3</sup> (1. Murata Manufacturing Co., Ltd.(Japan), 2. Tohoku University(Japan), 3. Japan Fine Ceramics Center(Japan), 4. Midorinosozai Laboratory(Japan))

10:05 AM - 10:25 AM

**[8A-A2-04] Field-assisted and Flash Sintering of Oxide Ceramics: Densification and Microstructural Evolution**

\*Hidehiro YOSHIDA<sup>1</sup>, Koji MORITA<sup>1</sup>, Byung-Nam KIM<sup>1</sup>, Yoshio SAKKA<sup>1</sup>, Takahisa YAMAMOTO<sup>2</sup> (1. National Institute for Materials Science(Japan), 2. Nagoya University(Japan))

10:25 AM - 10:45 AM

**[8A-A2-05] Development of ceramic molds suitable for high-speed centrifugal casting**

Hiroyuki Y. Suzuki<sup>1</sup>, \*Ryuto Tanaka<sup>2</sup> (1. Graduate School of Education, Hiroshima University(Japan), 2. Graduate School of Mechanical Engineering, Hiroshima University (Japan))

10:45 AM - 11:05 AM

Oral presentation | A | A-4:Iron and Steel Materials

**[8A-A4] Iron and Steel Materials**

Chairperson: Ola LITSTROM (Hoganas Taiwan Ltd, Taiwan),

Chairperson: Norimitsu HIROSE(Hoganas Japan KK, Japan)

1:00 PM - 3:05 PM Room A (1F, Centennial Hall)

**[8A-A4-01] [INVITED] Master Alloys for introducing alloying elements in low-alloy steels: new concepts and possibilities**

\*Raquel DE ORO CALDERON<sup>1</sup>, Christian Gierl-Mayer<sup>1</sup>, Herbert Danninger<sup>1</sup> (1. TU Wien(Austria))

1:00 PM - 1:25 PM

**[8A-A4-02] Improvement of Fatigue Strength of Liquid Phase Sintered Steel by Using Pre-alloyed Powder**

\*Shigeki Egashira<sup>1</sup>, Tomoyuki Ishimine<sup>1</sup>, Tomoyuki Ueno<sup>1</sup> (1. Sumitomo Electric Industries, LTD.(Japan))

1:25 PM - 1:45 PM

**[8A-A4-03] Anti-adhesive wear properties improved matrix-toughened seat, valve material**

\*Hiroyuki Yamamoto<sup>1</sup> (1. FINE SINTER CO., LTD.(Japan))

1:45 PM - 2:05 PM

**[8A-A4-04] The behaviour of Low Alloy Steel Powder during uniaxial cold compaction – influence of the geometry**

\*Ilaria Cristofolini<sup>1</sup>, Alberto Molinari<sup>1</sup>, Gianluca Pederzini<sup>2</sup>, Alex Rambelli<sup>2</sup> (1. University of Trento (Italy), 2. Sacmi Imola S.C.(Italy))

2:05 PM - 2:25 PM

**[8A-A4-05] Property of sintered rolling carburized helical gear applied for Ni-Mo pre-alloy steel powder**

\*Yuji Taniguchi<sup>1</sup>, Satoshi Nishida<sup>1</sup>, Masaki Yoshida<sup>1</sup>, Teruie Takemasu<sup>2</sup>, Hiroshi Sasaki<sup>3</sup> (1. Kobe Steel, Ltd.(Japan), 2. Tokyo University of Science, Suwa(Japan), 3. Nissei Co., Ltd(Japan))

2:25 PM - 2:45 PM

**[8A-A4-06] The formation behavior of nano-sized oxide particles formed in mechanically alloyed powder**

\*Ga Eon KIM<sup>1</sup>, Sanghoon NOH<sup>1</sup>, Suk Hoon KANG<sup>1</sup>, Young Do KIM<sup>2</sup>, Tae Kyu KIM<sup>1</sup> (1. Korea Atomic Energy Research Institute(Korea), 2. Hanyang University(Korea))

2:45 PM - 3:05 PM

Oral presentation | A | A-4:Iron and Steel Materials

**[8A-A4] Iron and Steel Materials**

Chairperson: Raquel DE ORO CALDERON (TU Wien, Austria), Chairperson: Yukiko OZAKI(Kyushu University, Japan)

3:25 PM - 4:30 PM Room A (1F, Centennial Hall)

**[8A-A4-07] [INVITED] Cost-effective sinter-hardening in the 21st century**

\*Ola LITSTROM<sup>1</sup>, Ulf ENGSTROM<sup>2</sup>, Simon TAN<sup>2</sup> (1. Hognas Taiwan Ltd(Taiwan), 2. Hognas China Co. Ltd(China))

3:25 PM - 3:50 PM

**[8A-A4-08] Cancelled**

3:50 PM - 4:10 PM

**[8A-A4-09] SINTER HARDENING PROPERTIES OF LOW-ALLOY PM STEELS**

\*Hirofumi HOJO<sup>1</sup>, Satomi URUSHIBATA<sup>1</sup>, Ryo KOBAYASHI<sup>1</sup>, Masaki YOSHIDA<sup>1</sup>, Satoshi NISHIDA<sup>1</sup> (1. Kobe Steel, Ltd.(Japan))

4:10 PM - 4:30 PM

**Room B**

Oral presentation | A | A-7:Mechanical Alloying

**[8B-A7] Mechanical Alloying - designing hetero-structure**

Chairperson: Dariusz OLESZAK (Warsaw University of Technology, Poland), Chairperson: Anatoly Yegorovich YERMAKOV(Ural Branch of Russian Academy of Sciences, Russia)  
9:20 AM - 11:40 AM Room B (2F, International Conference Hall I)

**[8B-A7-01] High Performance Materials Design by Controlling Bimodal Structure Distribution**

\*Masaya NAGATA<sup>1</sup>, Naoki HORIKAWA<sup>1</sup>, Masashi NAKATANI<sup>1</sup>, Mie OTA<sup>1</sup>, Kei AMEYAMA<sup>1</sup> (1. Ritsumeikan University(Japan))

9:20 AM - 9:40 AM

**[8B-A7-02] Inhibition of twinning deformation by Harmonic Structure Design in a beta Ti alloy**

\*Daiki NANYA<sup>1</sup>, Daiki UEDA<sup>1</sup>, Sanjay Kumar VAJPAY<sup>2</sup>, Mie KAWABATA<sup>1</sup>, Guy Dirras<sup>3</sup>, Kei Ameyama<sup>1</sup> (1. Ritsumeikan University(Japan), 2. Maulana Azad National Institute of Technology(India), 3. Université Paris 13(France))

9:40 AM - 10:00 AM

**[8B-A7-03] Thermo-mechanical Processing of Harmonic Structure Designed pure Titanium**

\*Motoki MIYAKOSHI<sup>1</sup>, Akito SHIMAMURA<sup>1</sup>, Daiki NANYA<sup>1</sup>, Mie Ota KAWABATA<sup>1</sup>, Guy DIRRAS<sup>2</sup>, Kei AMEYAMA<sup>1</sup> (1. Ritsumeikan University(Japan), 2. Paris 13 University(France))

10:00 AM - 10:20 AM

**[8B-A7-04] Harmonic Structure Designed of Ti-15V-3Cr-3Sn-3Al Alloy by High Pressure Gas Jet Milling Process**

\*Shuji KOSUGA<sup>1</sup>, Shota YOKOYAMA<sup>1</sup>, Mie Ota KAWABATA<sup>2</sup>, Guy DIRRAS<sup>3</sup>, Kei AMEYAMA<sup>2</sup> (1. Graduate School of Science and Engineering, Ritsumeikan University(Japan), 2. Department of Mechanical Engineering, College of Life Sciences, Ritsumeikan University(Japan), 3. Université Paris 13, Sorbonne Paris Cité, LSPM-CNRS, France(France))

10:20 AM - 10:40 AM

**[8B-A7-05] Effect of thermomechanical processing on mechanical property and microstructure in Harmonic Structure Low carbon steel**

\*Ryuhei KAI<sup>1</sup>, Masashi NAKATANI<sup>1</sup>, Mie Ota KAWABATA<sup>1</sup>, Kei AMEYAMA<sup>1</sup> (1. Ritsumeikan University(Japan))

10:40 AM - 11:00 AM

**[8B-A7-06] Unique Strain Hardening Behavior in Harmonic Structure Designed SUS304L Austenitic Stainless Steel**

\*Yuya Fujiki<sup>1</sup>, Masashi Nakatani<sup>1</sup>, Mie Ota<sup>2</sup>, Yuntian Zhu<sup>3</sup>, Kei Ameyama<sup>2</sup> (1. Graduate School of Science and Engineering, Ritsumeikan University(Japan), 2. Faculty of Science and Engineering, Ritsumeikan University(Japan), 3. Department of Materials Science and Engineering, North Carolina State University(United States of America))

11:00 AM - 11:20 AM

**[8B-A7-07] High Temperature Mechanical Properties of Harmonic Structure Designed SUS304L Austenitic Stainless Steel**

\*Morihiro Hariki<sup>1</sup>, Masashi NAKATANI<sup>1</sup>, Koki YAGI<sup>1</sup>, Mie Ota KAWABATA<sup>1</sup>, Cinzia Menapace<sup>2</sup>, Alberto MOLINARI<sup>2</sup>, Kei AMEYAMA<sup>1</sup> (1. Ritsumeikan university(Japan), 2. University of Trento(Italy))

11:20 AM - 11:40 AM

Oral presentation | E | E-1:Alloys, Composites, and Hybrids/Nanoparticles and Porous Materials

**[8B-E1] Alloys, Composites, and Hybrids/Nanoparticles and Porous Materials**

Chairperson: Makoto KOBASHI (Nagoya University, Japan),  
Chairperson: Hiroyuki MIYAMOTO (Doshisha University, Japan)  
1:00 PM - 3:00 PM Room B (2F, International Conference Hall I)

**[8B-E1-01] Development of a high-performance copper-sintered alloy slider**

\*RYOTA KOBAYASHI<sup>1</sup>, KOJI HASEGAWA<sup>1</sup>, NAOSHI ISHIHARA<sup>1</sup>, YOSHITAKA KUBOTA<sup>2</sup> (1. FINE SINTER CO.,LTD.(Japan), 2. RAILWAY TECHNICAL RESEARCH INSTITUTE(Japan))

1:00 PM - 1:20 PM

**[8B-E1-02] Mechanical and chemical properties of hard materials with Ni<sub>3</sub>(Si,Ti) intermetallic compound**

\*Hiroki TANAKA<sup>1</sup>, Masaki OTSUBO<sup>1</sup>, Hiroto SHIMOMURA<sup>1</sup>, Takayuki TAKASUGI<sup>2</sup>, Yasuyuki KANENO<sup>2</sup> (1. Machinery Parts Business Department, Nippon Tungsten Co.,Ltd.(Japan), 2. Graduate School of Engineering, Osaka Prefecture University(Japan))

1:20 PM - 1:40 PM

**[8B-E1-03] Thermal and Mechanical Properties of Harmonic-Structured Composite with Copper and Molybdenum**

\*Hiroshi FUJIWARA<sup>1</sup>, Koki SONE<sup>1</sup>, Fuminori UEGUCHI<sup>2</sup>, Hiroyuki MIYAMOTO<sup>2</sup> (1. Shizuoka Institute of Science and Technology(Japan), 2. Doshisha University(Japan))

1:40 PM - 2:00 PM

**[8B-E1-04] Load transfer strengthening in few-layer graphene reinforced aluminum matrix composites**

\*WEIWEI ZHOU<sup>1</sup>, Keiko KIKUCHI<sup>1</sup>, Naoyuki NOMURA<sup>1</sup>, Akira KAWASAKI<sup>1</sup> (1. Tohoku University(Japan))

2:00 PM - 2:20 PM

**[8B-E1-05] MICROSTRUCTURE AND MECHANICAL PROPERTIES OF TiAl/Al<sub>2</sub>O<sub>3</sub> IN SITU COMPOSITE BY COMBUSTION PROCESS**

\*Tran Duc HUY<sup>1</sup>, Do Thanh BINH<sup>2</sup>, Hiroyuki MIYAMOTO<sup>3</sup> (1. School of Materials Science and Engineering, Hanoi University of Science and Technology, Vietnam(Viet Nam), 2. Faculty of Metallurgy, College of Mechanics and Metallurgy, Thai Nguyen City, Thai Nguyen, Vietnam(Viet Nam), 3. Department of Mechanical and Systems Engineering, Doshisha University, Japan(Japan))

2:20 PM - 2:40 PM

**[8B-E1-06] [INVITED] Powder Processing Route for Making Interpenetrating Anchor Structure for****Metal/Polymer Joint**

\*Makoto KOBASHI<sup>1</sup>, Naoki TAKATA<sup>1</sup>, Asuka SUZUKI<sup>1</sup>  
(1. Graduate School of Engineering, Nagoya University(Japan))

2:40 PM - 3:00 PM

Oral presentation | E | E-1:Alloys, Composites, and Hybrids/Nanoparticles and Porous Materials

**[8B-E1] Alloys, Composites, and Hybrids/Nanoparticles and Porous Materials**

Chairperson: Richard LAINE (University of Michigan, USA),  
Chairperson: Kimihiro MATSUKAWA (Kyoto Institute of Technology, Japan)

3:20 PM - 4:45 PM Room B (2F, International Conference Hall I)

**[8B-E1-07] [INVITED] Mixed-metal oxide nanopowder used to process dense single and multi-layer flexible thin (10-40 nm) films including Li<sup>+</sup> superionic electrolytes**

\*Richard Laine<sup>1</sup>, Eonyu YI<sup>1</sup>, Weimin WANG<sup>1</sup>, John KEIFFER<sup>1</sup> (1. University of Michigan, Department of Materials Science and Engineering(United States of America))

3:20 PM - 3:45 PM

**[8B-E1-08] [INVITED] Integration of nano-sized particles via electrostatic adsorption assembly technique for microstructural control of advanced materials**

\*Hiroyuki MUTO<sup>1</sup> (1. Toyohashi University of Technology(Japan))

3:45 PM - 4:05 PM

**[8B-E1-09] [INVITED] Optical Hybrid Materials Containing Inorganic Nanoparticles**

\*Kimihiro MATSUKAWA<sup>1</sup>, Atsushi SASAKI<sup>2</sup>, Koji MMITAMURA<sup>3</sup>, Seiji WATASE<sup>3</sup>, Kensuke NAKA<sup>1</sup> (1. Kyoto Institute of Technology(Japan), 2. Osaka Electro-Communication University(Japan), 3. Osaka Research Institute of Industrial Science and Technology(Japan))

4:05 PM - 4:25 PM

**[8B-E1-10] Surface Modification of Titania Nanoparticles with organophosphorous Compounds and Their Application to Hybrid Materials exhibiting High Refractive Indices**

\*Yoshiyuki SUGAHARA<sup>1,2</sup>, Shiori TAKAHASHI<sup>1</sup>, Satoshi MAEDA<sup>1</sup>, Shuhei HOTTA<sup>1</sup>, Naokazu IDOTA<sup>3</sup>, Akira WATANABE<sup>4</sup>, Kimihiro MATSUKAWA<sup>5</sup> (1. Department of Applied Chemistry, School of Science



and Engineering, Waseda University(Japan), 2. Kagami Memorial Research Institute for Materials Science and Technology, Waseda University(Japan), 3. Faculty of Bioscience and Applied Chemistry, Hosei University(Japan), 4. Institute of Multidisciplinary Research for Advanced Materials, Tohoku University(Japan), 5. Department of Chemistry and Materials Technology, Kyoto Institute of Technology(Japan))  
4:25 PM - 4:45 PM

## Room C

Oral presentation | D | D-4:Additive Manufacturing with Powder Metallurgy

### [8C-D4] Additive Manufacturing with Powder Metallurgy

Chairperson: Akira KAWASAKI (Tohoku University, Japan),  
Chairperson: Chen-Nan SUN (Singapore Institute of Manufacturing Technology (SIMTech), Singapore)  
1:00 PM - 3:05 PM Room C (2F, International Conference Hall II)

#### [8C-D4-01] [INVITED] Microstructure, defects, and tensile and fatigue properties of additively manufactured Ti-6Al-4V

\*Ma Qian<sup>1</sup> (1. Royal Melbourne Institute of Technology (RMIT University)(Australia))  
1:00 PM - 1:25 PM

#### [8C-D4-02] [INVITED] Effects of post-processing on tensile and fatigue properties of biomedical Co-28Cr-6Mo and Ti-6Al-4V alloys fabricated by electron beam additive manufacturing

\*Akihiko CHIBA<sup>1</sup>, Yuichiro KOIZUMI<sup>1</sup>, Kenta YAMANAKA<sup>1</sup>, Kenta AOYAGI<sup>1</sup>, Hao WANG<sup>1</sup> (1. Institute for Materials Research, Tohoku University(Japan))  
1:25 PM - 1:45 PM

#### [8C-D4-03] The formation of peculiar microstructure in Ti-48Al-2Cr-2Nb alloy additively manufactured by electron beam melting

\*Mitsuharu Todai<sup>1</sup>, Takayoshi Nakano<sup>2</sup>, Tianqi Liu<sup>2</sup>, Jongyeong Oh<sup>2</sup>, Hiroyuki Yasuda<sup>2</sup>, Ken Cho<sup>2</sup>, Koji Hagihara<sup>3</sup>, Minoru Ueda<sup>4</sup>, Masao Takeyama<sup>5</sup> (1. Institute of Niihama National College of Technology(Japan), 2. Division of Materials and Manufacturing Science, Graduate School of Engineering, Osaka University(Japan), 3. Department of Adaptive Machine Systems, Graduate School of Engineering, Osaka

University(Japan), 4. Metal Technology Co. Ltd.(Japan), 5. Department of Metallurgy and Ceramics Science, Tokyo Institute of Technology(Japan))  
1:45 PM - 2:05 PM

#### [8C-D4-04] Effect of Particle Size on Quality Characteristics of Pure Titanium Using Metal Additive Manufacturing

Shigeo Mori<sup>1</sup>, \*Kenji Doi<sup>1</sup>, Shinpei Maruyama<sup>1</sup>, Toru Takeuchi<sup>1</sup>, Kazuki Hanami<sup>1</sup>, Hisashi Kitagaki<sup>1</sup>, Shuntaro Terauchi<sup>1</sup>, Tomiharu Matsushita<sup>1</sup> (1. Osaka Yakin Kogyo Co.,Ltd(Japan))  
2:05 PM - 2:25 PM

#### [8C-D4-05] Temperature measurement and finite element analyses in the selective laser melting process

\*Masahiro Kusano<sup>1</sup>, Shiho Miyazaki<sup>1,2</sup>, Satoshi Kishimoto<sup>1</sup>, Atsushi Yumoto<sup>2</sup>, Makoto Watanabe<sup>1,3</sup> (1. National Institute for Materials Science(Japan), 2. Shibaura Institute of Technology(Japan), 3. The University of Tokyo(Japan))  
2:25 PM - 2:45 PM

#### [8C-D4-06] Influence additional heating on phase structure and resistivity of intermetallic SMA fabricated by PBF process

\*Igor Shishkovsky<sup>1</sup>, Vladimir Sherbakoff<sup>1</sup> (1. P.N. Lebedev Physics Institute of Russian Academy of Sciences, Samara branch(Russia))  
2:45 PM - 3:05 PM

Oral presentation | D | D-4:Additive Manufacturing with Powder Metallurgy

### [8C-D4] Additive Manufacturing with Powder Metallurgy

Chairperson: Ma QIAN (Royal Melbourne Institute of Technology (RMIT University), Australia), Chairpersons:Naoyuki NOMURA (Tohoku University, Japan)  
3:20 PM - 4:40 PM Room C (2F, International Conference Hall II)

#### [8C-D4-07] [INVITED] Reaction Sintering of SiC by Direct Laser Forming Technology

\*Hideshi Miura<sup>1</sup>, Kentaro Kudo<sup>2</sup>, Satoshi Suehiro<sup>3</sup>, Teiichi Kimura<sup>3</sup> (1. Research Center for Steel of Kyushu University(Japan), 2. Graduate school of Kyushu University(Japan), 3. Japan Fine Ceramics Center(Japan))  
3:20 PM - 3:40 PM

#### [8C-D4-08] Stereolithographic Additive Manufacturing of Ceramic Components with Micro Geometric Structures

\*Soshu Kiriara<sup>1</sup>, Shoichiro Kisanuki<sup>1</sup>, Hirotochi Nozaki<sup>1</sup>, Koki Nonaka<sup>1</sup> (1. Osaka University(Japan))  
3:40 PM - 4:00 PM

[8C-D4-09] **Stereolithographic Additive Manufacturing of Ceramic Objects with Fluctuation to Control Environmental Fluid**

\*Hirotochi NOZAKI<sup>1</sup>, Soshu KIRIHARA<sup>1</sup> (1. Joining and Welding Research Institute Osaka University(Japan))  
4:00 PM - 4:20 PM

[8C-D4-10] **Acoustic Cavity Modulations by using Stereolithographic Additive Manufacturing**

\*Shoichiro KISANUKI<sup>1</sup>, Soshu KIRIHARA<sup>1</sup> (1. Joining and Welding Research Institute, Osaka University(Japan))  
4:20 PM - 4:40 PM

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Oral presentation | E | E-2: Metallic glasses (Bulk, Rapidly quenched)

[8C-E2] **Metallic glasses (Bulk, Rapidly quenched)**

Chairperson: Kazutaka FUJITA (National Institute of Technology, Ube College, Japan), Chairperson: Tokujiro YAMAMOTO (Utsunomiya University, Japan)  
9:40 AM - 11:40 AM Room C (2F, International Conference Hall II)

[8C-E2-01] **[INVITED] Development of ternary Fe-B-C and quaternary Fe-B-C-Si amorphous alloys with high glass-forming ability and high magnetization**

\*Teruo BITOH<sup>1</sup>, Takafumi HIBINO<sup>1,2</sup>, Hisato KOSHIBA<sup>3</sup> (1. Akita Prefectural University(Japan), 2. Present affiliation: Hitachi Industrial Equipment Systems Co., Ltd.(Japan), 3. Alps Electric Co., Ltd.(Japan))  
9:40 AM - 10:00 AM

[8C-E2-02] **Change in Pd-Cu-Ge metallic glass thin films upon heating to a supercooled liquid region**

\*Tokujiro YAMAMOTO<sup>1</sup>, Eishi KOIKE<sup>1</sup>, Kazuya SUDO<sup>1</sup> (1. Utsunomiya University(Japan))  
10:00 AM - 10:20 AM

[8C-E2-03] **[INVITED] Powder metallurgy components and process with Ni-Cr-Nb-P-B metallic glass powders**

\*Kenji Amiya<sup>1</sup>, Yasunori Saotome<sup>2</sup>, Noboru Shimada<sup>3</sup>, Atsushi Okuma<sup>3</sup>, Hidechika Shiratori<sup>3</sup>, Hiroyasu Mabuse<sup>1</sup> (1. Trans-Regional Corporation Center, Institute Material Research, Tohoku

University(Japan), 2. MGA Research Laboratory(Japan), 3. Porite Co., Ltd(Japan))  
10:20 AM - 10:40 AM

[8C-E2-04] **Large-size high strength biodegradable Mg-based bulk metallic glasses and the composites produced by spark plasma sintering**

\*Guoqiang XIE<sup>1,2,3</sup>, Fengxiang QIN<sup>4</sup>, Hiroyasu KANETAKA<sup>2,3</sup> (1. Shenzhen Graduate School, Harbin Institute of Technology, Shenzhen 518055(China), 2. Graduate School of Dentistry, Tohoku University, Sendai 980-8575(Japan), 3. Graduate School of Biomedical Engineering, Tohoku University, Sendai 980-8579(Japan), 4. School of Materials Science and Engineering, Nanjing University of Science and Technology, Nanjing 210094(China))  
10:40 AM - 11:00 AM

[8C-E2-05] **Oxidation of benzyl alcohol over skeletal Au catalysts prepared from Au-Zr amorphous alloys**

\*Ai NOZAKI<sup>1</sup>, Tasuku YASUOKA<sup>2</sup>, Yasutaka KUWAHARA<sup>2</sup>, Tetsutaro OHMICHI<sup>2</sup>, Kohsuke MORI<sup>2</sup>, Hiromi YAMASHITA<sup>2</sup> (1. University of Hyogo(Japan), 2. Osaka University(Japan))  
11:00 AM - 11:20 AM

[8C-E2-06] Canceled

11:20 AM - 11:40 AM

## Room D

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Oral presentation | A | A-1: Modeling and Simulation

[8D-A1] **Modeling and Simulation**

Chairperson: Kazunari SHINAGAWA (Kyushu University, Japan), Chairperson: Hideaki MATSUBARA (Tohoku University, Japan)  
1:00 PM - 3:05 PM Room D\_Oral (2F, International Conference Hall III)

[8D-A1-01] **[INVITED] Discrete element simulations:**

**modeling powder metallurgy processes at the particle length scale**

Denis ROUSSEL<sup>1</sup>, Paul PARANT<sup>1,2</sup>, David JAUFFRES<sup>1</sup>, Sébastien PICART<sup>2</sup>, Julie VILLANOVA<sup>3</sup>, Rajendra K BORDIA<sup>4</sup>, \*Christophe L MARTIN<sup>1</sup> (1. Univ. Grenoble Alpes, CNRS(France), 2. CEA, Nuclear Energy Division, Research Department of Mining and Fuel Recycling ProCesses(France), 3. ESRF The European Synchrotron(France), 4.

Clemson University(United States of America))

1:00 PM - 1:25 PM

**[8D-A1-02] [INVITED] Computer Simulation Studies on Sintering and Grain Growth**\*Hideaki MATSUBARA<sup>1</sup> (1. Graduate School of Environmental Studies, Tohoku University(Japan))

1:25 PM - 1:45 PM

**[8D-A1-03] [INVITED] Experimental and numerical simulation of solvent and supercritical fluid debinding of Inconel 718 components realized by metal injection moulding**\*Aboubakry AGNE<sup>1</sup>, Thierry BARRIERE<sup>1</sup>, Sébastien RICHARD<sup>1</sup>, Olivier DUGAUGUEZ<sup>1</sup>, Alexandre ROYER<sup>1</sup> (1. The University of Bourgogne Franche-Comté(France))

1:45 PM - 2:05 PM

**[8D-A1-04] Coupled analysis of heat transfer and sintering behavior in ceramic plates**\*Kazunari SHINAGAWA<sup>1</sup>, Noe KOTO<sup>2</sup>, Hiroshi OHNISHI<sup>2</sup> (1. Kyushu University(Japan), 2. Nikkato Corp.(Japan))

2:05 PM - 2:25 PM

**[8D-A1-05] Computer simulation study on sintering and delamination of porous ceramics coating**\*Sota TERASAKA<sup>1</sup>, Hideaki Matsubara<sup>1</sup> (1. Tohoku University(Japan))

2:25 PM - 2:45 PM

**[8D-A1-06] [Invited] Evaluation of theoretical sintering models from experiments**\*BYUNGNAM KIM<sup>1</sup>, Tohru S Suzuki<sup>1</sup>, Koji Morita<sup>1</sup>, Hidehiro Yoshida<sup>1</sup>, Ji-Guang Lee<sup>1</sup>, Hideaki Matsubara<sup>2</sup> (1. National Institute for Materials Science(Japan), 2. Tohoku University(Japan))

2:45 PM - 3:05 PM

Oral presentation | B | B-1:Hard Materials

**[8D-B1] Hard Materials**Chairperson: Bryan ROEBUCK (National Physical Laboratory, UK),  
Chairperson: Kazuki OKADA (Mitsubishi Materials corporation, Japan)

3:30 PM - 4:50 PM Room D\_Oral (2F, International Conference Hall III)

**[8D-B1-01] [INVITED] Development of 100 nm-grained cemented carbide by resolution of grain growth inhibition mechanism**\*Masaru Kawakami<sup>1</sup> (1. Fuji Die Co., Ltd(Japan))

3:30 PM - 3:50 PM

**[8D-B1-02] Microstructures and Mechanical Properties of Ultra-Fine Cemented Carbides of WC-Co Including Ti(C,N) and Cr<sub>3</sub>C<sub>2</sub>**\*Masayuki Takada<sup>1,2</sup>, Tomohiro Tsutsumi<sup>1</sup>, Yoshihiro Mori<sup>1</sup>, Hideaki Matsubara<sup>2</sup> (1. Nippon Tokushu Goukin CO., LTD.(Japan), 2. Dept. Environmental Studies, Tohoku University(Japan))

3:50 PM - 4:10 PM

**[8D-B1-03] Study on thermal stress damage of Ti(C,N) based cermet by laser irradiation**\*Tetsushi MATSUDA<sup>1</sup>, Hideaki MATSUBARA<sup>1,2</sup> (1. Japan Fine Ceramics Center(Japan), 2. Tohoku University(Japan))

4:10 PM - 4:30 PM

**[8D-B1-04] Correlation between physical properties and damage of cemented carbide tool in Friction Stir Spot Welding of ultra-high tensile strength steel sheets**\*Yoshiharu Utsumi<sup>1</sup>, Hiroka Miyazaki<sup>1</sup>, Keiichi Tsuda<sup>1</sup>, Ryoji Ohashi<sup>2</sup>, Masatoshi Tokunaga<sup>3</sup> (1. Sumitomo Electric Industries, Ltd.(Japan), 2. Kawasaki Heavy Industries, Ltd.(Japan), 3. Nippon Steel &Sumitomo Metal Corporation(Japan))

4:30 PM - 4:50 PM

**Room E**

Oral presentation | E | E-4:Optical Materials

**[8E-E4] Optical Materials**Chairperson: Jianrong QIU (Zhejiang University, China),  
Chairperson: Yasuaki TOKUDOME (Osaka Prefecture University, Japan)

9:20 AM - 11:00 AM Room E (2F, Conference Room III)

**[8E-E4-01] [INVITED] Preparation and properties of As, Se-free chalcogenide glasses based on Ga/Ge-Sb-S-Te systems**\*Kohei KADONO<sup>1</sup>, Tomoyo ASHIDA<sup>1</sup>, Misaki KIZU<sup>1</sup>, Arifumi OKADA<sup>1</sup>, Takashi WAKASUGI<sup>1</sup> (1. Kyoto Institute of Technology(Japan))

9:20 AM - 9:40 AM

**[8E-E4-02] [INVITED] Photoinduced polarization-dependent nanostructures in various material and their applications**\*Yasuhiko SHIMOTSUMA<sup>1</sup> (1. Kyoto University(Japan))

9:40 AM - 10:00 AM

**[8E-E4-03] Making directional light sources by using**

**plasmonic arrays**

\*Shunsuke MURAI<sup>1,2</sup>, Ryosuke KAMAKURA<sup>1</sup>, Koji FUJITA<sup>1</sup>, Katsuhisa TANAKA<sup>1</sup> (1. Graduate School of Engineering, Kyoto University(Japan), 2. PRESTO, JST(Japan))

10:00 AM - 10:20 AM

[8E-E4-04] **Directional outcoupling of photoluminescence via excitation of collective plasmonic modes on periodic plasmonic arrays**

\*Motoharu Saito<sup>1</sup>, Shunsuke Murai<sup>1,2</sup>, Hiroyuki Sakamoto<sup>1</sup>, Ryosuke Kamakura<sup>1</sup>, Koji Fujita<sup>1</sup>, Katsuhisa Tanaka<sup>1</sup> (1. Kyoto university(Japan), 2. JST-PRESTO(Japan))

10:20 AM - 10:40 AM

[8E-E4-05] **Collective plasmonic modes excited on Al nanocylinder array in the UV region and photoluminescence enhancement from Eu(III)-complex thin film**

\*Yuki KAWACHIYA<sup>1</sup>, Shunsuke MURAI<sup>1,2</sup>, Motoharu SAITO<sup>1</sup>, Hiroyuki SAKAMOTO<sup>1</sup>, Koji FUJITA<sup>1</sup>, Katsuhisa TANAKA<sup>1</sup> (1. Kyoto University(Japan), 2. PRESTO(Japan))

10:40 AM - 11:00 AM

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Oral presentation | E | E-4:Optical Materials

[8E-E4] **Optical Materials**

Chairperson: Kohei KADONO (Kyoto Institute of Technology, Japan), Chairperson: Yasuhiko SHIMOTSUMA (Kyoto University, Japan)

1:00 PM - 2:45 PM Room E (2F, Conference Room III)

[8E-E4-06] **[INVITED] Space-selective crystallization in glass for photonic devices**

\*Jianrong Qiu<sup>1</sup> (1. Zhejiang University(China))

1:00 PM - 1:25 PM

[8E-E4-07] **[INVITED] Structural color coatings prepared via the electrophoretic deposition of monodispersed SiO<sub>2</sub> particles**

\*Kiyofumi KATAGIRI<sup>1</sup>, Kensuke UEMURA<sup>1</sup>, Ryo UESUGI<sup>1</sup>, Yukikazu TAKEOKA<sup>2</sup>, Kei INUMARU<sup>1</sup> (1. Hiroshima University(Japan), 2. Nagoya University(Japan))

1:25 PM - 1:45 PM

[8E-E4-08] **Direct observation of plasmonic hotspots on gold mesostructures by using cathode luminescence**

\*Hiroyuki SAKAMOTO<sup>1</sup>, Shunsuke MURAI<sup>1,2</sup>, Hikaru SAITO<sup>3</sup>, Takumi SANNOMIYA<sup>4</sup>, Satoshi ISHII<sup>5</sup>,

Tadaaki NAGAO<sup>5</sup>, Koji FUJITA<sup>1</sup>, Katsuhisa TANAKA<sup>1</sup> (1. Kyoto University(Japan), 2. PRESTO-JST(Japan), 3. Kyushu University(Japan), 4. Tokyo Inst. Tech.(Japan), 5. NIMS(Japan))

1:45 PM - 2:05 PM

[8E-E4-09] **Plasmonic-photonic hybrid modes excited on the periodic arrays of nitride nanoparticles in the visible region**

\*Ryosuke KAMAKURA<sup>1</sup>, Shunsuke MURAI<sup>1,2</sup>, Koji FUJITA<sup>1</sup>, Katsuhisa TANAKA<sup>1</sup> (1. Kyoto University(Japan), 2. PRESTO, Japan Science and Technology Agency(Japan))

2:05 PM - 2:25 PM

[8E-E4-10] **Enhanced Photoluminescence from Tb<sup>3+</sup> in Silicate Glass by Silver Nanoclusters and Nanoparticles**

\*YUAN GAO<sup>1</sup>, Shunsuke Murai, Koji Fujita, Katsuhisa Tanaka (1. Department of material chemistry, Kyoto University(Japan))

2:25 PM - 2:45 PM

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Oral presentation | E | E-4:Optical Materials

[8E-E4] **Optical Materials**

Chairperson: Katsuhisa TANAKA (Kyoto University, Japan), Chairperson: Shunsuke MURAI (Kyoto University, Japan)

3:20 PM - 5:05 PM Room E (2F, Conference Room III)

[8E-E4-11] **[INVITED] Red Phosphors: Theoretical Description of Their Optical Properties**

\*Mikhail G. Brik<sup>1,2,3</sup> (1. College of Sciences, Chongqing University of Posts and

Telecommunications(China), 2. Institute of Physics, University of Tartu(Estonia), 3. Institute of Physics, Jan Długosz University(Poland))

3:20 PM - 3:45 PM

[8E-E4-12] **[INVITED] Hydroxide-based Materials with Controllable 3D Architectures for Photocatalytic Reactions in Aqueous Media**

\*Yasuaki TOKUDOME<sup>1</sup>, Megu FUKUI<sup>1</sup>, Masahide TAKAHASHI<sup>1</sup> (1. Osaka Prefecture University(Japan))

3:45 PM - 4:05 PM

[8E-E4-13] **Red-shift of emission wavelength in Ce<sup>3+</sup> doped garnet phosphors by Si<sup>4+</sup>-N<sup>3-</sup> incorporation for warm-white LED**

\*Kazuki ASAMI<sup>1</sup>, Jumpei UEDA<sup>1</sup>, Setsuhisa TANABE<sup>1</sup> (1. Kyoto University(Japan))

4:05 PM - 4:25 PM

[8E-E4-14] **Synthesis of Co-Al layered double hydroxide nanoparticles with catalytic properties for the reduction of dye molecules in the aqueous media**

\*Daisuke KINO<sup>1</sup>, Yasuaki TOKUDOME<sup>1</sup>, Masahide TAKAHASHI<sup>1</sup> (1. Department of Materials Science, Graduate School of Engineering, Osaka Prefecture University(Japan))

4:25 PM - 4:45 PM

[8E-E4-15] **Synthesis of single-nm-size layered nickel hydroxide as nano-building blocks toward functional ordered mesoporous materials**

\*Naoki TARUTANI<sup>1</sup>, Yasuaki TOKUDOME<sup>2</sup>, Matías JOBBÁGY<sup>3</sup>, Galo J. A. SOLER-ILLIA<sup>4</sup>, Masahide TAKAHASHI<sup>2</sup> (1. Hosei University(Japan), 2. Osaka Prefecture University(Japan), 3. Universidad de Buenos Aires(Argentine), 4. Universidad Nacional de General San Martín(Argentine))

4:45 PM - 5:05 PM

## Room F

Oral presentation | E | E-7:Magnetic, Electric, Dielectric and Thermoelectric Materials

[8F-E7] **Magnetic, Electric, Dielectric and Thermoelectric Materials**

Chairperson: Naohito TSUJII (National Institute for Materials Science, Japan), Chairperson: Atsunobu MASUNO (Hirosaki University, Japan)

9:15 AM - 11:40 AM Room F (2F, Conference Room IV)

[8F-E7-01] **[INVITED] Comparison on different ways to enhance the coercivity of hot deformed Nd<sub>2</sub>Fe<sub>14</sub>B-type magnets**

\*Wen Cheng CHANG<sup>1</sup>, Y I Lee<sup>1</sup>, B S Liao<sup>1</sup>, Y J Wong<sup>1</sup>, H W Chang<sup>1</sup>, C C Shaw<sup>2</sup> (1. Physics Department, National Cheng Cheng University(Taiwan), 2. Superrite Electronics Co. Ltd.(Taiwan))

9:15 AM - 9:40 AM

[8F-E7-02] **[INVITED] Control of cobalt content in La-Co cosubstituted magnetoplumbite-type strontium ferrite**

\*Hiroyuki Nakamura<sup>1</sup>, Shusuke Okazaki<sup>1</sup>, Takeshi Waki<sup>1</sup>, Yoshikazu Tabata<sup>1</sup>, Masaki Kato<sup>2</sup>, Ken Hirota<sup>2</sup> (1. Kyoto University(Japan), 2. Doshisha University(Japan))

9:40 AM - 10:00 AM

[8F-E7-03] **Charge ordering patterns in A-site ordered/disordered triple perovskites with unusually high valence Fe<sup>3.67+</sup>**

\*Haichuan GUO<sup>1</sup>, Yoshiteru HOSAKA<sup>1</sup>, Fabio ROMERO<sup>1</sup>, Takashi SAITO<sup>1</sup>, Noriya ICHIKAWA<sup>1</sup>, Yuichi SHIMAKAWA<sup>1</sup> (1. Institute for Chemical Research, Kyoto University (Japan))

10:00 AM - 10:20 AM

[8F-E7-04] **High pressure synthesis of Sr<sub>0.5</sub>Bi<sub>0.5</sub>FeO<sub>3</sub>**

\*Peng XIONG<sup>1</sup>, Yoshiteru HOSAKA<sup>1</sup>, Fabio Denis ROMERO<sup>1</sup>, Takashi SAITO<sup>1</sup>, Yuichi SHIMAKAWA<sup>1</sup> (1. Institute for Chemical Research, Kyoto University(Japan))

10:20 AM - 10:40 AM

[8F-E7-05] **[INVITED] Metal-insulator crossover in Pb-Ru based oxides with pyrochlore-type structure**

\*Masaki KATO<sup>1</sup>, Kazuya IWAMOTO<sup>1</sup>, Yuki IWAKURA<sup>1</sup>, Ken HIROTA<sup>1</sup>, Angel AREVALO-LOPEZ<sup>2</sup>, Paul ATTFIELD<sup>2</sup> (1. Doshisha University(Japan), 2. University of Edinburgh(UK))

10:40 AM - 11:00 AM

[8F-E7-06] **High Pressure Synthesis of New Hexagonal Perovskites BaFe<sub>x</sub>Ni<sub>1-x</sub>O<sub>3</sub>**

\*Zhenhong TAN<sup>1</sup>, Takashi SAITO<sup>1</sup>, Yuichi SHIMAKAWA<sup>1</sup> (1. Institute for Chemical Research, Kyoto University(Japan))

11:00 AM - 11:20 AM

[8F-E7-07] **[INVITED] Ferromagnetic interactions in rutile-related Cr(IV) oxides**

\*Hiroya SAKURAI<sup>1</sup> (1. National Institute for Materials Science(Japan))

11:20 AM - 11:40 AM

Oral presentation | E | E-7:Magnetic, Electric, Dielectric and Thermoelectric Materials

[8F-E7] **Magnetic, Electric, Dielectric and Thermoelectric Materials**

Chairperson: Yuichi SHIMAKAWA (Kyoto University, Japan), Chairperson: Hiroki NAKANO (University of Hyogo, Japan) 1:00 PM - 3:10 PM Room F (2F, Conference Room IV)

[8F-E7-08] **[INVITED] Thermoelectric properties of chalcopyrite-based magnetic semiconductors: power-factor enhancement by magnetic interaction**

\*Naohito TSUJII<sup>1</sup>, Fahim AHMED<sup>1,2</sup>, Takao MORI<sup>1,2</sup> (1. National Institute for Materials Science(Japan), 2. University of Tsukuba(Japan))

1:00 PM - 1:20 PM

**[8F-E7-09] [INVITED] Approaching efficient****thermoelectrics: from materials to modules**\*Lidong Chen<sup>1</sup> (1. Shanghai Institute of Ceramics, CAS(China))

1:20 PM - 1:45 PM

**[8F-E7-10] Synthesis of morphology controlled n-type****Mg<sub>2</sub>Si/CNT thermoelectric nanofibers**\*Keiko Kikuchi<sup>1</sup>, Naoyuki Nomura<sup>1</sup>, Akira Kawasaki<sup>1</sup> (1. Tohoku University(Japan))

1:45 PM - 2:05 PM

**[8F-E7-11] Effects of Cu addition to Si precipitations in  $\beta$ -FeSi<sub>2</sub>/Si composite and its thermoelectric properties**\*farah liana binti MOHD REDZUAN<sup>1</sup>, Mikio ITO<sup>1</sup> (1. Materials and Manufacturing Science, Graduate School of Engineering, Osaka University(Japan))

2:05 PM - 2:25 PM

**[8F-E7-12] [INVITED] Densely packed oxide glasses with optical and mechanical functionalities prepared by a levitation technique**\*Atsunobu MASUNO<sup>1</sup> (1. Hirosaki University(Japan))

2:25 PM - 2:45 PM

**[8F-E7-13] [INVITED] Solid State Metal (oxy)nitride Functional Materials**\*Minghui YANG<sup>1</sup> (1. Ningbo Institute of Industrial Technology (CNITECH) Chinese Academy of Sciences (China))

2:45 PM - 3:10 PM

Oral presentation | E | E-7:Magnetic, Electric, Dielectric and Thermoelectric Materials

**[8F-E7] Magnetic, Electric, Dielectric and Thermoelectric Materials**Chairperson: Kazuyoshi YOSHIMURA (Kyoto University, Japan),  
Chairperson: Hiroya SAKURAI (National Institute for Materials Science, Japan)

3:30 PM - 4:35 PM Room F (2F, Conference Room IV)

**[8F-E7-14] [INVITED] The destabilization of the ferrimagnetic ground state of a spin-1/2 Heisenberg antiferromagnet owing to frustrations**\*Hiroki NAKANO<sup>1</sup> (1. University of Hyogo(Japan))

3:30 PM - 3:50 PM

**[8F-E7-15] [INVITED] Exploration of New Dirac/Weyl Semimetals**\*Minghu FANG<sup>1</sup> (1. Department of Physics, Zhejiang University(China))

3:50 PM - 4:15 PM

**[8F-E7-16] [INVITED] NMR Study on Pd and Ru Nanoparticles**\*Kenji ISHIDA<sup>1</sup>, S. KITAGAWA<sup>1</sup>, M. MANAGO<sup>1</sup>, K. YONEKAWA<sup>1</sup>, K. KUSADA<sup>2</sup>, H. KOBAYASHI<sup>2</sup>, H. KITAGAWA<sup>2</sup> (1. Department of Physics, Graduate School of Science, Kyoto University(Japan), 2. Department of Chemistry, Graduate School of Science, Kyoto University(Japan))

4:15 PM - 4:35 PM

Thu. Nov 9, 2017

Room B

Oral presentation | E | E-1:Alloys, Composites, and Hybrids/Nanoparticles and Porous Materials

**[9B-E1] Alloys, Composites, and****Hybrids/Nanoparticles and Porous Materials**

Chairperson: Kazuki NAKANISHI (Kyoto University, Japan),

Chairperson: Miki INADA (Kyushu University, Japan)

9:20 AM - 10:40 AM Room B (2F, International Conference Hall I)

I)

**[9B-E1-01] [INVITED] Noble metal nanoparticles****embedded in hierarchically porous monolithic oxide support for flow-through catalysis**\*Kazuki NAKANISHI<sup>1</sup>, Kazuyoshi KANAMORI<sup>1</sup>, Toshiyuki KAMEI<sup>2</sup>, Toyoshi SHIMADA<sup>2</sup> (1. Dept. Chemistry, Graduate School of Science, Kyoto University(Japan), 2. Nara National College of Technology(Japan))

9:20 AM - 9:40 AM

**[9B-E1-02] [INVITED] Fabrication of spherical mesoporous silica-titania via microwave-emulsion method**\*Miki INADA<sup>1</sup>, Junichi HOJO<sup>2</sup> (1. Center of Advanced Instrumental Analysis, Kyushu University(Japan), 2. Faculty of Engineering, Kyushu University(Japan))

9:40 AM - 10:00 AM

**[9B-E1-03] Mechanical properties of porous structures produced by SLM of a Ti6Al4V alloy powder**\*Alberto MOLINARI<sup>1</sup>, Johanna KLARIN<sup>2,1</sup>, Frida JOHANSSON<sup>2,1</sup>, Matteo BENEDETTI<sup>1</sup>, Vigilio FONTANARI<sup>1</sup>, Emanuele MAGALINI<sup>3</sup>, Valerio LUCHIN<sup>3</sup>, Gianluca ZAPPINI<sup>3</sup> (1. University of Trento(Italy), 2. University of Jonkoping(Sweden), 3. Eurocoating SpA, Trento(Italy))

10:00 AM - 10:20 AM

**[9B-E1-04] Formation of nanoporous Fe-based alloy by solid state interfacial dealloying reaction**\*Takeshi WADA<sup>1</sup>, Hidemi KATO<sup>1</sup> (1. Institute for Materials Research, Tohoku University(Japan))

10:20 AM - 10:40 AM

**[9B-E1-05] Cancelled**

10:40 AM - 10:59 AM

Room C

Oral presentation | D | D-4:Additive Manufacturing with Powder Metallurgy

**[9C-D4] Additive Manufacturing with Powder Metallurgy**

Chairperson: Hideshi MIURA (Kyushu University, Japan),

Chairperson: Soshu KIRIHARA (Osaka University, Japan)

9:20 AM - 11:25 AM Room C (2F, International Conference Hall II)

**[9C-D4-01] [INVITED] Distortion of thin wall structures in laser powder bed fusion additive manufacturing**\*Chen-Nan SUN<sup>1</sup>, Wai Jack SIN<sup>1</sup>, Guglielmo VASTOLA<sup>2</sup>, N. SRIDHAR<sup>2</sup>, Mui Ling Sharon NAI<sup>1</sup> (1. Singapore Institute of Manufacturing Technology (SIMTech), Agency for Science, Technology, and Research (A\*STAR)(Singapore), 2. Institute of High Performance Computing (IHPC), Agency for Science, Technology, and Research (A\*STAR)(Singapore))

9:20 AM - 9:45 AM

**[9C-D4-02] [INVITED] Parameter Optimization on the Fabrication of Aluminum Alloy Using Selective Laser Melting Process**Shinnosuke KUSAKAWA<sup>1</sup>, Masahiro ARAKI<sup>2</sup>, Kazuhiro NAKAMURA<sup>2</sup>, Makiko YONEHARA<sup>1</sup>, Toshi-Taka IKESHOJI<sup>1</sup>, \*Hideki KYOGOKU<sup>1</sup> (1. Kindai University(Japan), 2. TRAFAM(Japan))

9:45 AM - 10:05 AM

**[9C-D4-03] Microstructures and mechanical properties of A356 aluminum alloy fabricated using selective laser melting**\*Takahiro KIMURA<sup>1</sup>, Takayuki NAKAMOTO<sup>1</sup>, Kazuki SUGITA<sup>2</sup>, Masataka MIZUNO<sup>2</sup>, Hideki ARAKI<sup>2</sup> (1. Osaka Research Institute of Industrial Science and Technology(Japan), 2. Osaka University(Japan))

10:05 AM - 10:25 AM

**[9C-D4-04] Effects of Zr content on the microstructures and mechanical properties of Cu-Cr-Zr alloy builds fabricated by powder bed fusion process using fiber laser**\*Naoyuki NOMURA<sup>1</sup>, Takato KOUSAKA<sup>1</sup>, Shinichi MORIYA<sup>2</sup>, Takayuki NAKAMOTO<sup>3</sup>, Takahiro KIMURA<sup>3</sup>, Keiko KIKUCHI<sup>1</sup>, Akira KAWASAKI<sup>1</sup> (1. Tohoku University(Japan), 2. Japan Aerospace Exploration Agency(Japan), 3. Osaka Research Institute of Industrial Science and Technology(Japan))

10:25 AM - 10:45 AM

[9C-D4-05] **The study on improvement of the tensile strength for building direction of the parts fabricated by using inkjet technique and resin coated powder**

\*Shinichiro Sato<sup>1</sup>, Shin Mizutani<sup>1</sup>, Yuta Koike<sup>1</sup>, Daichi Yamaguchi<sup>1</sup>, Takafumi Sasaki<sup>1</sup> (1. RICOH COMPANY, LTD.(Japan))

10:45 AM - 11:05 AM

[9C-D4-06] **Precision and complex parts fabricated by Selective Laser Melting (SLM) process**

\*Shinji Sakamoto<sup>1</sup>, Msayuki Matsui<sup>1</sup>, Takahiro Komatsu<sup>1</sup>, Yoshinori Ito, katsuhiko Sakai, Hiroo Shizuka (1. Nissei Electric Co.(Japan))

11:05 AM - 11:25 AM

## Room D

Oral presentation | B | B-1:Hard Materials

[9D-B1] **Hard Materials**

Chairperson: Hideaki MATSUBARA (Tohoku University, Japan),

Chairperson: Masaru KAWAKAMI (Fuji Die Co., Ltd, Japan)

9:20 AM - 11:25 AM Room D\_Oral (2F, International Conference Hall III)

[9D-B1-01] **[INVITED] Assessing hot deformation mechanisms in cemented carbides using crystal orientation and other electron imaging techniques**

\*Bryan Roebuck<sup>1</sup>, Ken Mingard<sup>1</sup> (1. National Physical Laboratory(UK))

9:20 AM - 9:45 AM

[9D-B1-02] **[INVITED] Metal Cutting of Difficult-to-Cut Materials**

\*Toshiyuki Takahashi<sup>1</sup> (1. Tungaloy corporation(Japan))

9:45 AM - 10:05 AM

[9D-B1-03] **Influence of microstructure on the thermal conductivity of cemented carbides**

\*Akira ONO<sup>1</sup>, Kazuki OKADA<sup>1</sup>, Hisashi HOMMA<sup>1</sup>, Yukito NAKANISHI<sup>1</sup> (1. Mitsubishi Materials Corporation(Japan))

10:05 AM - 10:25 AM

[9D-B1-04] **Investigation of interface reaction of WC/Co using diffusion couple technique**

\*Hiroyuki NAKAYAMA<sup>1</sup>, Kimihiro OZAKI<sup>1</sup>, Yasuhito MUKAIDE<sup>2</sup> (1. National Institute of Advanced Industrial Science and Technology(Japan), 2. NOTOALLOY Co., Ltd(Japan))

10:25 AM - 10:45 AM

[9D-B1-05] **Influence of the Al content on microstructure of CVD Aluminum Titanium Nitride coatings**

\*Sho Tatsuoka<sup>1</sup>, Takuya Ishigaki<sup>1</sup>, Kenichi Sato<sup>1</sup>, Kosuke Yanagisawa<sup>1</sup>, Kenji Yamaguchi<sup>1</sup>, Shin Nishida<sup>1</sup> (1. Mitsubishi Materials Corporation(Japan))

10:45 AM - 11:05 AM

[9D-B1-06] **Toughening and strengthening of Al<sub>2</sub>O<sub>3</sub>/Ba-β-Al<sub>2</sub>O<sub>3</sub>/m-ZrO<sub>2</sub> composites with TZP addition**

\*Lei LIU<sup>1</sup>, Kenta SAKURAGAWA<sup>1</sup>, Yu TAKASU<sup>1</sup>, Kensaku MAEDA<sup>1</sup>, Tetsuhiko ONDA<sup>1</sup>, Zhong-Chun CHEN<sup>1</sup> (1. Department of Mechanical and Aerospace Engineering, Graduate School of Engineering, Tottori University(Japan))

11:05 AM - 11:25 AM

## Room E

Oral presentation | A | A-5:Non-ferrous Materials

[9E-A5] **Non-ferrous Materials**

Chairperson: Makoto KOBASHI (Nagoya University, Japan),

Chairperson: Katsuyoshi KONDOH (Osaka University, Japan)

9:20 AM - 11:30 AM Room E (2F, Conference Room III)

[9E-A5-01] **[INVITED] Current status of PM Aluminum in Europe and the US**

J.Gradl<sup>1</sup>, \*Bernhard MAIS<sup>1</sup> (1. Kymera International, ECKA Granules Germany GmbH (Germany))

9:20 AM - 9:45 AM

[9E-A5-02] **[INVITED] SHS-based powder technologies for design of advanced high-temperature materials**

\*Evgeny Alexandrovich Levashov<sup>1</sup>, Victoria Vladimirovna KURBATKINA<sup>1</sup>, Yury Sergeevich POGOZHEV<sup>1</sup>, Alexander Anatol'evich ZAITSEV<sup>1</sup>, Yury Yur'evich KAPLANSKII<sup>1</sup> (1. National University of Science and Technology (Russia))

9:45 AM - 10:10 AM

[9E-A5-03] **Solid solution strengthening mechanisms of PM α-Ti materials with zirconium and oxygen atoms via thermal decomposition of ZrO<sub>2</sub> additives in sintering**

\*Mizuki FUKUO<sup>1</sup>, Shota KARIYA<sup>1</sup>, Junko UMEDA<sup>1</sup>, Katsuyoshi KONDOH<sup>1</sup> (1. Joining and Welding Research Institute Osaka University(Japan))

10:10 AM - 10:30 AM



[9E-A5-04] **Strengthening mechanism of  $\alpha$ -Ti materials by synergy effect of substitutional and interstitial solid solution via powder metallurgy**

\*Shota KARIYA<sup>1</sup>, Mizuki FUKUO<sup>1</sup>, Junko UMEDA<sup>1</sup>, Masato YOSHIYA<sup>2</sup>, Katsuyoshi KONDOH<sup>1</sup> (1. JWRI, Osaka University(Japan), 2. Department of Adaptive Machine Systems, Osaka University(Japan))

10:30 AM - 10:50 AM

[9E-A5-05] **Wear resistance of the developed TiB reinforced titanium metal matrix composites fabricated via blended elemental powder metallurgy process**

\*Katsuomi Shiina<sup>1</sup>, Yoshihisa Ueda<sup>1</sup>, Tadahiko Furuta<sup>2</sup> (1. FINE SINTER CO., LTD.(Japan), 2. TOYOTA CENTRAL R&D LABS., INC.(Japan))

10:50 AM - 11:10 AM

[9E-A5-06] **Development of tungsten containing neodymium oxide, an Alternative Material for ThO<sub>2</sub>-W Used for Plasma Cathodes**

\*Tatsuya MOURI<sup>1</sup>, Kouji FUJII<sup>1</sup>, Katsuyuki MORII<sup>2</sup>, Tadao UETSUKI<sup>3</sup>, Takayuki WATANABE<sup>4</sup> (1. Nippon Tungsten Co., Ltd.(Japan), 2. HIMEJI RIKA Co., Ltd.(Japan), 3. TSUYAMA National College of Technology(Japan), 4. KYUSHU University(Japan))

11:10 AM - 11:30 AM

## Room F

Oral presentation | E | E-7: Magnetic, Electric, Dielectric and Thermoelectric Materials

[9F-E7] **Magnetic, Electric, Dielectric and Thermoelectric Materials**

Chairperson: Hiroyuki NAKAMURA (Kyoto University, Japan),  
Chairperson: Masaki KATO (Doshisha University, Japan)  
9:45 AM - 11:25 AM Room F (2F, Conference Room IV)

[9F-E7-05] **Development of Yoke of torque sensor with high performance, cost-benefit, and high quality**

\*Rie SUZUKI<sup>1</sup>, Nobuya AMANO<sup>1</sup>, Yoshiyuki SHIMADA<sup>1</sup>, Makoto KIKUCHI<sup>1</sup> (1. Sumitomo Electric Sintered Alloy, Ltd.(Japan))

9:45 AM - 10:00 AM

[9F-E7-01] **Effect of distortion on magnetic properties of Nd-Fe-B thin film magnets on BaTiO<sub>3</sub>**

\*Ryuji HASHIMOTO<sup>1</sup>, Takuya SATO<sup>1</sup>, Yuji UMEDA<sup>1</sup>, Kenichi SUZUKI<sup>1</sup>, Yasushi ENOKIDO<sup>1</sup>, Tomoyasu TANIYAMA<sup>2</sup> (1. TDK Corporation(Japan), 2. Tokyo

Institute of Technology(Japan))

10:05 AM - 10:25 AM

[9F-E7-02] **Magnetic Properties in High Frequency Region for Nano-crystal Powder Core of Fe-Si-B-Nb-Cr-Cu System**

\*Seiichi SAITO<sup>1</sup>, Nobuhito CHUJO<sup>1</sup>, Toshifumi AOYAMA<sup>1</sup>, Masakatsu FUKUDA<sup>1</sup> (1. Mitsubishi Steel Mfg. Co., Ltd.(Japan))

10:25 AM - 10:45 AM

[9F-E7-03] **Influence of Microstructure on Coercive Force of Pure Iron Powder Cores**

\*Takuya Takashita<sup>1</sup>, Naomichi Nakamura<sup>1</sup> (1. JFE steel corporation(Japan))

10:45 AM - 11:05 AM

[9F-E7-04] **Formation of {001} fiber texture on platelet iron particles using ball milling process**

\*Satoshi MOTOZUKA<sup>1</sup>, Hisashi SATO<sup>2</sup> (1. National Institute of Technology, Gifu College(Japan), 2. Nagoya Institute of Technology(Japan))

11:05 AM - 11:25 AM

# Poster Session

Core Time: Nov. 7 (Tue)

Odd number; 19:00-19:45

Even number; 19:45-20:30

Tue. Nov 7, 2017

Room D

## [P-A1] Modeling and Simulation

[P-A1-01] **TiN and AlN reaction synthesis: laser control and modeling**

\*Igor Shishkovsky<sup>1</sup> (1. P.N. Lebedev Physics Institute of Russian Academy of Sciences, Samara branch(Russia))

## [P-A2] Sintering and Post Processing

[P-A2-01] **Effect of Superheated Steam Amount on Rapid Debinding of Alumina Molded Bodies**

\*Toshiki Nakamura<sup>1</sup>, Norio Muto<sup>2</sup>, Atsushi Nahira<sup>3</sup>  
(1. Takasago Industry(Dept. Eng., Osaka Prefecture Univ.)(Japan), 2. Takasago Industry.(Japan), 3. Dept. Eng., Osaka Prefecture Univ.(Japan))

## [P-A3] Spark Plasma Sintering

[P-A3-01] **Effect of electrical property of graphite die on sintering behavior of Spark Plasma Sintering process**

\*Tatsuya MISAWA<sup>1</sup>, Yuji KAWAKAMI<sup>2</sup>, Masakazu KAWAHARA<sup>3</sup> (1. Saga University(Japan), 2. Kurume National Collage of Technology(Japan), 3. Kawahara SPS Technical Office(Japan))

[P-A3-02] **Control of temperature distribution in sintering die on Multi-Axis Current Sintering process**

\*Yuya MAEDA<sup>1</sup>, Tatsuya MISAWA<sup>1</sup>, Kenichi SUNAMOTO<sup>2</sup> (1. Saga University(Japan), 2. Akane Co., Ltd.(Japan))

[P-A3-03] **Electrochemical Characteristics of Titanium-Manganese Oxide Composites Synthesized through SPS and PLD Techniques**

\*Thato Sharon TSHEPHE<sup>1</sup>, Peter OLUBAMBI<sup>2</sup>, Kenneth OZOEMENA<sup>3</sup>, Iakovos SIGALAS<sup>4</sup> (1. Department of

Metallurgical Engineering, University of Johannesburg, Johannesburg 2006(South Africa), 2. Department of Chemical Engineering, University of Johannesburg, Johannesburg 2006(South Africa), 3. School of Chemistry, University of the Witwatersrand, Wits 2050(South Africa), 4. School of Chemical and Metallurgical Engineering, University of the Witwatersrand, Wits 2050(South Africa))

## [P-A4] Iron and Steel Materials

[P-A4-01] **Characterization of High Strength ODS Ferritic Stainless Steels Fabricated by Mechanical Alloying and Uniaxial Hot Pressing Processes**

\*Sanghoon NOH<sup>1</sup>, Ga Eon KIM<sup>1</sup>, Suk Hoon KANG<sup>1</sup>, Jinsung JANG<sup>1</sup>, Tae Kyu KIM<sup>1</sup> (1. Korea Atomic Energy Research Institute(Korea))

[P-A4-02] **Microstructures and Mechanical Properties of Cross Rolled ODS Steel Plates for Advanced Nuclear Applications**

\*Sanghoon NOH<sup>1</sup>, Suk Hoon KANG<sup>1</sup>, Tae Kyu KIM<sup>1</sup>  
(1. Korea Atomic Energy Research Institute(Korea))

[P-A4-03] **Fabrication of nano-scale oxide dispersed strengthened iron by solution combustion process and spark plasma sintering**

\*Minli Qin<sup>1</sup>, Deyin Zhang<sup>1</sup>, Haiqing Yin<sup>1</sup>, Baorui Jia<sup>1</sup>, Haoyang Wu<sup>1</sup>, Yuxiao Wang<sup>1</sup>, Xuanhui Qu<sup>1</sup> (1. Institute for Advanced Materials and Technology, University of Science and Technology Beijing(China))

[P-A4-04] **Oxidation behavior of highly concentrated TiC-SKD11 composite fabricated by a liquid pressing infiltration process**

\*Seungchan CHO<sup>1</sup>, Ilguk JO<sup>1</sup>, Yeonghwan LEE<sup>1</sup>, Sangmin SHIN<sup>1</sup>, Donghyun LEE<sup>1</sup>, Sang-Bok LEE<sup>1</sup>, Sang-Kwan LEE<sup>1</sup> (1. Korea Institute of Materials Science (KIMS)(Korea))

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[P-A5] Non-ferrous Materials

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[P-A5-01] **Direct joining between metal and polymer using protruding anchor layer fabricated by laser-induced combustion synthesis**

\*Seung Gwang KIM<sup>1</sup>, Asuka SUZUKI<sup>2</sup>, Naoki TAKATA<sup>2</sup>, Makoto KOBASHI<sup>2</sup> (1. Graduate student, Nagoya University(Japan), 2. Graduate school of Engineering, Nagoya University(Japan))

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[P-B1] Hard Materials

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[P-B1-01] **Development of MgO-based ceramics with excellent corrosion resistance against plasma etching**

\*Takashi Ikeda<sup>1</sup>, Yuji Kasashima<sup>2</sup>, Fumihiko Uesugi<sup>2</sup>, Kota Tsutsumi<sup>1</sup> (1. NIPPON TUNGSTEN CO.,LTD.(Japan), 2. Advanced Manufacturing Research Institute, National Institute of Advanced Industrial Science and Technology(AIST)(Japan))

[P-B1-02] **Investigation of Acoustic Wave activated under Microwave Irradiation in Polycrystalline Ceramics**

\*Sadatsugu Takayama<sup>1</sup>, Motoyasu Sato<sup>2</sup> (1. National Institute for Fusion Science(Japan), 2. Chubu University(Japan))

[P-B1-03] **Development for CC Anvilroll**

\*Takahiro Yoshihara<sup>1</sup> (1. Nippon Tungsten Co.,Ltd.(Japan))

[P-B1-04] **Additive Effects on the Phase Formation and Mechanical Properties of Mo<sub>2</sub>NiB<sub>2</sub>-Ni based Cermet**

\*Takumi TAZAWA<sup>1</sup>, Keiichiro TAKAHASHI<sup>1</sup>, Satofumi MARUYAMA<sup>1</sup>, Takuya FUJIMA<sup>1</sup>, Naoto SHIRAKI<sup>1</sup> (1. Tokyo City University(Japan))

[P-B1-05] **Microstructures and Mechanical Properties of TiCN-xWC-(Ni,Fe)<sub>3</sub>Al cermets**

\*Hiroyuki Hosokawa<sup>1</sup>, Kiyotaka Kato<sup>1</sup>, Koji Shimojima<sup>1</sup> (1. National Institute of Advanced Industrial Science and Technology (Japan))

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[P-C1] **Synthesis, Processing, and Properties of Powder**


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[P-C1-01] **Effect of dispersed Ta<sub>2</sub>O<sub>5</sub> nanoparticles on thermoelectric property of BiSbTe alloy**

\*MyeongWon Lee<sup>1</sup>, EunBin Kim<sup>1</sup>, KapHo Lee<sup>2</sup>, JarMyung Koo<sup>1</sup>, SoonJik Hong<sup>1</sup> (1. Division of Advanced Materials Engineering, Kongju National University, 275, Budae-dong, Cheonan City, Chungcheongnam-do, 330-717, Republic of Korea.(Korea), 2. Department of Nano Materials Engineering, Chungnam University, Daejeon 304-764, Republic of Korea(Korea))

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[P-D1] Powder Compaction

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[P-D1-01] **Data analysis and prediction of the green density in high velocity compaction**

Zhang Kaiqi<sup>1</sup>, \* Yin Haiqin<sup>1,2</sup>, Jiang Xue<sup>1</sup>, Deng Zhenghua<sup>3,1</sup>, Qu Xuanhui<sup>1</sup> (1. University of Science and Technology Beijing(China), 2. Kennametal Inc(United States of America), 3. Chongqing Three Gorges University(China))

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[P-D2] Powder Forging, Rolling, Extrusion

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[P-D2-01] **Microstructure and mechanical properties of extruded hyper eutectic Al-Si alloy**

\*SU SEONG AHN<sup>1</sup>, CHANG HYUN BAEG<sup>2</sup>, KAP HO LEE<sup>3</sup>, JAR MYUNG KOO<sup>1</sup>, SOON JIK HONG<sup>1</sup> (1. Kongju National University college of engineering Dept. of advanced material (Korea), 2. DONGYANG A.K KOREA CO.,LTD(Korea), 3. Chungnam National University Department of Materials Science &Engineering(Korea))

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[P-D3] PIM (Powder Injection Molding)

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[P-D3-01] **FABRICATION OF COPPER/GRAPHENE COMPOSITE THROUGH POWDER INJECTION MOLDING**

Natasha Emira Azaman<sup>1</sup>, Farhana Mohd Foudzi<sup>1</sup>, \*Norhamidi Muhamad<sup>1</sup>, Abu Bakar Sulong<sup>1</sup>, Muhammad Rafi Raza<sup>2</sup> (1. Universiti Kebangsaan Malaysia(Malaysia), 2. COMSATS Institute of Information Technology(Pakistan))

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[P-D4] Additive Manufacturing with Powder Metallurgy

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[P-D4-01] **Selective laser sintering of Ti-6Al-4V powder with different parameter conditions**

\*THUYET MINH NGUYEN<sup>1</sup>, JIN-CHUN KIM<sup>1</sup>, JIN-HUNG KIM<sup>1</sup>, DONG-WAN LEE<sup>1</sup> (1. School of Materials Science and Engineering, University of Ulsan, korea(Korea))

[P-D4-02] **Heat transfer and dendrite growth kinetics in titanium alloys during electron beam melting**

\*Igor Shishkovsky<sup>1</sup> (1. P.N. Lebedev Physics Institute of Russian Academy of Sciences, Samara branch(Russia))

[P-D4-03] **Microstructure Studies of Alumina Micro Particles Reinforced Inconel 625 Superalloy Produced by Selective Laser Melting**

\*Pei WANG<sup>1</sup> (1. Institute of Materials Research and Engineering(Singapore))

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[P-E1] Alloys, Composites, and Hybrids/Nanoparticles and Porous Materials

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[P-E1-01] **Microstructure and Tensile Behavior of Hot Isostatically Pressed TiC-SKD11 Composite**

\*Seong-Ju Park<sup>1</sup>, Seung-Chan Cho<sup>2</sup>, Sang-Kwan Lee<sup>2</sup>, Dae-Ha Kim<sup>3</sup>, Keum-Cheol Hwang<sup>3</sup>, Hyun-Uk Hong<sup>1</sup> (1. Department of Materials Science and Engineering, Changwon National University, 20 Changwondaehak-ro, Changwon, Gyeongnam 641-773, Republic of Korea(Korea), 2. Composites Research Division, Korea Institute of Materials Science, 797 Changwondaero, Changwon, Gyeongnam 641-831, Republic of Korea(Korea), 3. Daewha Alloytech, 17-60 Sanupdanji-gil, Dangjin, Chungnam 343-882, Republic of Korea(Korea))

[P-E1-02] **Study on joining process of sulfide dispersed bronze and steel plate**

\*Hirokazu Yamasaki<sup>1</sup>, Tomohiro SATO<sup>2</sup>, Masanori TAKUMA<sup>2</sup>, Kenichi SAITOH<sup>2</sup>, Yoshimasa TAKAHASHI<sup>2</sup> (1. Graduate school, Kansai university(Japan), 2. Kansai university Faculty of Mechanical Engineering(Japan))

[P-E1-03] **Thermal Expansion Coefficient of Yttrium Silicates Ceramics and Their Composites Dispersed with SiC Particles**

\*HUY DINH VU<sup>1</sup>, Makoto NANKO<sup>1</sup> (1. Mechanical Engineering Department, Nagaoka University of Technology, Nagaoka, Niigata(Japan))

[P-E1-04] **Fabrication of Tin Oxide-Carbon Nano Composite for Energy Applications heated by Microwave**

\*Sadatsugu Takayama<sup>1</sup>, Guido Link<sup>2</sup>, Yutaka Maruyama<sup>3</sup>, Takashi Watanabe<sup>1</sup>, Masayuki Tokitani<sup>1</sup>, Yukio Hayakawa<sup>3</sup>, John Jelonnek<sup>2</sup> (1. National Institute for Fusion Science(Japan), 2. Karlsruhe Institute of Technology, IHM(Germany), 3. National Institute of Advanced Industrial Science and Technology(Japan))

[P-E1-05] **Processing and characterization of multi-walled carbon nanotube - ZrB<sub>2</sub> ceramic matrix composite**

Wenwen WU<sup>1</sup>, \*Mehdi ESTILI<sup>1</sup>, Guo-Jun ZHANG<sup>2</sup>, Yoshio SAKKA<sup>1</sup> (1. NIMS(Japan), 2. Donghua University(China))

[P-E1-06] **Utilizing rice husk for ceramic foams as matrix and foaming agent**

Chiaki Matsuoka<sup>1</sup>, Takashi Teranishi<sup>1</sup>, Hidetaka Hayashi<sup>1</sup>, \*Akira Kishimoto<sup>1</sup> (1. Okayama University(Japan))

[P-E1-07] **Fundamental Study on Functionality of Synthetic Sulfides**

\*Shuheishi ISHIKAWA<sup>1</sup>, Tomohiro SATO<sup>2</sup>, Masanori TAKUMA<sup>2</sup>, Kenichi SAITOH<sup>2</sup>, Yoshimasa TAKAHASHI<sup>2</sup> (1. Kansai University Graduate School of Science and Engineering(Japan), 2. Kansai University Faculty of Engineering Science(Japan))

[P-E1-08] **Fabrication of porous TiB<sub>2</sub>/Fe composite on iron substrate utilizing combustion synthesis reaction**

\*Kazuki NORITAKE<sup>1</sup>, Asuka SUZUKI<sup>2</sup>, Naoki TAKATA<sup>2</sup>, Makoto KOBASHI<sup>2</sup> (1. graduate student, Nagoya University(Japan), 2. graduate school of Nagoya University(Japan))

[P-E1-09] **Evaluation of sintering process of sinter-resistant copper alloy**

\*Yasumasa SAWAI<sup>1</sup>, Tomohiro SATO<sup>2</sup>, Masanori TAKUMA<sup>2</sup>, Ken-ichi SAITOH<sup>2</sup>, Yoshimasa TAKAHASHI<sup>2</sup> (1. Graduate school, Kansai university(Japan), 2. Kansai university Faculty of Engineering Science(Japan))

[P-E2] **Metallic glasses (Bulk, Rapidly quenched)**

[P-E2-01] **Atomic study of the crystal nucleus in the supercooled liquids of Cu-Zr binary alloys**

\*Masato WAKEDA<sup>1</sup>, Shigenobu OGATA<sup>2</sup> (1. National Institute for Materials Science(Japan), 2. Osaka University(Japan))

[P-E2-02] **Local structure near a nickel atom in an Al-Cr-Fe-Co-Ni high entropy alloy**

\*Ryosuke Shioda<sup>1</sup>, Tsuyoshi YOSHIDA<sup>1</sup>, Tokujiro YAMAMOTO<sup>1</sup>, Yoshihiro EBISU<sup>3</sup>, Toru OZAKI<sup>3</sup>, Koji KIMURA<sup>2</sup>, Kouichi HAYASHI<sup>2</sup>, Naohisa HAPPO<sup>4</sup>, Shinya HOSOKAWA<sup>5</sup> (1. Utsunomiya University(Japan), 2. Nagoya Institute of Technology(Japan), 3. Hiroshima Institute of Technology(Japan), 4. Hiroshima City University(Japan), 5. Kumamoto University(Japan))

[P-E2-03] **Glass-forming ability and magnetization of (Fe, Co)-B-Si-(Nb, RE) (RE=Nd, Dy) amorphous alloys**

\*Keita MORIYA<sup>1</sup>, Teruo BITOH<sup>1</sup> (1. Akita Prefectural University(Japan))

[P-E2-04] **Synthesis of Fe-Co-Ni-(B, C, Si) ferromagnetic high entropy amorphous alloys and their thermal and magnetic properties**

\*Maki SATAKE<sup>1</sup>, Teruo BITOH<sup>1</sup> (1. Akita Prefectural University(Japan))

[P-E2-05] Cancelled

[P-E2-06] **Experimental study on yield function for Zr<sub>55</sub>Al<sub>10</sub>Cu<sub>30</sub>Ni<sub>5</sub> bulk metallic glass**

\*Ryota Ito<sup>1</sup>, Takamasa Yoshikawa<sup>1</sup>, Tadashi Inaba<sup>1</sup> (1. Department of Mechanical Engineering, Mie University, 1577 Kurima-machiya-cho, Tsu 514-8507(Japan))

[P-E2-07] **Remedial Effects of Au, Pd Additions on plastic deformation of Zr-Cu-Ni-Al metallic glasses**

\*Toshiyuki DOI<sup>1</sup>, Tohru YAMAZAKI<sup>1</sup>, Hidemi KATO<sup>2</sup> (1. Graduate School of Engineering, University of Hyogo (Japan), 2. Institute for Materials Research, Tohoku University(Japan))

## [P-E3] Nano and Ultra-fine Materials

[P-E3-01] **Fabrication of 3D controllable pattern containing clusters and nanoparticles inside a solid material**

Qiuqun Chen<sup>1</sup>, \*Jianrong Qiu<sup>1</sup> (1. South China University of Technology(China))

[P-E3-02] **Observation of domain wall segment jump among disorders**

\*Takuya Taniguchi<sup>1</sup>, Kab-Jin Kim<sup>1,2</sup>, Tomohiro Koyama<sup>3</sup>, Daichi Chiba<sup>3</sup>, Teruo Ono<sup>1,4</sup> (1. ICR, Kyoto University(Japan), 2. Department of Physics, KAIST(Korea), 3. Department of Applied Physics, The University of Tokyo(Japan), 4. CSRN, Graduate School of Engineering Science, Osaka University(Japan))

## [P-E4] Optical Materials

[P-E4-01] **Two-dimensional GeSe as an isostructural and isoelectronic analog of phosphorene: sonication-assisted synthesis, chemical stability and optical properties**

\*Yuting YE<sup>1</sup>, Qiangbing GUO<sup>1</sup>, Xiaofeng LIU<sup>1</sup>, Junjie WANG<sup>3</sup>, Jianrong QIU<sup>2</sup> (1. School of Materials Science & Engineering, Zhejiang University(China), 2. State Key Laboratory of Modern Optical Instrumentation, College of Optical Science and Engineering, Zhejiang University(China), 3. Materials Research Center for Element Strategy, Tokyo Institute of Technology(Japan))

[P-E4-02] **Mesoscale Engineering of Photonic Glass for Tunable Luminescence**

\*Yong ze Yu<sup>1</sup>, Jian rong Qiu<sup>1</sup>, Shi feng Zhou<sup>1</sup> (1. South China University of Technology(China))

[P-E4-03] **Tunable long persistent luminescence in the second near-infrared window via ligand field control**

\*Jianmin Nie<sup>1</sup>, Jianrong Qiu<sup>1</sup> (1. South China University of Technology(China))

[P-E4-04] **Optical and thermal properties of paints mixed with metal-coated glass flakes**

\*Yuya KODATE<sup>1</sup>, Atushi ARUGA<sup>1</sup>, Yoichi OKAMOTO<sup>1,2</sup>, Taishi OZAKI<sup>1</sup> (1. National Defense Academy, Dept. of Materials Science and Engineering(Japan), 2. NIMS Mi2i project(Japan))

[P-E4-05] **Integrated strategy for high luminescence intensity of upconversion nanocrystals**

\*Yue Yang<sup>1</sup>, Yingbin Zhu<sup>2</sup>, Jiajia Zhou<sup>1</sup>, Fan Wang<sup>3</sup>, Jianrong Qiu<sup>1</sup> (1. Zhejiang University(China), 2. Singapore University of Technology and Design(Singapore), 3. University of Technology, Sydney(Australia))

[P-E4-06] **Enhanced Nonlinear Optical Properties from Plasmon Resonances in Two-Dimensional Molybdenum Oxide Nanosheets**

\*Weiqi WANG<sup>1</sup>, Xiaofeng LIU<sup>1</sup>, Jianrong QIU<sup>2</sup> (1. School of Materials Science and Engineering, Zhejiang University(China), 2. College of Optical Science and Engineering, Zhejiang University(China))

[P-E4-07] **Aluminum-phosphor composite for high-power laser lighting**

\*JEHONG PARK<sup>1</sup>, Kwangjae PARK<sup>2</sup>, Akira KAWASAKI<sup>3</sup>, Hansang KWON<sup>2,1</sup> (1. Next Generation Materials Co., Ltd.(Korea), 2. Pukyong National University(Korea), 3. Tohoku University(Japan))

[P-E4-08] **Structure and optical properties of Er-doped CaO-Al<sub>2</sub>O<sub>3</sub> (Ga<sub>2</sub>O<sub>3</sub>) glasses fabricated by aerodynamic levitation**

\*Cheng Xu<sup>1</sup>, Xiaofeng LIU<sup>1</sup>, Jianrong Qiu<sup>1</sup> (1. Zhejiang University(China))

[P-E4-09] **A Highly Symmetrical Graded Refractive Index Glass Fiber Fabricated by Melt-in-Tube Method**

\*Ming ZHANG<sup>1</sup> (1. State Key Laboratory of Luminescent Materials and Devices, South China University of Technology(China))

[P-E4-10] **Tunable epsilon-near-zero medium based on colloidal nanocrystals for ultrafast all-optical modulation**

\*Qiangbing GUO<sup>1</sup>, Xiaofeng LIU<sup>1</sup>, Jianrong QIU<sup>1</sup> (1. Zhejiang University(China))

[P-E6] Bio-Medical Materials

[P-E6-01] **Preparation of ZnO powders with the strong antibacterial activity under dark conditions**

Ken HIROTA<sup>1</sup>, \*Phuong Thi Minh NGUYEN<sup>1</sup>, Masaki KATO<sup>1</sup>, Kazuhiko TSUKAGOSHI<sup>1</sup> (1. Doshisha University(Japan))

[P-E6-02] **Preparation of bioactive Co-Cr alloy by calcium phosphate nucleation in simulated body fluid**

\*Takeshi YABUTSUKA<sup>1</sup>, Hiroto MIZUTANI<sup>1</sup>, Shigeomi TAKAI<sup>1</sup>, Takeshi YAO<sup>2</sup> (1. Department of Fundamental Energy Science, Graduate School of Energy Science, Kyoto University(Japan), 2. National Institute of Technology, Kagawa College(Japan))

[P-E7] Magnetic, Electric, Dielectric and Thermoelectric Materials

[P-E7-01] **Cancelled**

[P-E7-02] **The role of orbital momentum in magnetic anisotropy of single crystals of substituted M-type ferrites**

\*Junichi MASUDA<sup>1</sup>, Yasuaki TANIOKU<sup>1</sup>, Hikaru SHAKUDO<sup>2</sup>, Haruka MORISHITA<sup>1</sup>, Hiroaki UEDA<sup>1</sup>, Chishiro MICHIOKA<sup>1</sup>, Kazuyoshi YOSHIMURA<sup>1</sup> (1. Dept. of Chem., Grad. Sch. of Sci., Kyoto Univ.(Japan), 2. Institute for Chemical Research, Kyoto Univ.(Japan))

[P-E7-03] **Synthesis and Characterization of Neodymium Powder by Calciothermic Reduction of Low Purity Neodymium Oxide**

\*Shinta VIRDHIAN<sup>1</sup>, Isyatun Rodliyah<sup>2</sup>, Djoko Hadi Prajitno<sup>3</sup>, Mochamad Setyadj<sup>3</sup> (1. Balai Besar Logam dan Mesin(Indonesia), 2. Puslitbang Tekmira(Indonesia), 3. Badan Tenaga Atom Nasional (Indonesia))

[P-E7-04] **Magnetism and Electronic States of  $X_2Co_{12}P_7$  ( $X = Ti, Zr$  and  $Hf$ )**

\*Yusuke KATO<sup>1</sup>, Hiroto OHTA<sup>1</sup>, Hiroko ARUGA KATORI<sup>1</sup> (1. Department of Applied Physics, Tokyo University of Agriculture and Technology, 2-24-16 Nakacho, Koganei, Tokyo 184-8588(Japan))

[P-E7-05] **Phase Transitions of the Heisenberg Antiferromagnet on a Distorted Triangular Lattice**

\*Alisa SHIMADA<sup>1</sup>, Toru Sakai<sup>2,3</sup>, Hiroki Nakano<sup>2</sup>, Kazuyoshi Yoshimura<sup>1</sup> (1. Kyoto University(Japan), 2. University of Hyogo(Japan), 3. National Institute for Quantum and Radiological Science and Technology(Japan))

[P-E7-06] **Study of magnetism and electronic structures of compounds with CoAs layers**

\*Hiroto OHTA<sup>1</sup>, Atsushi SUZUKI, Daisuke NOGUCHI, of Agriculture and Technology(Japan))

[P-E7-07] **Physical properties of  $S=1/2$  kagome lattice antiferromagnets  $A_2BTi_3F_{12}$**

\*Ryu SHIRAKAMI<sup>1</sup>, Masato GOTO<sup>1,2</sup>, Hiroaki UEDA<sup>1</sup>, Shintaro KOBAYASHI<sup>3</sup>, Kento SUGAWARA<sup>3</sup>, Naoyuki KATAYAMA<sup>3</sup>, Hiroshi SAWA<sup>3</sup>, Chishiro MICHIOKA<sup>1</sup>, Kazuyoshi YOSHIMURA<sup>1</sup> (1. Dept. of Chem., Kyoto Univ.(Japan), 2. ICR, Kyoto Univ.(Japan), 3. Dept. of Appl. Phys., Nagoya Univ.(Japan))

[P-E7-08] **The physical properties and the structural distortions of  $CuNF_6$  ( $N = Zr, Hf, \text{ and } Sn$ ) with ordered  $ReO_3$  type structure**

\*Tatsuki INAMORI<sup>1</sup>, Atsushi TAGUCHI<sup>1</sup>, Hiroaki UEDA<sup>1</sup>, Chishiro MICHIOKA<sup>1</sup>, Kazuyoshi YOSHIMURA<sup>1</sup> (1. Dept. of Chem., Grad. Sch. of Sci., Kyoto Univ.(Japan))



[P-E7-09] **Quantum criticality of  $\text{YbT}_6\text{Ge}_6$  ( $T = \text{Cr, Mn, Co}$ ) originated in magnetism of  $T$**

\*Masahito HIKIJI<sup>1</sup>, Hayato KATSUMA<sup>1</sup>, Chishiro MICHIOKA<sup>1</sup>, Hiroaki UEDA<sup>1</sup>, Akira MATSUO<sup>2</sup>, Koichi KINDO<sup>2</sup>, Naoto TSUJII<sup>3</sup>, Hitoshi YAMAOKA<sup>4</sup>, Kazuyoshi YOSHIMURA<sup>1</sup> (1. Department of Chemistry, Graduate School of Science, Kyoto University(Japan), 2. The Institute for Solid State Physics, The University of Tokyo(Japan), 3. National Institute for Materials Science(Japan), 4. RIKEN SPing-8 Center(Japan))

[P-E7-10]  **$^{59}\text{Co}$  NMR study of itinerant magnets  $\text{RCo}_9\text{Si}_4$  ( $R=\text{Y, La}$ )**

\*Joichi MURAKAWA<sup>1</sup>, Hibiki KANAGAWA<sup>1</sup>, Herwig MICHOR<sup>2</sup>, Chishiro MICHIOKA<sup>1</sup>, Hiroaki UEDA<sup>1</sup>, Kazuyoshi YOSHIMURA<sup>1</sup> (1. Division of Chemistry, Graduate School of Science, Kyoto University(Japan), 2. T.U. Wien(Austria))

[P-E7-11] **Microstructure and Thermoelectric Properties of  $\text{Bi}_{0.4}\text{Sb}_{1.6}\text{Te}_3$  Prepared by Pulse-Current Sintering under Cyclic Uniaxial Pressure**

\*Ayako Suzuki<sup>1</sup>, Hiroyuki Kitagawa<sup>1</sup>, Shota Ido<sup>1</sup>, Anh Hoang Pham<sup>1</sup>, Shigekazu Morito<sup>1</sup>, Takao Etoh<sup>2</sup>, Kotaro Kikuchi<sup>2</sup> (1. Shimane University(Japan), 2. S. S. Alloy Co., Ltd.(Japan))

[P-E7-12] **Electric Field Effect on Exchange Interaction in Co/Pt Thin Film**

\*Mio ISHIBASHI<sup>1</sup>, Kihiro Torazawa YAMADA<sup>1</sup>, Fuyuki ANDO<sup>1</sup>, Tomohiro KOYAMA<sup>2</sup>, Haruka KAKIZAKAI<sup>1</sup>, Hayato MIZUNO<sup>1</sup>, Kazumoto MIWA<sup>3</sup>, Shimpei ONO<sup>3</sup>, Takahiro MORIYAMA<sup>1</sup>, Daichi CHIBA<sup>2</sup>, Teruo ONO<sup>1</sup> (1. Institute for Chemical Research(Japan), 2. Department of Applied Physics, The University of Tokyo(Japan), 3. Central Research Institute of Electric Power Industry(Japan))

[P-E7-13] **Finite Element Simulation on Thermoelectric Performance of Tilted  $\text{Mg}_2\text{Si}/\text{Ni}$  Multilayer Composites**

\*Takashi ITOH<sup>1</sup> (1. Nagoya University(Japan))

[P-E7-14] **Electric field-induced modulations of anomalous Hall effect in an itinerant ferromagnet  $\text{SrRuO}_3$**

\*Hayato Mizuno<sup>1</sup>, Kihiro Yamada<sup>1</sup>, Daisuke Kan<sup>1</sup>, Takahiro Moriyama<sup>1</sup>, Yuichi Shimakawa<sup>1</sup>, Teruo Ono<sup>1,2</sup> (1. Kyoto University(Japan), 2. Center for Spintronics Research Network(Japan))

[P-E7-15] **Current Density Dependence of Asymmetric Magnetoresistance in Pt/Py Bilayers Under Various Magnetic Field Strength**

\*Tian Li<sup>1</sup>, Sanghoon Kim<sup>1</sup>, Seung-Jae Lee<sup>2</sup>, Seo-Won Lee<sup>3</sup>, Tomohiro Koyama<sup>4</sup>, Daichi Chiba<sup>4</sup>, Takahiro Moriyama<sup>1</sup>, Kyung-Jin Lee<sup>2,3</sup>, Kab-Jin Kim<sup>1,5</sup>, Teruo Ono<sup>1,6</sup> (1. Inst. for Chemical Res., Kyoto Univ. (Japan), 2. KU-KIST Graduate School of Converging Sci. and Tech., Korea Univ.(Korea), 3. Department of Materials Sci. and Eng., Korea Univ.(Korea), 4. Department of Applied Physics, Faculty of Eng., Univ. of Tokyo(Japan), 5. Department of Physics, Korea Advanced Indus. of Sci. and Tech. (Korea), 6. Center for Spintronics Res. Network (CSRN), Graduate School of Eng. Sci., Osaka Univ.(Japan))

[P-E7-16] **Effect of Metal Particle Flattening on Electrical Conductive Property of**

**Glass - Metal Composite Materials**

\*Hiroaki Ishihara<sup>1</sup>, Hiroyuki Kitagawa<sup>1</sup>, Ryota Mriwaki<sup>1</sup>, Hiromichi Katsuyama<sup>2</sup>, Daiki Hamano<sup>2</sup>, Shinji Harui<sup>2</sup>, Yoshiharu Waku<sup>2,3</sup> (1. Shimane University(Japan), 2. Suzuki Gokin Co., Ltd.(Japan), 3. Tohoku University(Japan))

[P-E7-17] **Temperature dependence of magnetoresistance in ferrimagnetic  $\text{GdFeCo}/\text{Pt}$  heterostructure**

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[P-E7-18] **Phase formation and transport properties of  $\text{AlMgB}_{14}$  based material**

\*Yuri NAKAMURA<sup>1</sup>, Satofumi MARUYAMA<sup>1</sup>, Takuya FUJIMA<sup>1</sup> (1. Tokyo City University(Japan))

**[P-E7-19] Temperature dependence of spin orbit effective fields in Pt/GdFeCo**

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**[P-E7-20] Thermoelectric Properties MgTi<sub>2</sub>O<sub>5</sub>/TiN Composite Material Prepared by Spark Plasma Sintering**

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**[P-E7-21] Spin Hall effect in ferromagnets measured by spin-torque FMR**

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**[P-E8] Electronic Components and Materials****[P-E8-01] High lithium-ion conducting solid electrolytes of the NASICON-type Li<sub>1.4</sub>Al<sub>0.4</sub>Ge<sub>0.2</sub>Ti<sub>1.4</sub>(PO<sub>4</sub>)<sub>3</sub>**

\*Nobuki Kyouno<sup>1</sup>, Daisuke Mori<sup>1</sup>, Yasuo Takeda<sup>1</sup>, Osamu Yamamoto<sup>1</sup>, Nobuyuki Imanishi<sup>1</sup> (1. Mie University(Japan))

**[P-E8-02] Lithium ion conductivity of the single crystal of Li<sub>10</sub>GeP<sub>2</sub>S<sub>12</sub>**

\*Rui IWASAKI<sup>1</sup>, Daigorou Hirai<sup>1</sup>, Zenji Hiroi<sup>1</sup>, Satoshi Hori<sup>2</sup>, Ryoji Kanno<sup>2</sup> (1. Institute for Solid State Physics, University of Tokyo(Japan), 2. Tokyo Institute of Technology(Japan))

**[P-E8-03] Low Temperature Synthesis, structure, and ionic conductivity of Garnet-Type Electrolyte**

\*Teruyuki AKATANI<sup>1</sup>, Daisuke MORI<sup>1</sup>, Yasuaki MATSUDA<sup>2</sup>, Nobuyuki IMANISHI<sup>1</sup> (1. Mie University(Japan), 2. Osaka Institute of Technology(Japan))

**[P-E8-04] Lithium-ion conducting ceramic and polymer composite electrolytes for lithium batteries**

\*YUTA KOIZUMI<sup>1</sup>, Mengxuan Tang<sup>1</sup>, Yong-Gun Lee<sup>2</sup>, Daisuke Mori<sup>1</sup>, Yasuo Takeda<sup>1</sup>, Nobuyuki Imanishi<sup>1</sup>, Osamu Yamamoto<sup>1</sup> (1. Mie University(Japan), 2. Samsung Electronics(Korea))

**[P-E8-05] Electrode Performance of "Neodymium Oxide-containing Tungsten" in Argon Atmosphere**

Akira MISHIMA<sup>1</sup>, Kouji FUJII<sup>1</sup>, Tatsuya MOURI<sup>1</sup>, Seiichiro SHIMIZU<sup>1</sup>, \*yasuki miyazaki<sup>1</sup>, Takayuki WATANABE<sup>2</sup> (1. NIPPON TUNGSTEN CO.,LTD.(Japan), 2. KYUSHU UNIVERSITY(Japan))

**[P-E8-06] Improvement in Dielectric Properties of Low Temperature Sintered Alumina Containing a Small Quantity of Cu-Nb-O Additive by Substitution of Titanium Dioxide**

\*Shinji KANEKO<sup>1</sup>, Koichi SHIGENO<sup>1</sup>, Tomoya YAMANE<sup>1</sup>, Junya SHIMOKAWA<sup>1</sup>, Hirota FUJIMORI<sup>2</sup> (1. National Institute of Technology, Ube College (Japan), 2. Graduate School of Yamaguchi University(Japan))

**[P-E8-07] The magnetic properties and microstructure of high density FeSiBPCu nanocrystalline alloy powder core**

\*Makoto YAMAKI<sup>1</sup>, Koichi OKAMOTO<sup>1</sup>, Akiri URATA<sup>1</sup>, Shoichi SATO<sup>1</sup> (1. TOKIN Corporation(Japan))

**[P-F] Aerospace Applications****[P-F-01] Fabrication of Anti-Reflection Structure for Ceramics using Microwave Sintering**

\*Sadatsugu Takayama<sup>1</sup>, Tomotaka Matsumura<sup>2</sup>, Suguru Takada<sup>1</sup> (1. National Institute for Fusion Science(Japan), 2. Kavli Institute for the Physics and Mathematics of Universe, The University of Tokyo(Japan))

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[P-G] Energy Application, Environment

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[P-G-01] **Preparation and catalytic properties of composites by Pd-Zr-Ce amorphous alloys**

\*Masakuni Ozawa<sup>1</sup>, Naoya Katsuragawa<sup>1</sup>, Masatomo Hattori<sup>1</sup>, Toshinobu Yogo<sup>1</sup>, Shin-ichi Yamamura<sup>2</sup> (1. Nagoya University(Japan), 2. Tohoku University(Japan))

[P-G-02] **Material Diffusion Stability at Interface Between Stabilized ZrO<sub>2</sub> and CeO<sub>2</sub> Interlayer**

\*Masakuni Ozawa<sup>1</sup>, Ken-suke Imura<sup>1</sup> (1. Nagoya University(Japan))

[P-G-03] **An modeling of sintering behavior of CeO<sub>2</sub> by master sintering curve analysis**

\*Masakuni Ozawa<sup>1</sup> (1. Nagoya University(Japan))

[P-G-04] **Preparation, structure and photoluminescence properties of Eu-doped CeO<sub>2</sub>-ZrO<sub>2</sub>**

\*Masataka Kitagawa<sup>1</sup>, Masakuni Ozawa<sup>1</sup> (1. Nagoya University(Japan))

[P-G-05] **Preparation and photoemission properties of Eu-doped CeO<sub>2</sub> nanoparticles**

\*Masashi Matsumoto<sup>1</sup>, Masakuni Ozawa<sup>1</sup> (1. Nagoya university(Japan))

[P-G-06] **Preparation and optical properties of rare earths codoped ZrO<sub>2</sub> nanoparticles**

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[P-G-07] **Soot combustion and structural properties of CeO<sub>2</sub>-based nanoparticle catalysts**

\*Keita Nakamura<sup>1</sup>, Masatomo Hattori<sup>1</sup>, Koji Yokota<sup>1</sup>, Masakuni Ozawa<sup>1</sup> (1. Nagoya University(Japan))

[P-G-08] **Synthesis and evaluation of tobermorite from perlite using hydrothermal synthesis**

\*Makoto Kasai<sup>1,2</sup>, Yosei Kobayashi<sup>1</sup>, Masakazu Togo<sup>2</sup>, Atsushi Nakahira<sup>2,3</sup> (1. Mitsui Mining &Smelting Co., Ltd. Perlite Division(Japan), 2. Department of Materials Science Biomaterial Group, Osaka Prefecture University(Japan), 3. Trans-Regional Corporation Center for Industrial Materials Research, IMR, Tohoku University(Japan))

[P-G-09] **Effect of platinum addition on hydrogen oxidation over core-shell type CeO<sub>2</sub>/ZrO<sub>2</sub> catalyst**

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[P-G-10] **Microstructure development and carbon monoxide removal catalysis over Zr-based alloy composites**

\*Masakuni Ozawa<sup>1</sup>, Atsuhiko Masuda<sup>1</sup>, Naoya Katsuragawa<sup>1</sup>, Katsuragawa Hattori<sup>1</sup>, Toshinobu Yogo<sup>1</sup>, Shin-ichi Yamamura<sup>2</sup> (1. Nagoya University(Japan), 2. Tohoku University(Japan))

[P-G-11] **Preparation and hydrogen storage properties of Pd-Au nanocomposite particles**

\*Shoji Ando<sup>1</sup>, Masakuni Ozawa<sup>2</sup> (1. Department of Material Engineering, Nagoya University(Japan), 2. Institute of Materials and Systems for Sustainability Nagoya University(Japan))

[P-G-12] **Preparation and catalytic behavior of CeO<sub>2</sub> nanoparticles on Al<sub>2</sub>O<sub>3</sub> crystal**

\*Takashi HATTORI<sup>1</sup>, Masakuni OZAWA<sup>1</sup>, Masatomo HATTORI<sup>1</sup> (1. Nagoya University(Japan))