August 2 (Tue) PM

1.Advanced Steels and Processing: Transformation

Tuesday PM Room: A August 2, 2016

Session Chairs: Kaori Kawano, Nippon Steel & Sumitomo Metal Corporation, Japan;
Christpher Huchinson, Monash University, Australia

1:30 PM Keynote
Growth of Austenite from Martensite and Ferrite/Cementite Mixture in Fe-C(-X) Alloys: *M. Enomoto*[1]; [1]Ibaraki University

1:55 PM Invited
Analysis of Mo Effect on The Kinetics of Ferrite and Bainitic Ferrite Formation: J. Zhu[1]; Z. Yang[1]; C. Zhang[1]; C. Zhang[4]; *H. Chen*[1]; [1]Tsinghua University

2:15 PM
Effect of Austenite/Ferrite Orientation Relationship on Austenite Structure Evolution during Reversion: *X. Zhang*[1]; G. Miyamoto[1]; T. Furuhara[1]; [1]Institute for Materials Research, Tohoku University

2:30 PM
The Isothermal Kinetics Study of the Metastable Austenite for Medium Carbon Spring Steel: Y. Jiang[1]; *Y. Liang*[1]; M. Yiang[1]; F. Zhao[1]; [1]Guizhou University

2:45 PM
Effecs of MnS and VC on Nucleation of Bainite at Austenite Grain Boundary in Low Carbon Steel: *T. Chiba*[1]; Y. Nagami[2]; G. Miyamoto[3]; T. Furuhara[3]; [1]Tohoku University; [2]Formaerly Graduate Student, Tohoku University, now at IHI Co., Ltd.; [3]Institute for Materials Research, Tohoku University.

3:00 PM
Reverse Transformation Behavior of Austenite from Bainite or Martensite in Medium Carbon Chromium-Molybdenum Steel: *T. Shinozaki*[1]; H. Takaoka[1]; K. Ogata[1]; N. Fujitsuna[1]; T. Suzuki[2]; Y. Tomota[3]; [1]Kobe Steel Ltd.; [2]Ibaraki University; [3]National Institute for Materials Science

1.Advanced Steels and Processing: Transformation

Tuesday PM Room: A August 2, 2016

Session Chairs: Yositaka Adachi, Kagoshima University, Japan;
Dong Woo Suh, POSTECH, Korea

3:30 PM
The Coupled Solute Drag Effect in Fe-C-Mn-X (X=Mo, Si) Alloys Studied Using Controlled Decarburization: *C. Hutchinson*[1]; H. Zurob[2]; [1]Monash University; [2]McMaster University

3:45 PM
Comparative Study on Nano-sized VC Precipitates by Interphase Precipitation and Tempering of Martensite in Low Carbon Steel: *Y. Zhang*[1]; C. Zhao[2]; G. Miyamoto[1]; K. Shinbo[1]; T. Furuhara[1]; [1]Tohoku University; [2]University of Science and Technology Beijing

4:00 PM
Effect of Strain on the Mechanism of Interphase Precipitates Formation in the Ti-Mo Advanced High Strength Steels: *I. Timokhina*[1]; J. Wang[1]; I. Bikmukhametov[1]; P. Hodgson[1]; [1]Deakin University

4:15 PM
Influence of Cu Addition on MnS Precipitation and Growth in Silicon-Steel: *N. Ueshima*[1]; T. Maeda[1]; K. Oikawa[1]; [1]Tohoku University

4:30 PM
Precipitation Behavior of Cu and Nb during Tempering in δ-Ferrite of the Low Density Steel: *X. Xu*[1]; X. Wang[1]; J. Li[2]; W. Zhang[2]; J. Zhang[2]; C. Shang[1]; [1]University of Science and Technology Beijing; [2]School of Materials Science and Engineering, University of Science and Technology Beijing

5:00 PM
Effects of Alloying Additions on the Decarburization Behavior of Spring Steels: *Y. Chun*[1]; S. Choi[1]; N. Lim[1]; [1]POSCO

2. Advanced High Temperature Structural Materials: Advanced Heat-Resistant Steels and Iron-Based Alloys (1)

Tuesday PM Room: B-1 August 2, 2016

Session Chairs: Kyosuke Yoshimi, Tohoku University, Japan;
Hyun Uk Hong, Changwon National University, Korea

1:30 PM Keynote
Controlling Corrosion of Heat Resisting Alloys by Carbon Dioxide: *D. Young*[1]; [1]University of New South Wales

1:55 PM Invited
Effect of Processing Conditions on the Formation of Nanoparticles in Oxide Dispersion-Strengthened Steels: *J. Kim*[1]; J. Seol[2]; D. Hoelzer[3]; K. Euh[4]; [1]Hanbat National University; [2]National Institute for Nanomaterials Technology, POSTECH; [3]Materials Science and Technology Division, Oak Ridge National Laboratory; [4]Light Metals Department, Korea Institute of Materials Science

2:15 PM
Oxidation Behavior of Pre-Oxidized F91 in CO_2: *Y. Zheng*[1]; M. Shirani Bidabadi[1]; Z. Yang[1]; C. Zhang[1]; H. Chen[1]; [1]School of Materials Science and Engineering, Tsinghua University

2:30 PM
Oxidation Behavior of 9Cr Structural Materials in High Temperature CO_2 Environment: *M. Shirani Bidabadi*[1]; Y. Zheng[1]; H. Takehisa[2]; C. Zhang[1]; C. Hao[1]; Z. Yang[1]; [1]Tsinghua University; [2]Metals Technology R&D Department, Power and Industrial Systems R&D Center, Toshiba Corporation Power Systems Company

2:45 PM
Deformation Behavior of Fe-Al Alloy Single Crystals Containing Heusler Precipitates: *H. Yasuda*[1]; H. Yakage[1]; Y. Shinohara[1]; K. Cho[1]; [1]Osaka University

3:00 PM
Mechanical Behavior of Fe-Al-Cr-Ni-Mo Alloys Containing NiAl Precipitates: *K. Cho*[1]; M. Morita[1]; K. Ikeda[1]; H. Yasuda[1]; [1]Osaka University

2. Advanced High Temperature Structural Materials: Advanced Heat-Resistant Steels and Iron-Based Alloys (2)

Tuesday PM Room: B-1 August 2, 2016

Session Chairs: Yoon-Suk Choi, Pusan National University, Korea; Hiroyuki Y. Yasuda, Osaka Univesity, Japan

3:30 PM Invited
Intra- and Intergranular Strengthening of Heat-Resisting Alloys for Creep Improvement: *H. Hong*[1]; J. Lee[1]; H. Park[1]; T. Lee[2]; [1]Changwon National University; [2]Korea Institute of Materials Science

3:50 PM
Coarsening Behavior of Intergranular $M_{23}C_6$ Carbide in High Cr Ferritic Heat-Resistant Steel: *M. Mitsuhara*[1]; T. Okano[2]; T. Ito[2]; M. Nishida[1]; [1]Kyushu University; [2]Department of Applied Science for Electronics and Materials, Interdisciplinary Graduate School of Engineering Sciences, Kyushu University

4:05 PM
Modeling of the Substitutional Disorder in AB_2 Laves Phases: *J. Crivello*[1,2]; J. Joubert[2]; T. Mohri[1]; [1]IMR - Tohoku University; [2]ICMPE, UMR 7182, CNRS - UPE

4:20 PM
Effect of Initial Microstructure on Creep Deformation Behaviors of Advanced Austenitic Stainless Steels: *H. Park*[1]; J. Moon[2]; J. Kang[2]; H. Ha[2]; T. Lee[2]; H. Hong[1]; [1]Changwon National University; [2]Ferrous Alloy Department, Korea Institute of Materials Science

4:35 PM
Effects of Ti, Zr, Al Additions on Microstructure and Mechanical Properties of Nanostructured ODS Steels: *Z. Lu*[1]; H. Xu[1]; C. Lu[1]; R. Xie[1]; C. Liu; [1]Northeastern University

4:50 PM
Thermal Stability of Ni-Free Austenitic ODS Steel: *A. Kowalska*[1,2]; N. Watanabe[1]; H. Mamiya[1]; M. Ohnuma[3]; H. Kitazawa[1]; M. Lewandowska[2]; [1]National Institute for Materials Science; [2]Faculty of Materials Science and Engineering, Warsaw University of Technology; [3]Faculty of Engineering, Hokkaido University

3.Light Metals and Alloys: Magnesium (1)

Tuesday PM Room: D August 2, 2016

Session Chairs: Alexander Umantsev, Fayetteville State University, USA;
Akihiro Nakatani, Osaka University, Japan

1:30 PM Keynote
Single Crystal to Twin Roll Casting of Magnesium Alloys: *K. Shin*[1]; [1]Seoul National University

1:55 PM
Roll Casting of Clad Strips Using a Twin Roll Caster: *T. Haga*[1]; K. Okamura[1]; S. Nishida[2]; H. Watari[3]; [1]Osaka Institute of Technology; [2]GUnma University; [3]Tokyo Denki University

2:10 PM
Effect of Yttrium on Pyramidal Slips in Magnesium Single Crystals: *S. Ando*[1]; T. Mori[2]; M. Tsushida[2,3]; H. Kitahara[4]; [1]Kumamoto University; [2]Graduate student, Graduate School of Science and Technology, Kumamoto University; [3]Faculty of Engineering, Kumamoto University; [4]Institute of Pulsed Power Science, Kumamoto University

2:25 PM
Texture Development in Magnesium Alloys: *N. Stanford*[1]; A. Taylor[2]; M. Yin[2]; [1]Monash University; [2]Deakin University

3.Light Metals and Alloys: Magnesium (1)

Tuesday PM Room: D August 2, 2016

Session Chairs: Kwang Seon Shin, Seoul National University, Korea;
Jonghyun Kim, Kumamoto University, Japan

3:10 PM Invited
Instability Behavior of Layered Structure with Kink Deformation in LPSO-Mg: *A. Nakatani*[1]; X. Lei[1,2]; [1]Osaka University; [2]University of Fukui

3:30 PM
Plastic Deformation Behavior of the Mg-Based LPSO Phases with Various Crystal Structures: *K. Hagihara*[1]; T. Okamoto[1]; H. Izuno[1]; M. Yamasaki[2]; M. Matsushita[3]; T. Nakano[4]; Y. Kawamura[2]; [1]Osaka university; [2]Magnesium Research Center/Department of Materials Science, Kumamoto University; [3]Graduate School of Science and Technology, Ehime University; [4]Division of Materials and Manufacturing Science, Graduate School of Engineering, Osaka University

3:45 PM
Effect of Li Addition on Microstructure and Mechanical Properties of Non-Combustible Mg-Al-Ca Alloys: J. Kim[1]; *Y. Kawamura*[1]; [1]Kumamoto University

4:00 PM
Ultrahigh Strength and High Ductility Wrought Mg-Gd-Y-Zn-Zr Alloy Containing Long Period Stacking Ordered (LPSO) Phase: *M. Zheng*[1]; C. Xu[1,2]; X. Qiao[1]; Y. Chi[1]; K. Wu[1]; S. Kamado[2]; I. Golovin[3]; [1]Harbin Institute of Technology; [2]Department of Mechanical Engineering, Nagaoka University of Technology; [3]Department of Physical Metallurgy of Non-Ferrous Metals, National University of Science and Technology "MISiS"

4:15 PM
Plastic Strain Distribution around Kink Bands in LPSO Mg Alloy: *T. Morikawa*[1]; K. Higashida[1]; X. Lei[2]; A. Nakatani[2]; [1]Kyushu University; [2]Osaka University

4. Solidification, Deformation and Related Processing: Processing for Microstructural and Property Controls

Tuesday PM Room: C-2 August 2, 2016

Session Chairs: Ian Robertson, University of Wisconsin-Madison, USA;
Tomotsugu Shimokawa, Kanazawa University, Japan

1:30 PM Keynote
The Influence of Processing – Microstructure Relations on the Deformation Response of Materials: *G. Gray* III[1]; [1]Los Alamos National Laboratory

1:55 PM Invited
Microstructure, Tensile and Fatigue Properties of Strip-Cast Al-Mn Based Alloys: *K. Lee*[1]; M. Back[1]; G. Ham[1]; Y. Rhyim[2]; K. Euh[2]; [1]Andong National University; [2]Korea Institute of Materials Science

2:15 PM Invited
Local Loading Forming of Titanium Alloy Large Scale Component: Predicting and Controlling the Microstructure: *X. Fan*[1]; H. Yang[1]; P. Gao[1]; [1]Northwestern Polytechnical University

2:35 PM
Combination Effect of Groove Angles of Mandrel and Die on Formability in Tube Extrusion with Spiral Inner Projections: *M. Ishikawa*[1]; T. Yagita[1]; T. Kuboki[1]; S. Kajikawa[1]; M. Murata[1]; [1]The University of Electro-Communications

4. Solidification, Deformation and Related Processing: Forming Response of Metals and Alloys

Tuesday PM Room: C-2 August 2, 2016

Session Chairs: George T. Gray III, Los Alamos National Laboratory, USA;
Yoshiteru Aoyagi, Tohoku University, Japan

3:35 PM Invited
Basic Issues in Micro-Forming Technology: *D. Shan*[1]; J. Xu[1]; C. Wang[1]; B. Guo[1]; [1]Harbin Institute of Technology

3:55 PM Invited
Formability Enhancement for Al Alloy Sheet with Control of Deformation Mode: *Y. Kwon*[1]; D. Lee[1]; Y. Lee[1]; [1]Korea Institute of Materials Science

4:15 PM
Ultrafast Lattice Dynamics at an Early Stage of Shock Compression of Iron: *T. Sano*[1]; [1]Osaka University

4:30 PM
Femtosecond Laser-Peening of 7075-T73 Aluminum Alloy: *T. Kawashima*[1]; T. Sano[1]; A. Hirose[1]; S. Tsutsumi[2]; K. Masaki[3]; [1]Osaka University; [2]Joining and Welding Research Institute, Osaka University; [3]Okinawa National College of Technology

4:45 PM
A Deep Drawing Process Research on Surface Ridging Control in an Ultra-Pure 17%Cr Ferritic Stainless Steel: Q. Xiong[1]; *J. Li*[1]; [1]University of Science and Technology Beijing

5.Thin Films and Surface Engineering: Thin Films (1)

Tuesday PM Room: G August 2, 2016

Session Chairs: Venkatraman Gopalan, Pennsylvania State University, USA;
Nobukiyo Kobayashi, Research Institute for Electromagnetic Materials, Japan

1:30 PM Keynote
Interfacial Spin Reversal Based on Magnetoelectric Effect in Pt/Co/Cr_2O_3/Pt Films: *R. Nakatani*[1]; Y. Shiratsuchi[1]; [1]Osaka University

1:55 PM Invited
Progress in the Synthesis and Functionalization of 2D Materials: *T. Daeneke*[1]; [1]RMIT University

5.Thin Films and Surface Engineering: Thin Films (1)

Tuesday PM Room: G August 2, 2016

Session Chairs: Torben Daeneke, RMIT University, Australia; Ryoichi Nakatani, Osaka University, Japan

2:15 PM
The Cleaning Effect on Metallic Materials under a Weak Alternating Electromagnetic Field and Biofilm: *H. Kanematsu*[1]; S. Umeki[2]; A. Ogawa[3]; N. Hirai[3]; T. Kogo[1]; K. Tohji[2]; [1]National Institute of Technology, Suzuka College; [2]Graduate School of Environmental Studies, Tohoku University; [3]Department of Chemistry and Biochemistry, National Institute of Technology, Suzuka College

2:30 PM
Improvement of Magnetic Properties of $BaTiO_3$-Co Nanocomposite Films by Differential Pressure Sputtering: *Y. Zhang*[1]; N. Kobayashi[2]; S. Ohnuma[1,2]; M. Nose[3]; H. Masumoto[1]; [1]Tohoku University; [2]Research Institute for Electromagnetic Materials; [3]University of Toyama

5.Thin Films and Surface Engineering: Surface Modification (1)

Tuesday PM Room: G August 2, 2016

Session Chairs: Jae-Hong Lim, Korea Institute of Materials Science, Korea;
Kazuhisa Azumi, Hokkaido University, Japan

3:30 PM Keynote
Non-Hydrogen Carburization on Titanium Surface by Plasma Glow Discharge Technology: *Z. Li*[1]; S. Ji[1]; H. Wang[1]; X. Luo[1]; L. Zhou[1]; [1]Northwest Institute for Nonferrous Metal Research

3:55 PM Invited
Surface Modification of WC/Co Hard Alloy by High Current Pulsed Electron Beam Treatment: *S. Hao*[1]; Y. Xu[1]; C. Dong; [1]Dalian University of Technology

4:15 PM Invited
Modifying Metallic Surfaces by a Clean Supercritical High Pressure Cryogenic Nitrogen Jet (HPCryoN2Jet).: *T. Grosdidier*[1]; M. Yahiaoui[1,2]; D. Entemeyer[1]; A. Tazibt[2]; [1]University of Lorraine; [2]CRITT TJFU, Laboratoire Jet Fluide Très Hautes Pressions

4:35 PM
Surface Purification of Raw Silicon via Crater Eruption Mechanism Induced by Pulsed Electron Beam: *Y. Qin*[1]; C. Dong[1]; [1]Dalian University of Technology

4:50 PM
Analysis of the Deformation Induced Martensite Generated by SMAT Ultrasonic Shot Peening at Cryogenic Temperature in the 304L Stainless Steel: *M. Novelli*[1]; J. Fundenberger[3]; N. Allain[2,3]; P. Bocher[1]; T. Grosdidier[2,3]; [1]Ecole de Technologie Supérieure (ETS); [2]LABoratoie d'EXcellence Design des Alliages Métalliques pour Allègement de Structures; [3]Laboratoire d'Etude des Microstructures et de Mécanique des Matériaux, CNRS UMR

6. Biomaterials, Smart Materials and Structures: Smart Biointerfaces (1)

Tuesday PM Room: I August 2, 2016

Session Chairs: Marc Meyers, University of California, USA; Takao Hanawa, Tokyo Medical and Dental University, Japan

1:30 PM Keynote
Bio-Nano-Technology toward Smart Interfaces and Functional Hybrid Materials: *C. Tamerler*[1]; [1]University of Kansas

1:55 PM Invited
Synthesis of Multi-Functional Surface Coatings Inspired from the Carnivorous Pitcher Plants: *P. Chen*[1]; C. Yang[1]; S. Chuang[1]; Y. Lin[1]; J. Duh[1]; [1]National Tsing Hua University

2:15 PM
Modification Condition of Cathodic Film Formed on Ti in Ethanol Solution Containing Calcium Ions: *T. Haruna*[1]; R. Minakata[1]; T. Mizuguchi[1]; A. Nonaka[1]; S. Imagawa[1]; Y. Hirohata[1]; [1]Kansai University

2:30 PM
Fabrication of Hybrid Coating Using Self-Organizing TiO_2 Layer on Ti.: *E. Miura-Fujiwara*[1,2]; Y. Tanaka[2]; T. Kikuchi[2,3]; H. Harada[2]; T. Yamasaki[1,2]; [1]University of Hyogo, Graduate School of Engineering; [2]Faculty of Materials Science and Chemistry, School of Engineering, University of Hyogo; [3]Department of Chemical Engineering and Materials Science, Graduate School of Engineering, University of Hyogo

2:45 PM
Designing and Implementing Nano-Composite Structure for Enhanced Functional Coating: *Y. Wang*[1]; H. Ma[1]; [1]Dalian University of Technology

6. Biomaterials, Smart Materials and Structures: Smart Biointerfaces (2)

Tuesday PM Room: I August 2, 2016

Session Chairs: Candan Tamerler, University of Kansas, USA; Masato Ueda, Kansai University, Japan

3:30 PM Invited
Ultrafast Laser Nanofabrication for Regulating Cell Functions and Its Biomedical Applications: *H. Jeon*[1]; H. Han; J. Park; H. Kim[2]; M. Ok[1]; Y. Kim[1]; H. Seok[1]; [1]Korea Institute of Science and Technology; [2]Hallym University

3:50 PM Invited
Morphological Modification versus Chemical Modification in Metallic Implants: *T. Hanawa*[1]; [1]Tokyo Medical and Dental University

4:10 PM
Fabrication of a Bioresorbable Ag-Containing Amorphous Calcium Phosphate Coating Film and Evaluation of Its Antibacterial Activity: *K. Ueda*[1]; N. Kondo[1]; O. Gokcekaya[1]; T. Kasuga[2]; A. Obata[2]; K. Ogasawara[1]; H. Kanetaka[1]; T. Narushima[1]; [1]Tohoku University; [2]Nagoya Institute of Technology

4:25 PM
Fabrication of Photo-Responsible Cell Culture Vessels Using TiO_2 Film: *M. Ueda*[1]; C. Fujita[1]; M. Ikeda[1]; A. Matsugaki[2]; T. Nakano[2]; [1]Kansai University; [2]Osaka University

7.Materials Characterization and Evaluation: In-Situ Electron Microscopy (1)

Tuesday PM Room: E August 2, 2016

Session Chairs: Xiaodong Han, Beijing University of Technology, China;
Satoshi Hata, Kyushu University, Japan

1:30 PM Keynote
In-Situ Electron Microscopy Techniques Applicable in the Characterization of Materials Properties: *Y. Kim*[1]; [1]Seoul National University

1:55 PM Invited
Multi-Probe, Multi-Scale Analysis of Lath Martensite Plasticity and Toughness: *C. Tasan*[1]; L. Morsdorf[2]; D. Raabe[2]; [1]Massachusetts Institute of Technology; [2]Max-Planck Institut fur Eisenforschung

2:15 PM
Microstructure and Fracture Behavior of TiB_2/Iron Composite: *Z. Luo*[1]; M. Huang[1]; Y. Li[1]; [1]the University of HongKong

2:30 PM
Dynamic Visualization of Thermoelastic Martensitic Transformation by In-Situ SEM Observation in Various Shape Memory Alloys: *M. Nishida*[1]; Y. Soejima[2]; T. Miyoshi[2]; M. Mitsuhara[1]; T. Inamura[3]; [1]Kyushu University; [2]Interdisciplinary Graduate School of Science and Engineering, Kyushu University; [3]Precision and Intelligence Laboratory, Tokyo Institute of Technology

2:45 PM
In situ TEM Characterization on Deformation of HCP Structural Materials at Small Scale: *Q. Yu*[1]; [1]Zhejiang University

3:00 PM
Quantitative Electron Microscopy Investigations on Plastic Deformations in Nanostructured Metals: *K. Du*[1]; N. Lu[1]; L. Lu[1]; H. Ye[1]; [1]Institute of Metal Research, Chinese Academy of Sciences

7.Materials Characterization and Evaluation: In-Situ Electron Microscopy (2)

Tuesday PM Room: E August 2, 2016

Session Chairs: Jae Pyoung Ahn, Korea Institute of Science and Technology, Korea;
Minoru Nishida, Kyushu University, Japan

3:30 PM Invited
Atomic-Scale in Situ Observation of the Deformation Mechanisms of Nano-Structured Metals: *L. Wang*[1]; J. Zou[1]; Z. Zhang[3]; X. Han[2]; [1]The Univsersity of Queensland; [2]Institute of Microstructure and Properties of Advanced Materials, Beijing University of Technology; [3]Department of Materials Science, Zhejiang University

3:50 PM
In Situ Study of the Size Effect on the Mechanical Properties of Copper Nanowires: *Y. Yue*[1]; [1]Beihang University

4:05 PM
Super-Plastic Elongation of Body-Centered Cubic Single Crystalline Molybdenum at Room Temperature: *Y. Lu*[1]; L. Wang[1]; Z. Zhang[1,2]; X. Han[1]; [1]Beijing University of Technology; [2]Zhejiang University

4:20 PM Invited
In-Situ TEM Studies of Dynamics of Lattice Defects in Metals: *K. Arakawa*[1]; [1]Shimane University

4:40 PM Invited
In Situ Heating and Biasing Studies of Defect Dynamics through Microscopy: *Y. Picard*[1]; M. Hecht[1]; J. Kwon[1]; M. Skowronski[1]; B. Webler[1]; [1]Carnegie Mellon University

5:00 PM
Real-Time Observation of Dynamic Solid State Electrochemical Processes by In-Situ TEM Method: *X. Bai*[1]; [1]Institute of Physics, Chinese Academy of Sciences

5:15 PM
In-Situ Observation of Core-Shell Intermixing in Pd/Pt Nanocubes at Elevated Temperatures: *T. Yamamoto*[1,2]; R. Yamauchi[1]; H. Kobayashi[2,3]; S. Yoshioka[1,2]; H. Kitagawa[2,3]; S. Matsumura[1,2]; [1]Kyushu University; [2]JST-CREST; [3]Kyoto University

8.Composites and Hybrid Materials: Metal Matrix Composites with Nano-Carbon Materials

Tuesday PM Room: C-1 August 2, 2016

Session Chairs: Qiang Guo, Shanghai Jiao Tong University, China; Shojiro Ochiai, Kyoto University, Japan

1:30 PM Keynote
Enhanced Mechanical Properties of Graphene/Aluminum Composites with a Bio-Inspired Nanolaminated Structure: *Q. Guo*[1]; Z. Li[1]; S. Feng[1]; L. Zhao[1]; Z. Li[1]; G. Fan[1]; Y. Su[1]; J. Zhang[1]; D. Xiong[1]; D. Zhang[1]; [1]Shanghai Jiao Tong University

1:55 PM Invited
Nanocarbon Reinforced Aluminum Composites: Bioinspired Fabrication, Properties and Applications: *Z. Li*[1]; G. Fan[1]; Z. Tan[1]; Q. Guo[1]; D. Xiong[1]; Y. Su[1]; J. Zhang[1]; D. Zhang[1]; [1]Shanghai Jiao Tong University

2:15 PM
Wear Behavior of CNTs + BN_p Reinforced AlSi10Mg Alloy Matrix Composite Depending on Wear Conditions: *J. Bak*[2]; I. Park[2]; S. Jung[3]; J. Lee[1]; J. Park[1]; [1]Korea Institute of Industrial Technology; [2]Pusan National University; [3]APPLIED CARBON NANO TECHNOLOGY CO.,LTD.

2:30 PM Invited
Graphene Reinforced Metal Composites: *S. Jeon*[1]; [1]KAIST

8.Composites and Hybrid Materials: Novel Evaluation for Composites

Tuesday PM Room: C-1 August 2, 2016

Session Chairs: Seokwoo Jeon, KAIST, Korea; Junya Inoue, The University of Tokyo, Japan

3:30 PM Keynote
Fracture Toughness of Silicon-Carbide, Alumina and Pitch-Based Carbon Fibers Estimated by Introduction of a Sharp Straight-Fronted Edge Notch into Fiber Specimen: *S. Ochiai*[1]; K. Morishita[1]; H. Okuda[1]; [1]Kyoto University

3:55 PM Invited
Damage Evolution in Titanium-CFRP Hybrid Laminates during Fatigue and Strain Measurement at the Interface: *Y. Tanaka*[1]; K. Naito[1]; [1]National Institute for Materials Science

8.Composites and Hybrid Materials: Laminar Metal Matrix Composites

Tuesday PM Room: C-1 August 2, 2016

Session Chairs: Seokwoo Jeon, KAIST, Korea; Junya Inoue, The University of Tokyo, Japan

4:15 PM
The Fabrication, Microstructure and Properties of the Magnesium Composites Reinforced by Carbon Nanotubes: *L. Meng*[1]; X. Wang[1]; H. Shi[1]; C. Ding[1]; K. Wu[1]; [1]Harbin Institute of Technology

4:30 PM
Spark Plasma Sintered Dual-Nanoparticles Functionally Graded Metal Matrix Composite Materials: *H. Kwon*[1]; J. Park[2]; K. Kim[1]; S. Cho[3]; S. Joo[4]; S. Hong[4]; M. Leparoux[5]; A. Kawasaki[6]; [1]Pukyong National University; [2]Next Generation Materials Co., Ltd; [3]Korea Institute of Materials Sciecne; [4]Gyeongbuk Hybrid Technology Institute; [5]Empa; [6]Tohoku University

4:45 PM Invited
Mechanical Behavior of Multilayered Metallic Composite: *J. Inoue*[1]; T. Koseki[1]; [1]The University of Tokyo

5:05 PM
Superplastic Behavior of Rolled Al/Mg/Al Cladded Sheet: *T. Tokunaga*[1]; K. Matsuura[1]; M. Ohno[1]; [1]Hokkaido University

5:20 PM
Synthesis and Characterization of Laminated TiB+ La_2O_3/Ti Hybrid Composite: *Y. Han*[1]; H. Duan[1]; W. Lu[1]; L. Wang[1]; D. Zhang[1]; [1]Shanghai Jiao Tong University

9. Bulk Metallic Glasses, Nanocrystalline Material and Ultrafine-Grained Materials: Ultrafine Grained Materials and Bulk Nano Metals (1) ~Mechanical Properties

Tuesday PM Room: B-2 August 2, 2016

Session Chairs: Nobuhiro Tsuji, Kyoto University, Japan; Masaki Tanaka, Kyushu University, Japan

1:30 PM Keynote
Atomistic Modeling of Deformation and Strength of Ultrafine-Grained Metals: *S. Ogata*[1]; [1]Osaka University

1:55 PM Invited
In-Situ Synchrotron Radiation Research of Dislocation Multiplication Behavior during Tensile Deformation in Bulk Nano-Structured Metals: *H. Adachi*[1]; [1]University of Hyogo

2:15 PM
Grain Boundary Dislocation Nucleation Map: *J. Du*[1]; S. Ogata[1,2]; [1]Osaka University; [2]Center for Elements Strategy Initiative for Structural Materials (ESISM), Kyoto University.

2:30 PM
Interactions between Collective Dislocation Motion and Grain Boundaries in Metals: *T. Niiyama*[1]; T. Shimokawa[1]; [1]Kanazawa University

2:45 PM
Simultaneously Enhanced Strength and Ductility of Mg-Zn-Zr-Ca Alloy by Ultra Grain Refinement: *R. Zheng*[1]; T. Bhattacharjee[1]; A. Shibata[1,2]; T. Sasaki[3]; K. Hono[3]; N. Tsuji[1,2]; [1]Department of Materials Science and Engineering, Kyoto University; [2]Elements Strategy Initiative for Structural Materials (ESISM), Kyoto University; [3]National Institute for Materials Science

9. Bulk Metallic Glasses, Nanocrystalline Material and Ultrafine-Grained Materials: Ultrafine Grained Materials and Bulk Nano Metals (2) ~Mechanical Properties

Tuesday PM Room: B-2 August 2, 2016

Session Chairs: Shigenobu Ogata, Osaka University, Japan; Ruixiao Zheng, Kyoto University, Japan

3:30 PM Invited
Digital Image Correlation Analysis for Discontinuous Yielding in Ultrafine Grained High Purity Aluminium: *N. Kamikawa*[1]; S. Ozaki[2]; T. Furuhara[3]; [1]Hirosaki University; [2]Graduate Student, Tohoku University; [3]Institute for Materials Research, Tohoku University

3:50 PM
Discontinuous Yielding and Strengthening Mechanism in Ultra-Fine Grained Al: *S. Gao*[1]; K. Yoshino[1,2]; D. Terada[1,3]; A. Shibata[1,4]; N. Tsuji[1,4]; Y. Kaneko[5]; [1]Kyoto University; [2]Mitsubishi Heavy Industry, Ltd.; [3]Chiba Institute of Technology, Japan; [4]Elements Strategy Initiative for Structural Materials (ESISM); [5]Dept. Mechanical Engineering, Osaka City University

4:05 PM
Temperature Dependence of Effective Stress in Bulk Nano-structured Steel: *M. Tanaka*[1]; K. Higashida[1]; [1]Kyushu Unviersity

4:20 PM
Effects of Concentration of Alloying Elements on Mechanical Properties and Microstructures of ARB Processed Al-Mg, Al-Si And Al-Fe: *Y. Miyajima*[1]; R. Takei[1]; K. Fukuda[1]; H. Adachi[2]; S. Onaka[1]; M. Kato[1]; [1]Tokyo Institute of Technology; [2]University of Hyogo

4:35 PM
Effects of Ni Addition on Deformation Behavior of Nano-structured Copper Severely Deformed by High Pressure Torsion: *T. Kunimine*[1]; Y. Yasuoka[2]; N. Tsuji[1,2]; [1]Kyoto University; [2]Department of Materials Science and Engineering, Kyoto University

4:50 PM
The Determining Role of Grain Size, Austenite Stability and Deformaion Mechanism in Strain Hardening Behavior of Nanograined/Ultrafine-Grained Austenitic Stainless Steel.: *G. Sun*[1]; L. Du[1]; J. Hu[1]; H. Xie[1]; [1]Northeastern University

5:05 PM
Deformation Behavior of Nanocrystalline High Mn Steels: *J. Yoo*[1]; H. Jin[2]; S. Lee[3]; N. Kim[1]; [1]Graduate Institute of Ferrous Technology and CAAM, POSTECH; [2]ExxonMobil Research & Engineering Company; [3]Department of Materials Science and Engineering and CAAM, POSTECH

5:20 PM
Mechanical Properties of Severely Plastically Deformed Niobium and Tantalum: *A. Hohenwarter*[1]; [1]Montanuniversität Leoben

10. Modelling and Simulation of Microstructures and Processing: Materials Design and Data Science

Tuesday PM Room: F August 2, 2016

Session Chairs: Masanori Kohyama, National Institute of Advanced Industrial Science and Technology, Japan; Limin Liu, Beijing Computing Center, China

1:30 PM Keynote
Materials Discovery through First Principles Calculations: *I. Tanaka*[1,2,3,4]; A. Seko[1,2,3]; A. Togo[1,2,3]; [1]Kyoto University; [2]ESISM, Kyoto University; [3]MI2I, NIMS; [4]Nanostructures Research Laboratory, JFCC

1:55 PM Keynote
Materials Discovery via CALYPSO Structure Design: *Y. Ma*[1]; [1]Jilin University

2:20 PM
Numerical Representation of Crystal Structure for Constructing Interatomic Potential with Machine Learning Technique: *A. Takahashi*[1]; A. Seko[1,2]; I. Tanaka[1,2,3]; [1]Kyoto University; [2]Center for Elements Strategy Initiative for Structure Materials (ESISM), Kyoto University; [3]Nanostructures Research Laboratory, Japan Fine Ceramics Center (JFCC)

2:35 PM
Effect of Transition Metals on Enthalpy Change in Alpha and Beta Ti Alloys from First-Principles Calculations: *T. Uesugi*[1]; S. Miyamae[1]; Y. Takigawa[1]; K. Higashi[1]; [1]Osaka Prefecture University

2:50 PM
Extending CALPHAD Based Tools with Process-Structure-Property Models to Develop a Computational Materials Design Platform: A. Engström[1]; J. Bratberg[1]; Q. Chen[1]; *J. Jeppsson*[1]; [1]Thermo-Calc Software AB

3:05 PM
Sensitivity Analysis of Microstructure Factor on Magnetic Properties in Nd-Fe-B Rare-Earth Alloy Based on Phase-Field Method and Micromagnetics Simulation Coupled with Information Technology: *T. Koyama*[1]; Y. Tsukada[1]; [1]Nagoya University

10. Modelling and Simulation of Microstructures and Processing: First Principles Calculations (1)

Tuesday PM Room: F August 2, 2016

Session Chairs: Heung Nam Han, Seoul National University, Korea; Isao Tanaka, Kyoto University, Japan

3:35 PM Invited
Determination of Interfacial Atomic Structure, Misfits and Energetics of Nano-Precipitates in Al–Cu Based Alloys: S. Kang[1]; J. Zuo[2]; Y. Kim[1]; H. Han[1]; *M. Kim*[1]; [1]Seoul National University; [2]Department of Materials Science and Engineering,

University of Illinois at Urbana-Champaign

3:55 PM Invited
Tunable Electronic and Magnetic Properties of MS_2: *X. Fan*[1]; [1]Northwestern Polytechnic University

4:15 PM Invited
The Formation Process, Stability and Spectroscopic Implications of Gas Hydrates from First-Principles: *Y. Su*[1]; [1]Dalian University of Technology

4:35 PM
Ab-Initio Local-Energy and Local-Stress Analysis of Materials Interfaces: *M. Kohyama*[1]; S. Tanaka[1]; Y. Shiihara[2]; [1]National Institute of Advanced Industrial Science and Technology; [2]Institute of Industrial Science, The University of Tokyo

4:50 PM
Statistical Prediction of Grain-Boundary Properties: *T. Tamura*[1]; R. Arakawa[1]; M. Karasuyama[1]; R. Kobayashi[1]; S. Ogata[1]; [1]Nagoya Institute of Technology

5:05 PM
Solute Segregation to Twin Boundaries in α-Ti: *N. Wilson*[1]; Y. Zhu[2]; S. Zhu[2]; M. Gibson[3]; J. Nie[2]; [1]CSIRO; [2]Department of Materials Science, Monash University; [3]CSIRO Materials

5:20 PM
Two-Component DFT Calculations of Positon-Monovacancy Interaction in Metals and Semiconductors: *S. Ishibashi*[1]; [1]AIST

5:35 PM
Atomistic Study of Strain-Free Stress-Driven Grain Boundary Migration Mechanism: *L. Wan*[1,2]; A. Ishii[2]; J. Du[2]; S. Ogata[2,3]; [1]Xi'an Jiaotong University; [2]Department of Mechanical Science and Bioengineering, Osaka University; [3]Center for Elements Strategy Initiative for Structural Materials, Kyoto University

11. Materials for Energy and Environment: Materials for Energy Harvesting

Tuesday PM Room: H August 2, 2016

Session Chairs: Natasha Wright, CSIRO, Australia; Masanori Suzuki, Osaka University, Japan

1:30 PM Keynote
Development of High Performance Nanoscaled Thermoelectric Materials: *S. Kim*[1]; [1]Ewha Womans University

1:55 PM Invited
Nanostructuring Technologies for Bi-Te-Based Thermoelectric Materials: *K. Lee*[1]; [1]Kangwon National University

2:15 PM
Enhanced Thermoelectric Properties of $AgSbTe_2$ through Controlling Heterophases with Ce Doping: *M. Oh*[1]; J. Lee[2]; B. Ryu[2]; J. Lee[2]; S. Joo[2]; B. Kim[2]; B. Min[2]; S. Park[2]; H. Lee[2]; [1]Hanbat National University; [2]Korea Electrotechnology Research Institute

2:30 PM
Synthesis of N-Type Mg_2Si/CNT Thermoelectric Nanofibers: *K. Kikuchi*[1]; N. Nomura[1]; A. Kawasaki[1]; [1]Tohoku University

2:45 PM
Al-Based Compounds as Low-Toxicity Thermoelectric Materials: *M. Kumagai*[1]; K. Kurosaki[1]; Y. Ohishi[1]; H. Muta[1]; S. Yamanaka[1,2]; [1]Osaka University; [2]University of Fukui

3:00 PM
Thermoelectric Properties in Titanium Oxides Doped with Quadrivalent Impurities: *Y. Takai*[1]; H. Satoh[1]; K. Tanaka[1]; [1]Kobe University

11. Materials for Energy and Environment: Materials for Photovoltaics and Solar Energy

Tuesday PM Room: H August 2, 2016

Session Chairs: Kyu Hyoung Lee, Kangwon National University, Korea; Keiko Kikuchi, Tohoku University, Japan

3:30 PM Invited
Morphological Control of Materials for Energy and Environmental Applications: *R. Caruso*[1,2]; [1]Commonwealth Scientific and Industrial Research Organisation; [2]School of Chemistry, The University of Melbourne

3:50 PM
Structure Design of Nickel Sulfides with Enhanced Electrochemical Properties: *W. Zhou*[1]; J. Zheng[1]; L. Guo[1]; [1]Beihang University

4:05 PM Invited
Utilization of 0-Dimensional (0D), 1D and 2D Materials for High-Performance Solar Water Splitting: *H. Jang*[1]; [1]Seoul National University

4:25 PM
Hydrophobic and Self-Healing Light-to-Heat Conversion Membrane for Water Distillation: *P. Wang*[1]; [1]King Abdullah University of Science and Technology

4:40 PM
Bandgap Tuning of $ZnSnP_2$ through the Order-Disorder Transition: *S. Nakatsuka*[1]; Y. Nose[1]; Y. Shirai[1]; [1]Kyoto University

4:55 PM
Significant Improvement of Light Absorption by Metals with Surface Asperity formed by Oxidation-Reduction Treatment: *M. Suzuki*[1]; N. Tamura[1]; S. Katsuyama[1]; T. Tanaka[1]; [1]Osaka University

12.Electronic and Magnetic Materials: Spintronics

Tuesday PM Room: K August 2, 2016

Session Chairs: Takeshi Seki, Tohoku University, Japan; Young Keun Kim, Korea University, Korea

1:30 PM Keynote
Magnetic Skyrmions in Helical Nanomagnets: H. Du[1]; X. Zhao[2]; C. Jin[1]; C. Wang[2]; J. Zang[3]; R. Che[2]; *M. Tian*[1]; [1]China High Magnetic Field Laboratory; [2]Fudan University; [3]University of New Hampshire

1:55 PM Invited
Spin Dynamics in Ordered Alloy Systems and Its Application to Spintronic Devices: *T. Seki*[1,2]; K. Takanashi[1]; [1]IMR, Tohoku University; [2]JST-PRESTO

2:15 PM Invited
Perpendicular Magnetic Anisotropy in CoFeSiB-Pd Thin Films: Y. Kim[1]; J. Cho[2]; *Y. Kim*[1]; [1]Korea University; [2]Korea Basic Science Institute

2:35 PM Invited
Interfacial Anisotropy Magnetoresistance in Epitaxial Magnetic Thin Films: J. Li[1]; M. Jia[1]; X. Xiao[1]; L. Sun[1]; Z. Ding[1]; C. Zhou[1]; *Y. Wu*[1]; [1]Fudan University

2:55 PM
Developing High-Quality NiMnSb Half-Heusler Alloy Films for Current-Perpendicular-to-Plane Giant Magnetoresistance Devices with a Ag Spacer: *Z. Wen*[1]; T. Kubota[1]; T. Yamamoto[1]; K. Takanashi[1]; [1]Institute for Materials Research, Tohoku University

12. Electronic and Magnetic Materials: Hard and Soft Magnetic Materials

Tuesday PM Room: K August 2, 2016

Session Chairs: Tetsuji Saito, Chiba Institute of Technology, Japan; Masashi Matsuura, Tohoku University, Japan

3:30 PM
Structures and Magnetic Properties of Nd-Fe-B Hot-Deformed Magnets Prepared by the Spark Plasma Sintering Method: *T. Saito*[1]; Y. Sajima[1]; [1]Chiba Institute of Technology

3:45 PM
A Thermodynamic Analysis of The Nd-Fe-B-Dy-Cu System: *M. Saeki*[1]; Y. Horino[1]; J. Luo[2]; M. Enoki[3]; H. Ohtani[3]; [1]Tohoku University; [2]Graduate school, Kyushu Institute of Technology; [3]Institute of Multidisciplinary Research for Advanced Materials, Tohoku University

4:00 PM
Magnetic Properties and Microstructure of High Coercivity Mn-Sn-Co Nitrided Alloy: *M. Matsuura*[1]; N. Tezuka[1]; S. Sugimoto[1]; [1]Graduate School of Engineering, Tohoku University

4:15 PM
First-Principles Study of the Effect of Alloying on the Phase Stability and Magnetic Properties of α"-$Fe_{16}N_2$ Compound: *Y. Takeda*[1]; M. Enoki[2,3]; H. Ohtani[2,3]; [1]Tohoku University; [2]Institute of Multidisciplinary Research for Advanced Materials; [3]JST-CREST

4:30 PM
Effect of Cold Rolling Process on Textures and Magnetic Properties of Non-Oriented Silicon Steel: W. Qiu[1]; H. Jiao[1]; C. Zhao[1]; Y. Zhang[1]; Y. Wang[1]; D. Gong[1]; *Y. Xu*[1]; [1]Northeastern University

13. Additive Manufacturing: Process and Process Qualification (1)

Tuesday PM Room: J August 2, 2016

Session Chairs: Hideki Kyogoku, Kinki University, Japan; Dan J Thoma, University of Wisconsin, USA

1:30 PM Keynote
Additive Manufacturing: Overview with an Emphasis on Materials: *D. Bourell*[1]; [1]University of Texas at Austin

1:55 PM Invited
The Development of Dual-Materials Electron Beam Selective Melting (EBSM): *F. Lin*[1]; L. Zhang[1]; C. Guo[1]; W. Ge[1]; [1]Tsinghua University

2:15 PM
Laser Additive Manufacturing of Novel Al-Based Nanocomposites/ In-situ Composites Components: *D. Gu*[1]; [1]Nanjing University of Aeronautics and Astronautics

2:30 PM
Laser Metal Deposition of In-situ Ti-Ni-Based Composite Coatings: Process Control and Microstructural and Mechanical Properties: *C. Ma*[1]; D. Gu[1]; [1]Nanjing University of Aeronautics and Astronautics

2:45 PM
Characteriztion of Parts and Materials Built in Electron Beam Melting: D. Fraser[1]; S. Gulizia[1]; *P. King*[1]; [1]CSIRO

13. Additive Manufacturing: Process and Process Qualification (2)

Tuesday PM Room: J August 2, 2016

Session Chairs: Heon Ju Lee, Korea Institute of Science and Technology, Korea;
Tadashi Fujieda, Hitachi, Ltd., Japan

3:30 PM Invited
Laser Solid Forming of Zr-Based Bulk Metallic Glass: *X. Lin*[1]; G. Yang[1]; Q. Hu[1]; Y. Zhang[1]; W. Huang[1]; [1]Northwestern Polytechnical University

3:50 PM Invited
Effects of Parameters on The Mechanical Properties of Cu-Cr Alloy Fabricated by Selective Laser Melting Process: *N. Nomura*[1]; T. Kousaka[1]; S. Moriya[2]; T. Nakamoto[3]; T. Kimura[3]; K. Kikuchi[1]; A. Kawasaki[1]; [1]Tohoku University; [2]Japan Aerospace Exploration Agency; [3]Technology Research Institute of Osaka Prefecture

4:10 PM
Study of Electron Beam Selective Melting Fabricated Ti6Al4V/ Ti-Al Dual-Metal Structure: *W. Ge*[1]; [1]Tsinghua University

4:25 PM
Microstructure-Tailored 316L Stainless Steel with Enhanced Mechanical Properties Formed By Selective Laser Melting: *K. Saeidi*[1]; X. Gao[1]; F. Lofaj[2,3]; L. Kvetkova[3]; Z. Shen[1]; [1]Department of Materials and Environmental Chemistry, Arrhenius Laboratory, Stockholm University; [2]Institute of Materials Research of the Slovak Academy of Sciences; [3]Faculty of Materials Science and Technology in Trnava, Slovak University of Technology in Bratislava

4:40 PM
The Role of Melting Pool Boundary in the Determination of Mechanical Property of Al alloys Made by Selective Laser Melting: *Y. Yang*[1]; M. Qian[2]; M. Brandt[2]; M. Easton; [1]Institue of Processing Engineering, Chinese Academy of Sciences; [2]RMIT University, Centre for Additive Manufacturing

August 3 (Wed) AM

1. Advanced Steels and Processing: High Strength Steel (1)

Wednesday AM Room: A August 3, 2016

Session Chairs: Zhigang Yang, Tsinghua University, China; Bryan Webler, Carnegie Mellon University, USA

9:00 AM Keynote
Development of 3rd Generation Advanced High Strength Steels Exhibiting Two-stage TRIP Behavior: *D. Van Aken*[1]; [1]Missouri University of Science and Technology

9:25 AM Invited
Work Hardening Behaviors and Deformation Mechanisms for Some Trip-Effect Assisted AHSSs: *X. Jin*[1]; W. Li[1]; Y. Li[1]; L. Luo[1]; X. Zhu[1]; H. Zhao[1]; [1]Shanghai Jiao Tong University

9:45 AM
Austenite in TRIP-Aided Steel Subjected to Multiple Isothermal Heat Treatment: V. Duong[1]; *D. Suh*[1]; [1]POSTECH

10:00 AM Invited
Development of Hot-Rolled Q&P Steel at Baosteel: *W. Wang*[1]; H. Wang[1]; A. Yang[1]; [1]Baoshan Iron & Steel Research Institute

10:20 AM
Effect of Annealing Time on Microstructures and Mechanical Properties of a Quenching and Partitioning Steel: X. Gu[1]; Y. Xu[1]; F. Peng[1]; Z. Hu[1]; Y. Zou[1]; Y. Wang[1]; S. Chen[1]; T. Han[1]; P. Deng[1]; *D. Gong*[1]; [1]Northeastern University

10:35 AM
Influence of Primary Martensite Fraction on Quenching and Partitioning (Q&P) Response of Steels: *Q. Huang*[1]; H. Biermann[2]; J. Mola[1]; [1]Technische Universität Bergakademie Freiberg; [2]Institute of Materials Engineering, Technische Universität Bergakademie Freiberg

2. Advanced High Temperature Structural Materials: Ni-Based Superalloys (1)

Wednesday AM Room: B-1 August 3, 2016

Session Chairs: Akane Suzuki, GE Global Research, USA; Jun Zhang, Northwestern Polytechnical University, China

9:00 AM Keynote
High Temperature Materials for Power Generation Gas Turbines and Aeroengines: Evolution and Revolution for the Future: *H. Harada*[1]; [1]NIMS

9:25 AM Invited
Microstructures and Properties of Platinum-Containing Nickel-Base Single Crystal Superalloys: *Y. Zhou*[1]; [1]Institute of Metal Research, Chinese Academy of Sciences

9:45 AM
Yttrium Influence on High Temperature Tensile Property of IN-713C Alloy: *D. Kang*[1]; Y. Koizumi[2]; K. Yamanaka[2]; A. Chiba[2]; [1]Tohoku University; [2]Institute of Materials Research, Tohoku University

10:00 AM
Effect of Lattice Misfit on the Movement of Dislocations in Ni-Based Single Crystal Superalloys during Thermal Exposure: H. Long[1]; S. Mao[1]; H. Wei[2]; Y. Liu[3]; J. Zhang[4]; Q. Li[1]; S. Xiang[1]; Z. Zhang[1,5]; *X. Han*[1]; [1]Beijing University of Technology; [2]Superalloys Division, Institute of Metal Research, CAS; [3]School of Mechanical and Chemical Engineering, The University of Western Australia; [4]Key Laboratory of Liquid Structure and Heredity of Materials, Ministry of Education, Shandong University; [5]State Key Laboratory of Silicon Materials and Department of Materials Science and Engineering, Zhejiang University

2. Advanced High Temperature Structural Materials: Ni-Based Superalloys (2)

Wednesday AM Room: B-1 August 3, 2016

Session Chairs: Sammy Tin, Illinois Institute of Technology, USA; Youngsoo Yoo, Korea Institute of Materials Science, Korea

10:30 AM Invited
Ni-based Alloys for Advanced Ultrasupercritical Steam Systems: *P. Tortorelli*[1]; P. Maziasz[1]; K. Unocic[1]; J. Shingledecker[2]; [1]Oak Ridge National Laboratory; [2]Electric Power Research Institute

10:50 AM Invited
Microstructural Characterization and Mechanical Properties of a New PM Disk Superalloy: *Y. Tao*[1]; J. Jia[1]; C. Wu[1]; [1]Central Iron & Steel Research Institute

11:10 AM
Design of Strong Superalloys by Multi-Objective Optimisation Based on Forgeability and Control of Grain Size through Dynamic Recrystallisation: E. Menou[2,3]; E. Galindo-Nava[1]; G. Ramstein[3]; P. Rivera-Diaz-Del-Castillo[1]; *F. Tancret*[1,2]; [1]University of Cambridge; [2]University of Nantes, Institut des Matériaux de Nantes - Jean Rouxel (IMN); [3]University of Nantes, Laboratoire d'Informatique de Nantes Atlantique (LINA)

11:25 AM
A New Wrought Ni–Fe-Base Superalloy for 700 °C-Class A-USC Boilers: *F. Sun*[1]; Y. Gu[1]; J. Yan[1,2]; M. Yuyama[1]; [1]National Institute for Materials Science; [2]Xi'an Thermal Power Research Institute

11:40 AM
Dynamic Recrystallization Behaviors of a Ni-Based Superalloy with a Large Content of δ Phasea: *M. Chen*[1]; Y. Lin[1]; K. Li[1]; [1]Central South University

11:55 AM
Evaluation of γ' Morphology Involved with Lattice Misfit in Wrought Ni-based Superalloys: *H. Hisazawa*[1]; Y. Terada[1]; M. Takeyama[1]; [1]Tokyo Institute of Technology

3.Light Metals and Alloys: Magnesium (2)

Wednesday AM Room: D August 3, 2016

Session Chairs: Nicole Stanford, Monash University, Australia; Mayumi Suzuki, Toyama Prefectural University, Japan

9:00 AM Keynote
Characterisation and Modelling of High Strain Deformation of Magnesium Alloy AZ31: *G. Proust*[1]; L. Li[1]; E. Flores-Johnson[2]; O. Muránsky[3]; S. Kabra[4]; L. Shen[1]; [1]University of Sydney; [2]Catedrático CONACYT – Centro de Investigación Científica de Yucatán, Unidad de Materiales; [3]ANSTO, Institute of Materials Engineering;

[4]Rutherford Appleton Laboratory, ISIS Neutron Source

9:25 AM
Development of LPSO Structures in MgYZn Ternary Alloys Examined by Extended Small- and Wide-Angle Scattering.: *H. Okuda*[1]; H. Tanaka[1]; T. Sugino[1]; M. Yamasaki[2]; Y. Kawamura[2]; S. Kimura[3]; M. Tabuchi[4]; H. Kimizuka[5]; [1]Kyoto Unviersity; [2]Magnesium Research Center, Kumamoto University; [3]JASRI, SPring8; [4]Synchrotron Radiation Center, Nagoya University; [5]Osaka University

9:40 AM
Electronic Approach to the Local Lattice Strain near Alloying Elements in Magnesium: *M. Morinaga*[1]; M. Yoshino[2]; H. Yukawa[2]; T. Homma[3]; S. Kamado[3]; A. Ishikawa[4]; H. Nakai[4]; [1]Toyota Physical and Chemical Research Institute; [2]Nagoya University; [3]Nagaoka University of Technology; [4]Waseda University

9:55 AM
Effect of Deformation Twins on Texture Evolution of Magnesium Alloy Sheets during Recrystallization: *J. Kim*[1]; B. Suh[2]; J. Hwang[1]; M. Shim[1]; N. Kim[1]; [1]Pohang University of Science and Technology (POSTECH); [2]National Institute for Materials Science

3.Light Metals and Alloys: Magnesium (2)

Wednesday AM Room: D August 3, 2016

Session Chairs: Andrejs Atrens, The University of Queensland, Australia;
Hiroshi Okuda, Kyoto Unviersity, Japan

10:25 AM Invited
Tailoring the Microstructure and Mechanical Behavior of Mg Alloys by Twinning: *Y. Xin*[1]; H. Zhang[1]; F. Guo[1]; Q. Liu[1]; [1]Chongqing University

10:45 AM
Investigation of Pre-Strain Effect on Ageing Behavior in Mg-Zn-Gd Alloy by 3DAP and STEM: *X. Gu*[1]; T. Furuhara[1]; T. Kiguchi[1]; Y. Yamaguchi[1]; [1]Institute for Materials Research, Tohoku University

11:00 AM
Precipitation Behavior of Mg-Al-Sn-Zn(-Na) Alloys: *S. Jo*[2]; Y. Go[2]; B. You[1,2]; Y. Kim[1,2]; [1]Korea Institute of Materials Science; [2]University of Science and Technology

4. Solidification, Deformation and Related Processing: Materials Design

Wednesday AM Room: C-2 August 3, 2016

Session Chairs: Debin Shan, Harbin Institute of Technology, China; Hiromi Miura, Toyohashi University of Technology, Japan

9:00 AM Keynote
Exceptional Properties by Nanoarchitecting - a Martensite Vision: *Y. Liu*[1]; [1]The University of Western Australia

9:25 AM Invited
Atomic Simulation of Hetero-Interface Mediated Plastic Deformation in Pearlitic Steel: *T. Shimokawa*[1]; [1]Kanazawa University

9:45 AM
Deformation and Thermal Finite Element Analysis of Particle-Reinforced Composites of Real Microstructure Using Serial Sectioning Tomography: J. Jung[1]; S. Lee[1]; *H. Kim*[1]; [1]Pohang University of Science and Technology

10:00 AM
Stress Analysis on Internal Particles in Al-Si Alloy Using X-Ray Diffraction Amalgamated Grainboundary Tracking: *K. Tanaka*[1]; H. Toda[1]; K. Hirayama[1]; A. Takeuchi[2]; K. Uesugi[2]; [1]Kyushu University; [2]The Japan Synchrotron Radiation Research Institute

4. Solidification, Deformation and Related Processing: Microstructure Evolution

Wednesday AM Room: C-2 August 3, 2016

Session Chairs: Peter Schumacher, Leoben University, Austria; Masato Yoshiya, Osaka University, Japan

10:30 AM Invited
High Resolution Observation of Solidification Interfaces in Al-Si Alloys: *P. Schumacher*[1]; [1]Leoben University

10:50 AM
Probing Heterogeneous Nucleation Interface of TiB_2 in Al Alloys by Atomic STEM-HAADF and EELS: *J. Li*[1]; [1]University of Leoben

11:05 AM
Refinement of Primary Si Phase in Al-17%Si Hypereutectic Alloys Solidified by an Electromagnetic Stirring Technique: *M. Li*[1]; N. Omura[1]; Y. Murakami; I. Matsui; S. Tada; [1]National Institute of Advanced Industrial Science and Technology (AIST)

11:20 AM
Morphology of δ/γ Interface in the Massive-Like Transformation Following Solidification in Fe-C Alloys: *T. Nishimura*[1]; K. Morishita[1]; T. Nagira[2]; M. Yoshiya[2]; H. Yasuda[1]; [1]Kyoto University; [2]Osaka University

11:35 AM
Concurrent γ-phase Nucleation as a Possible Origin of Massive-like δ-γ Phase Transformation in Carbon Steel: *M. Yoshiya*[1,2]; N. Kimura[1]; H. Fujiwara[1]; M. Watanabe[1]; K. Nakajima[1]; N. Ueshima[1,3]; T. Nagira[1]; H. Yasuda[1,4]; [1]Osaka University; [2]Japan Fine Ceramics Center; [3]Tohoku University; [4]Kyoto University

11:50 AM
Kinetics of the Massive-like Delta/Gamma Transformation Following Delta Solidification in Carbon Steels: K. Sugimura[1]; T. Nishimura[1]; K. Morishita[1]; M. Yoshiya[2]; T. Nagira[2]; *H. Yasuda*[1]; [1]Kyoto University; [2]Osaka University

5.Thin Films and Surface Engineering: Corrosion

Wednesday AM Room: G August 3, 2016

Session Chairs: Bongyoung Yoo, Hanyang University, Korea; Izumi Muto, Tohoku University, Japan

9:00 AM Invited
Controlling the Composition of Zn-Al Co-Deposit Films from EMIC Ionic Bath Using a Thin Layer Cell: *K. Azumi*[1]; Y. Sato[1]; [1]Hokkaido University

9:20 AM Invited
Engineered Coatings for Protection against Environmental

Degradation: *V. Ravi*[1]; [1]California State Polytechnic University

9:40 AM Invited
Application of Surface Potential Measurement for Degradation Behavior of Organic Coated Steels: *H. Katayama*[1]; [1]National Institute for Materials Science

10:00 AM
Effect of Metal Cations on Corrosion of Metals in Fresh Water: *M. Sakairi*[1]; K. Otani[2]; A. Kaneko[3]; [1]Hokkaido University; [2]Graduate School of Engineering, Hokkaido University; [3]Nikkei Research & Development Center, Nippon Light Metal Co. Ltd.

10:30 AM
The Effect of Change in Solution Chemistry on Repassivation of Crevice Corrosion on Type 316L Stainless Steel.: *T. Aoyama*[1]; Y. Sugawara[1]; I. Muto[1]; N. Hara[1]; [1]Tohoku University

10:45 AM
Effect of Applied Stress on SCC of Sensitized 304 Stainless Steel under $MgCl_2$ Solution Droplets: *E. Tada*[1]; K. Nakao[1]; A. Nishikata[1]; [1]Tokyo Institute of Technology

6. Biomaterials, Smart Materials and Structures: Biodegradable Materials (1)

Wednesday AM Room: I August 3, 2016

Session Chairs: Hyun Kwang Seok, Korea Institute of Science and Technology, Korea;
Toshiji Mukai, Kobe University, Japan

9:00 AM Keynote
Biodegradable Metals — the New Star in the Metallic Biomaterials: *Y. Zheng*[1]; [1]Peking University

9:25 AM Invited
Mechanical Properties, Corrosion and in Vitro Biocompatibility of As-Extruded Mg-Zr-Sr Alloys for Biomedical Applications: *Y. Li*[1]; Y. Ding[1]; J. Lin[2]; C. Wen[1]; [1]RMIT University; [2]Advanced Material Research and Development Center, Zhejiang Industry & Trade Vocational College

9:45 AM
Ductility Enhancement and Characterization of Mg-Zn-Ca Alloy for Biodegradable Surgical Devices: *N. Ikeo*[1]; R. Nakamura[1]; K. Naka[1]; T. Hashimoto[1]; T. Yoshida[1]; T. Urade[1]; K. Fukushima[1]; T. Fukushima[1]; Y. Ku[1]; T. Mukai[1]; [1]Kobe University

6. Biomaterials, Smart Materials and Structures: Biodegradable Materials (2)

Wednesday AM Room: I August 3, 2016

Session Chairs: Yufeng Zheng, Peking University, China;
Sachiko Hiromoto, National Institute for Materials Science, Japan

10:30 AM
Mechanical and Damping Property of ECAE-Processed Mg-Ca Alloy: *T. Motoyama*[1]; H. Watanabe[2]; N. Ikeo[1]; T. Mukai[1]; [1]Kobe University; [2]Osaka Municipal Technical Research Institute

10:45 AM
In Vitro and in Vivo Corrosion Behavior of Calcium Phosphate-Coated Magnesium Alloy: *S. Hiromoto*[1]; M. Inoue[1,2]; T. Taguchi[1]; T. Yamazaki[1]; N. Ohtsu[3]; [1]National Institute for Materials Science; [2]Current: Department of Molecular Pharmaceutics, Meiji Pharmaceutical University; [3]Instrumental Analysis Center, Kitami Institute of Technology

11:00 AM
Effect of Elemental Addition on Bioresorbability of Amorphous Calcium Phosphate Film Fabricated by RF Magnetron Sputtering: *T. Nagata*[1]; K. Ueda[1]; T. Kasuga[2]; A. Obata[2]; T. Narushima[1]; [1]Tohoku University; [2]Nagoya Institute of Technology

7. Materials Characterization and Evaluation: Advanced Neutron Techniques

Wednesday AM Room: E August 3, 2016

Session Chairs: Natasha Wright, CSIRO, Australia;
Yojiro Oba, Kyoto University, Japan

9:00 AM Keynote
Evaluation of Microstructures and Stresses for Steels Using Neutron Scattering and Diffraction: *Y. Tomota*[1]; [1]National Institute for Materials Science

9:25 AM Invited
Understanding Functional Framework Materials Using Neutron Scattering and Computational Methods: *V. Peterson*[1]; S. Duyker[1,2]; J. Auckett[1]; [1]Australian Nuclear Science and Technology Organisation; [2]University of Sydney

9:45 AM Invited
Neutron Scattering at Oak Ridge National Laboratory - Tools for Material Science and Engineering Applications: *J. Bunn*[1]; [1]Oak Ridge National Laboratory

10:05 AM
Performance Enhancement Options of 40M Small Angle Neutron Scattering Instrument at HANARO, Korea: *Y. Han*[1]; T. Kim[1]; E. Kim[1]; [1]Korea Atomic Energy Research Institute

8. Composites and Hybrid Materials: Particle-Dispersed Metal Matrix Composites

Wednesday AM Room: C-1 August 3, 2016

Session Chairs: Nikhil Gupta, New York University, USA;
Gen Sasaki, Hiroshima University, Japan

9:00 AM Keynote
Highly Strengthened Steel Matrix Composites Reinforced by Titanium Carbide Particulates: *S. Lee*[1]; S. Cho[1]; I. Jo[1]; S. Lee[1]; [1]Korea Institute of Materials Science

9:25 AM
Microstructures and Tensile Behaviors of a Novel TiC Reinforced Steel-Based Composite by Infilration: *N. Oh*[1]; S. Cho[2]; S. Lee[2]; K. Hwang[3]; H. Hong[1]; [1]Changwon National University; [2]Composites Research Division, Korea Institute of Materials Science; [3]Daewha Alloytech

9:40 AM
Compressive Characterization of ZA8 Matrix Glass Hollow Microsphere Syntactic Foams at Quasi-Static and High Strain Rates: S. Zeltmann[1]; *N. Gupta*[1]; M. Tabandeh-Khorshid[2]; P. Rohatgi[2]; [1]New York University; [2]University of Wisconsin - Milwaukee

9:55 AM Invited
Advances on Fabrication of Al-Based Nanocomposites Assisted by Ultrasonic and Electromagnetic Processing: *L. Nastac*[1]; [1]The University of Alabama

10:15 AM
Preparation of High Temperature Lead-Free Solder Composites: *G. Sasaki*[1]; K. Takeuchi[1]; K. Sugio[1]; Y. Choi[1]; K. Matsugi[1]; [1]Hiroshima University

10:30 AM
Microstructure and Mechanical Properties of Friction Stir Processed (FSP) Al-Si Composites: *C. Wang*[1,2]; L. Wu[2]; P. Xue[2]; L. Chen[1]; [1]Northeastern University; [2]Institute of Metal Research, Chinese Academy of Sciences

10:45 AM
Evaluation of Spatial Distribution of Second Phase in Composites with Machine Learning Technique: *K. Sugio*[1]; Y. Ohtani[2]; C. Yongbun[1]; G. Sasaki[1]; [1]Institute of Engineering, Hiroshima University; [2]Graduate School of Engineering, Hiroshima University

10. Modelling and Simulation of Microstructures and Processing: First Principles Calculations (2)

Wednesday AM Room: F August 3, 2016

Session Chairs: Nick Wilson, CSIRO, Australia;
Shoji Ishibashi, AIST, Japan

9:00 AM Keynote
Modelling the Electronic Properties of Phosphorus Nanostructures in Silicon: *S. Russo*[1]; J. Smith[1]; J. Cole[1]; [1]RMIT University

9:25 AM
Ab Initio Local Stiffness Calculation of Semiconductor Surfaces: *Y. Shiihara*[1]; M. Kohyama[2]; [1]The University of Tokyo; [2]Research Institute of Electrochemical Energy, National Institute of Advanced Industrial Science and Technology

9:40 AM
Phonon Band Unfolding for Disordered Alloys Based on First-Principles: *Y. Ikeda*[1]; A. Seko[1]; A. Togo[1]; I. Tanaka[1]; [1]Kyoto University

11. Materials for Energy and Environment: Recycling Technology

Wednesday AM Room: H August 3, 2016

Session Chairs: Fernand D S Marquis, San Diego State University, USA;
Hitoshi Takamura, Tohoku University, Japan

9:00 AM Keynote
Rare Metal Recycling from Materials for Energy and Environment: *T. Fujita*[1]; G. Dodbiba[1]; [1]The University of Tokyo

9:25 AM Invited
Recycling of Energy Materials for Environmental Management: *B. Mishra*[1]; [1]Worcester Polytechnic Institute

13.Additive Manufacturing: Materials and Processing (1)

Wednesday AM Room: J August 3, 2016

Session Chairs: Andrey Molotnikov, Monash University, Australia; Akira Kawasaki, Tohoku University, Japan

9:00 AM Keynote
Current Status and Future Development of Metal Additive Manufacturing Technology in Japan: *H. Kyogoku*[1]; [1]Kinki University

9:25 AM Invited
Metal Additive Manufacturing: Challenges and Opportunities for Component Fabrication: *D. Thoma*[1]; [1]University of Wisconsin

9:45 AM
Study on Additive Manufacturing of Complex Ceramic Parts: *K. Liu*[1]; [1]Wuhan University of Science and Technology

10:00 AM
Stereolithographic Additive Manufacturing of Micro Metal Patterns to Terahertz Wave Modulation: *S. Kirihara*[1]; [1]Osaka University

August 3 (Wed) PM

1. Advanced Steels and Processing: High Strength Steel (2)

Wednesday PM Room: A August 3, 2016

Session Chairs: Young-Kook Lee, Yonsei University, Korea; Goro Miyamoto, Tohoku University, Japan

1:30 PM Keynote
Effect of Processing Route on the Microstructure and Mechanical Properties of Advanced High Strength Fe-0.2C-10Mn-Al Steel: D. Kim[1]; Y. Heo[1]; *S. Kim*[1]; [1]POSTECH

1:55 PM Invited
Quenching and Partitioning of a 5 wt pct Manganese Steel: *E. De Moor*[1]; J. Kähkönen[1]; J. Speer[1]; D. Matlock[1]; [1]Colorado School of Mines

2:15 PM
Excellent Mechanical Properties of 0.1C-2Si-5Mn Fine Martensite and Ferrite+Austenite Steels: *S. Torizuka*[1]; T. Hanamura[2]; M. Kumakura[1]; [1]University of Hyogo; [2]National Insitute for Materials Science

2:30 PM
Ultra-Strong Nanostructured Medium Mn Steel with a Yield Stress of 2.1 GPa and 20% Uniform Elongation: *M. Huang*[1]; B. He; [1]University of Hong Kong

2:45 PM
Alloy Design of Advanced Lightweighted High-Mn Steels by Interface Engineering: *I. Gutierrez-Urrutia*[1]; M. Haghighat[2]; E. Welsch[2]; D. Raabe[2]; [1]National Institute for Materials Science; [2]Max-Planck Institute for Iron Research

1. Advanced Steels and Processing: High Strength Steel (2)

Wednesday PM Room: A August 3, 2016

Session Chairs: Satoshi Emura, National Institute for Materials Science, Japan;
Junya Inoue, The University of Tokyo, Japan

3:30 PM Invited
Correlation with Microstructure and Intrinsic Mechanical Behavior of Lightweight Steels: *H. Han*[1]; K. Lee[1]; S. Park[2]; J. Moon[2]; T. Lee[2]; K. Park[3]; [1]Seoul National University; [2]Ferrous Alloy Department, Advanced Metallic Materials Division, Korea Institute of Materials Science; [3]Department of Materials Science and Engineering, Hanbat National University

3:50 PM Invited
The Effects of Grain Size on Mechanical Twinning and Tensile Properties of Twip Steel: *Y. Lee*[1]; S. Kang[3]; J. Jung[4]; M. Kang[2]; W. Woo[2]; [1]Yonsei University; [2]Korea Atomic Energy Research Institute; [3]Colorado School of Mines; [4]Korea Institute of Materials Science

4:10 PM
The Effect of Titanium Addition on Stacking Fault Energy in High Manganese Twinning-Induced Plasticity (TWIP) Steels: *C. Bae*[1]; R. Kim[1]; D. Kim[1]; H. Seo[1]; S. Choo[2]; I. Seo[2]; U. Lee[2]; J. Kim[1]; [1]Hanyang university; [2]Technical Research Laboratories Gwangyang Research Lab., POSCO

4:25 PM
Deformation Mechanisms of a Fe-20Mn-3Al-3Si Steel with Different Deformation Processes: *C. Wu*[1]; P. Xie[1]; J. Chen[1]; Y. Chen[1]; Y. Chen[1]; [1]Hunan University

4:40 PM
Hydrogen-Related Crack Propagation in an Ultrafine-Grained 22Mn-0.6C Twip Steel: *Y. Bai*[1,2]; Y. Momotani[1]; A. Shibata[1,2]; N. Tsuji[1,2]; [1]Kyoto University; [2]Elements Strategy Initiative for Structural Materials (ESISM), Kyoto University, Kyoto, Japan

4:55 PM
In-Situ Neutron Diffraction during the Cyclic Loading of a Transformation-Twinning Induced Plasticity (TRIP-TWIP) Steel: *A. Saleh*[1]; D. Brown[2]; E. Pereloma[1,3]; B. Clausen[2]; C. Davies[4]; C. Tomé[2]; A. Gazder[3]; [1]University of Wollongong; [2]Los Alamos National Laboratory; [3]Electron Microscopy Centre, University of Wollongong; [4]Department of Mechanical and Aerospace Engineering, Monash University

2. Advanced High Temperature Structural Materials: Co-based Superalloys (1)

Wednesday PM Room: B-1 August 3, 2016

Session Chairs: Qiang Feng, University of Science and Technology Beijing, China;
Katsushi Tanaka, Kobe University, Japan

1:30 PM Invited
Mechanical Properties of Co-Based Superalloys with L12 Cuboidal Precipitates: *H. Inui*[1]; [1]Kyoto University

1:50 PM Invited
Coarsening Kinetics and Interfacial Structure of γ' Precipitates in Cobalt-Base Alloys: S. Meher[1,2]; S. Nag[1,3]; J. Tiley[4]; *R. Banerjee*[1]; [1]University of North Texas; [2]Department of Materials Science and Engineering, Idaho National Laboratory; [3]CMT Strucutral and Functional Metals Laboratory, GE Global Research Center; [4]Materials and Manufacturing Directorate Air Force Research Laboratory

2:10 PM
Solid/Liquid Phase Equilibria and Alloy Design in Co-Al-W-Based Superalloy: *T. Omori*[1]; K. Shinagawa[1]; I. Ohnuma[2]; K. Ishida[1]; R. Kainuma[1]; [1]Tohoku University; [2]National Institute for Materials Science

2:25 PM
A2/B2 Phase Separation and Mechanical Properties in Cr-Co-Al Alloys: *Y. Aono*[1]; M. Nagasako[2]; T. Omori[1]; R. Kainuma[1]; [1]Tohoku University; [2]Institute for Materials Research, Tohoku University

2. Advanced High Temperature Structural Materials: Co-based Superalloys (2) and High-Entropy Alloys

Wednesday PM Room: B-1 August 3, 2016

Session Chairs: Rajarshi Banerjee, University of North Texas, USA; Toshihiro Omori, Tohoku University, Japan

3:30 PM
Controlling Lattice Misfits of Co-Ti-Based $L1_2$/FCC Two-Phase Superalloys: S. Takeuchi[1]; M. Itatani[1]; T. Iwanaka[1]; S. Ikeda[1]; *K. Tanaka*[1]; [1]Kobe University

3:45 PM
Influence of the Chemical Composition on Structure Evolution and Magnetic Properties of the Gamma Prime - Phase in Co-Al-W Alloys: *N. Kazantseva*[1]; S. Demakov[2]; N. Vinogradova[1]; D. Davidov[1]; P. Terent'Ev[1]; D. Shishkin[1]; [1]Institute of Metal Physics; [2]Ural Federal University

4:00 PM
Deviation from High-Entropy Configurations in the $Al_{1.3}$CoCr-CuFeNi Alloy: L. Santodonato[1,2]; Y. Zhang[3]; M. Feygenson[2]; C. Parish[2]; M. Gao[4,5]; R. Weber[6,7]; J. Neuefeind[2]; Z. Tang[8]; *P. Liaw*[1]; [1]The University of Tennessee; [2]Oak Ridge National Laboratory,; [3]University of Illinois at Urbana-Champaign; [4]National Energy Technology Laboratory; [5]URS Corporation; [6]Argonne National Laboratory; [7]Materials Development, Inc.,; [8]ALCOA

4:15 PM
Fabrication of Refractory High Entropy Alloys by Spark Plasma Sintering: B. Kang[1]; S. Kuk[2]; *H. Ryu*[1]; S. Hong[1]; [1]Korea Advanced Institute of Science and Technology; [2]Korea Atomic Energy Research Institute

4:30 PM
Solid Solution Strengthening in Equiatomic High-Entropy Alloys with the FCC Structure: *N. Okamoto*[1]; K. Yuge[1]; K. Tanaka[2]; H. Inui[1]; E. George[3]; [1]Kyoto University; [2]Kobe University; [3]Ruhr-Universität Bochum

4:45 PM
Oxidation Behavior of Al, Cr, Si- Containing Refractory High Entropy Alloys: *K. Lo*[1]; A. Yeh[1]; H. Murakami[2]; [1]National Tsing Hua University; [2]National Institute for Materials Science

3.Light Metals and Alloys: Magnesium (3)

Wednesday PM Room: D August 3, 2016

Session Chairs: Yunchang Xin, Chongqing University, China; Gwenaelle Proust, University of Sydney, Australia

1:30 PM Invited
Understanding in Vivo Corrosion of Magnesium: *A. Atrens*[1]; [1]The University of Queensland

1:50 PM
Probing Mg Alloy Corrosion in 3D and 4D Using a Correlative X-Ray and Electron Microscopy Approach: H. Krebs[2]; A. Chirazi[2]; G. Thompson[2]; P. Withers[2]; J. Gelb[1]; L. Lechner[1]; A. Merkle[1]; *W. Harris*[1]; H. Bale[1]; [1]Carl Zeiss X-ray Microscopy; [2]University of Manchester

2:05 PM
Study on the Cross-Section of Surface Films Formed on Mg-Sn Alloys in NaCl Solution: *J. Yang*[1,2]; C. Yim[1,2]; B. You[1,2]; [1]University of Science and Technology; [2]Korea Institute of Materials Science

2:20 PM
Understanding Surface Reactivity of Magnesium Alloys in Solid and Liquid States: *F. Czerwinski*[1]; [1]CanmetMATERIALS, Natural Resources Canada

2:35 PM Invited
Effect of Ca and Y Additions on the Microstructure and Corrosion Properties of Extruded AZ61 Mg Alloy: *S. Park*[1]; S. Baek[1]; H. Ha[2]; C. Yim[2]; B. You[2]; [1]Ulsan National Institute of Science and Technology; [2]Korea Institute of Materials Science

4. Solidification, Deformation and Related Processing: Dynamics of Solidification

Wednesday PM Room: C-2 August 3, 2016

Session Chairs: Amy J. Clarke, Colorado School of Mines, USA; Munekazu Ohno, Hokkaido University, Japan

1:30 PM Keynote
Quantitative Phase-Field Simulations of Solidification Microstructures in Alloy Systems: *M. Ohno*[1]; T. Takaki[2]; Y. Shibuta[3]; [1]Hokkaido University; [2]Kyoto Institute of Technology; [3]The University of Tokyo

1:55 PM Invited
Visualization of Metal Alloy Solidification Dynamics: *A. Clarke*[5]; S. Imhoff[1]; J. Gibbs[1]; D. Tourret[1]; Y. Song[2]; A. Karma[2]; N. Carlson[1]; F. Merrill[1]; K. Fezzaa[3]; J. McKeown[4]; [1]Los Alamos National Laboratory; [2]Northeastern University; [3]Argonne National Laboratory, Advanced Photon Source; [4]Lawrence Livermore National Laboratory; [5]Colorado School of Mines

2:15 PM
Real-Time Synchrotron X-Ray Tomography Studies of Phase Evolution in Solidification Processes: *J. Mi*[1]; [1]Universityof Hull

2:30 PM
Kinetics and Interfacial Free Energy of the Solid-Liquid Interface of Al-Cu Alloys by Molecular Dynamics Simulations: *S. Deb Nath*[1]; Y. Shibuta[2]; M. Ohno[3]; T. Takaki[4]; T. Mohri[1]; [1]Institute for Materials Research, Tohoku University; [2]Department of Materials Engineering, The University of Tokyo; [3]Division of Materials Science and Engineering, Faculty of Engineering, Hokkaido University; [4]Faculty of Mechanical Engineering, Kyoto Institute of Technology

2:45 PM
An Exploratory Study on the Mechanism of Intragranular Acicular Ferrite Nucleation Induced by Different Kinds of Inclusions: *H. Kong*[1]; H. Lin[1]; Z. Cai[1]; [1]Anhui University of Technology

4. Solidification, Deformation and Related Processing: Casting and Semisolid Processing

Wednesday PM Room: C-2 August 3, 2016

Session Chairs: Takeshi Nagase, Osaka University, Japan;

3:30 PM Invited
Mechanism and Control of Slab Surface Transverse Cracks during the Continuous Casting of Micro-Alloyed Steels: *M. Zhu*[1]; Z. Cai[1]; [1]Northeastern Univesity

3:50 PM
Revisiting the Effect of Solidification Cooling Rate on Microstructure of Cast Magnesium Alloys: *M. Zhang*[1]; Y. Ali[1]; Q. Huang[1]; [1]The University of Queensland

4:10 PM
Researches on Directional Solidified Microstructures and Room Temperature Mechanical Properties of Mg-5.5Zn-xGd Alloys: *G. Yang*[1]; S. Liu[1]; S. Luo[1]; L. Xiao[1]; W. Jie[1]; [1]State Key Laboratory of Solidification Processing, Northwestern Polytechnical University

4. Solidification, Deformation and Related Processing: Casting and Semisolid Processing

Wednesday PM Room: C-2 August 3, 2016

Session Chairs: Miaoyong Zhu, Northwestern Polytechnical University, China;
Tomoya Nagira, Osaka University, Japan

4:25 PM
Microstructural Evolution during Partial Melting and Thixo-Forming of SKD11 and SKD61 Tool Steels: *Y. Meng*[1]; S. Sugiyama[2]; J. Yanagimoto[2]; [1]Chongqing University; [2]Institute of Industrial Science, The University of Tokyo

4:40 PM
Impact of Grain Morphology on Semi-Solid Deformation Behaviors: *T. Nagira*[1]; T. Ito[2]; H. Yasuda[2]; A. Sugiyama[3]; C. Gourlay[4]; M. Yoshiya[1]; K. Uesugi[5]; [1]Osaka University; [2]Kyoto University; [3]Osaka Sangyo University; [4]Imperial College; [5]JASRI

4:55 PM
Microstructures of the Ingots in $AlCoCrFeNi_{2.1}$ Eutectic High Entropy Alloys (EHEAs) Ingot Prepared by Metal Mold Casting: *T. Nagase*[1]; M. Takemura[2]; M. Matsumuro[2]; T. Maruyama[3]; [1]Osaka University; [2]Technology Research Institute of Osaka Prefecture; [3]Kansai University

6. Biomaterials, Smart Materials and Structures: Shape Memory / Superelasticity (1)

Wednesday PM Room: I August 3, 2016

Session Chairs: Xianglong Meng, Harbin Institute of Technology, China;
Hideki Hosoda, Tokyo Institute of Technology, Japan

1:30 PM Invited
Physical Properties and Functionality of NiMn-Based Metamagnetic Shape Memory Alloys: *R. Kainuma*[1]; X. Xu[1]; [1]Tohoku University

1:50 PM
Mechanical Propertes of Ti-Au-Ta Based Biomedical Shape Memory Alloys: K. Fuchiwaki[1]; Y. Shinohara[1]; M. Tahara[1]; T. Inamura[1]; *H. Hosoda*[1]; [1]Tokyo Institute of Technology

2:05 PM
Achieving Ultra-High Superelasticity and Cyclic Stability of Biomedical Ti-11Nb-O Shape Memory Alloys by Controlling Nb and Oxygen Content: *B. Yuan*[1]; Y. Gao[1]; M. Zhu[1]; [1]South China University of Technology

2:20 PM
Effect of Heat Treatment Temperature on Shape Memory Properties of Au-51Ti-18Co Biomedical Alloy: *T. Buasri*[1]; H. Shim[1]; M. Tahara[1]; T. Inamura[1]; K. Goto[1,2]; H. Kanetaka[3]; Y. Yamabe-Mitarai[4]; H. Hosoda[1]; [1]Tokyo Institute of Technology; [2]Tanaka Kikinzoku Kogyo K. K.; [3]Tohoku University; [4]National Institute for Materials Science

2:35 PM
Martensitic Transformation Properties in $Ti_{50.0-x}Ni_{40.0+x}Cu_{10.0}$ Shape Memory Alloys: *Y. Kimura*[1]; X. Xu[1]; K. Niitsu[2]; T. Omori[1]; R. Kainuma[1]; [1]Tohoku University; [2]Center for Emergent Matter Science, RIKEN

2:50 PM
Impact of Antiphase Boundaries on Magnetization in Several Ordered Alloys: *Y. Murakami*[1]; K. Niitsu[2]; T. Tanigaki[3]; R. Kainuma[4]; D. Shindo[2,5]; [1]Kyushu University; [2]RIKEN; [3]Hitachi Ltd; [4]Dept Mater Sci, Tohoku University; [5]IMRAM, Tohoku University

6. Biomaterials, Smart Materials and Structures: Shape Memory / Superelasticity (2)

Wednesday PM Room: I August 3, 2016

Session Chairs: Ryosuke Kainuma, Tohoku University, Japan;
Yoko Yamabe-Mitarai, National Institute for Materials Science, Japan

3:30 PM Invited
Ti-Ni-Hf High Temperature Shape Memory Alloy Ribbons with Large Recoverable Strain: *X. Meng*[1]; [1]Harbin Institute of Technology

3:50 PM
Phase Transformation and Shape Memory Effect of TiPd Base High Temperature Shape Memory Alloys: *Y. Yamabe-Mitarai*[1]; W. Tasaki[2]; W. Takebe[1]; M. Shimojo[3]; [1]NIMS; [2]University of Tsukuba; [3]Shibaura Institute of Technology

4:05 PM
Reentrant Martensitic Transformation with Anomalous Physical Properties in $Co_2Cr(Ga, Si)$ Heusler Alloys: *X. Xu*[1]; M. Nagasako[2]; M. Kataoka[3]; R. Umetsu[2]; T. Omori[1]; T. Kanomata[1,4]; R. Kainuma[1]; [1]Tohoku University; [2]Institute for Materials Research, Tohoku University; [3]Laboratory for Solid State Physics; [4]Research Institute for Engineering and Technology, Tohoku Gakuin University

4:20 PM
Characterization of TiNiHf High Temperature Shape Memory Alloy Powder in Plasma Rotating Electrode Process: *X. Yi*[1]; X. Meng[1]; Z. Gao[1]; W. Cai[1]; [1]Harbin Institute of Technology

4:35 PM
Mechanical Property Improvement of Fe-Added AuCuAl Biomedical Shape Memory Alloy: *A. Umise*[1]; T. Koida[1]; K. Goto[1]; M. Tahara[1]; T. Inamura[1]; H. Kanetaka[2]; H. Hosoda[1]; [1]Tokyo Institute of Technology; [2]Graduate School of Dentistry, Tohoku University

4:50 PM
Multilayer Structure Induced by High Energy Proton Irradiation in NiTi Binary Shape Memory Alloy: H. Wang[1]; Y. Zhu[1]; Y. Yin[1]; *Z. Gao*[1]; W. Cai[1]; [1]Harbin Institute of Technology

5:05 PM
Stress-Induced Martensitic Transformation and Phase Equilibria at Cryogenic Temperatures in Ni-Rich TiNi Alloys: *K. Niitsu*[1]; Y. Kimura[2]; X. Xu[2]; T. Omori[2]; R. Kainuma[2]; [1]RIKEN; [2]Department of Materials Science, Tohoku University

7. Materials Characterization and Evaluation: Atomic-Resolution Electron Microscopy

Wednesday PM Room: E August 3, 2016

Session Chairs: Yoosuf Picard, Carnegie Mellon University, USA; Kazuto Arakawa, Shimane University, Japan

1:25 PM Keynote
In Situ Characterizing and Uncovering Materials' Novel Physical, Chemical and Mechanical Properties from Macro to Atomic Scale: *Z. Zhang*[1]; [1]Zhejiang University

1:50 PM Invited
Study on Defects in 2D Materials using Atomic Resolution TEM: *Z. Lee*[1]; [1]Ulsan National Institute of Science and Technology

2:10 PM Invited
Advanced STEM Imaging of Materials Using Segmeted-Type Annular Detector: *N. Shibata*[1]; [1]The University of Tokyo

2:30 PM
Ge Diffusion Induced Vacancy Order and Insulator-Metal Transition in GeTe-Sb_2Te_3 Superlattice-Like Phase Change Material: *Y. Chen*[1]; B. Zhang[1]; Q. Ding[2]; X. Han[1]; Z. Zhang[1,2]; [1]Beijing University of Technology; [2]Center of Electron Microscopy and State Key Laboratory of Silicon Materials, Department of Materials Science and Engineering, Zhejiang University

2:45 PM
Direct Observation of Grain Boundary Solute Segregation in Yttria-Stabilized Zirconia at Atomic Resolution: *B. Feng*[1]; T. Yokoi[2]; A. Kumamoto[1]; M. Yoshiya[2]; Y. Ikuhara[1,3,4]; N. Shibata[1]; [1]The University of Tokyo; [2]Osaka University; [3]Japan Fine Ceramics Center; [4]Tohoku University

7. Materials Characterization and Evaluation: Characterization of Functional Materials

Wednesday PM Room: E August 3, 2016

Session Chairs: Zonghoon Lee, Ulsan National Institute of Science and Technology, Korea;
Naoya Shibata, University of Tokyo, Japan

3:30 PM Invited
Artificial Topological Superconductor and Majorana Mode: *J. Jia*[1]; [1]Shanghai Jiao Tong University

3:50 PM
Observation of a Periodic Array of Flux-Closure Quadrants in Strained Ferroelectric $PbTiO_3$ Films: *Y. Zhu*[1]; Y. Tang[1]; X. Ma[1]; [1]Institute of Metal Research, Chinese Academy of Sciences

4:05 PM Invited
Magnetic Resonance Studies of Alignment Effects and Phase Transitions in Organic Ionic Plastic Crystals: *L. O'Dell*[1]; [1]Deakin University

4:25 PM
High Temperature Aurivillius Piezoelectrics: The Effect of Rear Earth Modification on the Structure and Properties of Bismuth Titanate: *H. Fan*[1]; C. Long[1]; Q. Chang[1]; [1]Northwestern Polytechnical University

4:40 PM
Reduction Process of CuO in Cu-to-Cu Bonding Using CuO Paste: *T. Yao*[1]; T. Matsuda[1]; T. Sano[1]; A. Hirose[1]; K. Ishii[2]; C. Morikawa[3]; A. Ohbuchi[3]; H. Yashiro[3]; [1]Osaka University; [2]Division of Sustainable Energy and Environmental Engineering, Osaka University; [3]Rigaku Corporation

8. Composites and Hybrid Materials: Functional Composites

Wednesday PM Room: C-1 August 3, 2016

Session Chairs: Di Zhang, Shanghai Jiao Tong University, China; Hideki Kakisawa, National Institute for Materials Science, Japan

1:30 PM Invited
Morphology-Genetic Materials Inspired from Nature Species: *D. Zhang*[1]; W. Zhang[1]; J. Gu[1]; T. Fan[1]; H. Zhou[1]; H. Su[1]; [1]Shanghai Jiao Tong University

1:50 PM Invited
Synthesis and Characterization of the Soft Magnetic Composites Composed of a Pure Fe and an Fe Alloy Powder with a Uniform TiO_2 Nanocoating: *S. Yoo*[1]; S. Choi[1]; S. Lee[1]; J. You[1]; H. Kim[1]; [1]Seoul National University

2:10 PM Invited
Fabrication and Characterization of PVDF-Based Electrospun Nanofibrous Films for Mechanical Energy Harvesting: *R. Li*[1]; [1]City University of Hong Kong

8. Composites and Hybrid Materials: Metal Matrix Composites for Thermal Management

Wednesday PM Room: C-1 August 3, 2016

Session Chairs: Jinglei Yang, Hong Kong University of Science and Technology, China;
Hideki Kakisawa, National Institute for Materials Science, Japan

3:30 PM Invited
Development of Cr-Cu Heat-Sink Composite Materials for Semiconductor Devices: *H. Terao*[1]; H. Kobiki[2]; H. Ota[2]; [1]JFE Precision Corporation; [2]JFE Steel Corporation

3:50 PM
Thermal Properties of CNF/Cu Nano-Composites Fabricated Using Electroless Plating: *A. Shin*[1]; S. Park[1]; J. Han[1]; [1]Chungnam National University

4:05 PM
Thermal Conductivity of Aluminum-Graphite Composites Fabricated by Hot Extrusion: *L. Yi*[1]; N. Yoshida[1]; M. Takano[1]; T. Akao[1]; T. Onda[1]; Z. Chen[1]; [1]Tottori University

9. Bulk Metallic Glasses, Nanocrystalline Material and Ultrafine-Grained Materials: Ultrafine Grained Materials and Bulk Nano Metals (3) ~Synthesis, Structure and Various Properties

Wednesday PM Room: B-2 August 3, 2016

Session Chairs: Julie Cairney, The University of Sydney, Australia; Yoshihisa Kaneko, Osaka City University, Japan

1:30 PM Keynote
High-Pressure Torsion of Bulk Metallic Glasses: S. Joo[1]; H. Kato[2]; *H. Kim*[1]; [1]Pohang University of Science and Technology; [2]Institute for Materials Research, Tohoku University

1:55 PM
Scaling up of High-Pressure Torsion and Production of Superplastic Mg Alloys: T. Masuda[1]; *Z. Horita*[1]; [1]Kyushu University

2:10 PM
Grain Refinement and Superplasticity of Ni-Based Superalloy (Inconel 718) by High-Pressure Sliding (HPS): *Y. Takizawa*[1,2]; T. Kajita[1]; T. Masuda[1]; M. Yumoto[2]; Y. Otagiri[2]; Z. Horita[1]; [1]Kyushu University; [2]Nagano Forging Co., Ltd.

2:25 PM
Phase Transformation and Thermal Stability of Metastable -Phase of Pure Ti and Zr Processed by High-Pressure Torsion: *M. Arita*[1]; T. Nagaoka[1]; Y. Yoshimatsu[1]; R. Haraguchi[1]; K. Edalati[2]; Z. Horita[2]; [1]Kyushu University; [2]WPI, International Institute for Carbon-Neutral Energy Research (WPI-I2CNER), Kyushu University

2:40 PM
Effect of HPT-Deformation on Microstructures and Precipitation Behavior in Mg-Zn Alloy: *K. Tsuchiya*[1]; F. Meng[1]; J. Rosalie[1]; D. Basha[1]; H. Somekawa[1]; A. Singh[1]; [1]National Institute for Materials Science

9. Bulk Metallic Glasses, Nanocrystalline Material and Ultrafine-Grained Materials: Ultrafine Grained Materials and Bulk Nano Metals (4) ~Structure Evolution and Various Properties

Wednesday PM Room: B-2 August 3, 2016

Session Chairs: Hyoung Seop Kim, Pohang University of Science and Technology, Korea;
Koichi Tsuchiya, NIMS, Japan

3:25 PM Invited
Transmission Kikuchi Diffraction for the Study of UFG Materials: The Effect of Acquisition Parameters on Spatial Resolution: *J. Cairney*[1]; G. Sneddon[1]; P. Trimby[1]; [1]The University of Sydney

3:45 PM
Effect of Deformation Conditions on Microstructure Evolution in Hot-Torsion Deformed Interstitial Free Steel: *R. Gholizadeh*[1]; A. Shibata[1,2]; N. Tsuji[1,2]; [1]Kyoto University; [2]Elements Strategy Initiative for Structural Materials (ESISM), Kyoto University

4:00 PM
Monotonic Deformation and Low-Cycle Fatigue Properties of SUS304L Stainless Steel Processed by ECAP: *Y. Kaneko*[1]; H. Kobayashi[1]; M. Uchida[1]; A. Vinogradov[2]; [1]Osaka City University; [2]Laboratory for the Physics of Strength of Materials and Intelligent Diagnostic Systems, Togliatti State University

4:15 PM
Effects of Friction-Stir-Processing Grain-Refinement on Fatigue Strength and Charpy-Impact-Absorbed Energies of TIG-Welded SS400 Steel Plates: K. Ito[1]; T. Okuda[1]; H. Izumi[1]; M. Takahashi[1]; *H. Yamamoto*[1]; H. Fujii[1]; [1]Osaka University

11. Materials for Energy and Environment: Materials for Low-Carbon Energy and Green Energy

Wednesday PM Room: H August 3, 2016

Session Chairs: Brajendra Mishra, Worcester Polytechnic Institute, USA;
Toyohisa Fujita, The University of Tokyo, Japan

1:30 PM Invited
Added Value Zero–Waste Processing of Metallurgical Slags and Residues.: *B. Blanpain*[1]; P. Jones[1]; K. Binnemans[1]; Y. Pontikes[1]; [1]KU Leuven

1:50 PM
PM Emissions from Iron and Steel Enterprises in China: *H. Wang*[1]; L. Zhang[1]; [1]Central Research Institute of Building and Construction Co. Ltd., MCC

2:05 PM Invited
Perspectives on the Role of New and Advanced Materials in Energy and Environment: *F. Marquis*[1]; [1]San Diego State University

2:25 PM
Some Properties of the Compositional Optimized Bi-2Ag-0.5Cu Alloy for High Temperature Solders: *M. Yu*[1]; Z. Xu[1]; Y. Choi[1]; K. Matusgi[1]; S. Motozuka[2]; K. Suetsugu[3]; J. Yu[4]; [1]Hiroshima University; [2]Gifu National College of Technology; [3]Kobe University; [4]Yanshan University

11. Materials for Energy and Environment: Materials for Catalysts and Energy Conversion

Wednesday PM Room: H August 3, 2016

Session Chairs: Ho Won Jang, Seoul National University, Korea; Shigehito Isobe, Hokkaido University, Japan

3:30 PM
Synthesis of Highly Active Mesoporous PdCeOx Solid Solution for Low-Temperature CO Oxidation: *L. Li*[1]; G. Li[1]; [1]East China University of Science and Technology

3:45 PM
Atomic Layer Deposition Preparation of Ni/γ-Al_2O_3 Catalysts for Carbon Dioxide Reforming of Methane: *F. Zhao*[1]; M. Gong[1]; Y. Zhang[1]; J. Li[1]; [1]South-Central University for Nationalities

4:00 PM
Development of Mixed Metal Oxides as Electrocatalysts for the Oxygen Evolution Reaction: M. Lindstrom[1]; R. Gakhar[1]; *D. Chidambaram*[1]; [1]University of Nevada

4:15 PM
Honeycomb Porous Structure Formed by Interconnected MnO_2 Nanosheets on CNT-Coated Substrates for Flexible All-Solid-State Supercapacitors: *W. Ko*[1]; K. Lu[1]; Y. Chen[1]; K. Lin[1]; [1]National Chung-Hsing Universuty

4:30 PM
Fabrication of TiO_2 Hollow Nanoboxes Assembly by Anatase TiO_2 Nanosheets with Exposed {001} Facets: Z. Huang[1]; *K. Lv*[1]; [1]South-Central University for Nationalities

12. Electronic and Magnetic Materials: Magnetocaloric Materials

Wednesday PM Room: K August 3, 2016

Session Chairs: Yu Shiratsuchi, Osaka University, Japan; Cheng Song, Tsinghua University, China

1:30 PM Keynote
Magnetic Materials for Induction Heating: an Overview of Heating Mechanisms and Applications: *K. Suzuki*[1]; [1]Monash University

1:55 PM Invited
Recent Developments in "Entropics" Materials: *A. Fujita*[1]; [1]AIST Chubu

2:15 PM Invited
Magneto-Structural Transitions and the Magneto Caloric Effect in MnCoGe: *W. Hutchison*[1]; Q. Ren[1]; J. Wang[2]; S. Cadogan[1]; S. Campbell[1]; [1]The University of New South Wales; [2]Institute for Superconductivity and Electronic Materials, University of Wollongong

12.Electronic and Magnetic Materials: Magnetic Functions and Properties

Wednesday PM Room: K August 3, 2016

Session Chairs: Asaya Fujita, AIST Chubu, Japan;
Kiyonori Suzuki, Monash University, Australia

3:30 PM Invited
Complex Magnetism in Metal-Ion Battery Cathode Materials: *C. Ling*[1]; M. Avdeev[2]; M. Sale[2]; [1]The University of Sydney; [2]Australian Nuclear Science and Technology Organisation

3:50 PM Invited
Electrical Control of Magnetism Induced by Interfacial Orbital Reconstruction: *C. Song*[1]; B. Cui[1]; F. Pan[1]; [1]Tsinghua University

4:10 PM
Observation of Ferromagnetic and Antiferromagnetic Domains in Perpendicular Exchange-Biased System Using Cr_2O_3 Thin Film: *Y. Shiratsuchi*[1]; Y. Kotani[2]; S. Yoshida[1]; Y. Yoshikawa[1]; K. Toyoki[2]; A. Kobane[1]; R. Nakatani[1]; T. Nakamura[2]; [1]Osaka University; [2]Japan Synchrotron Radiation Research Institute

13. Additive Manufacturing: Modeling and Simulation for AM

Wednesday PM Room: J August 3, 2016

Session Chairs: George T. (Rusty) Gray Ⅲ, Los Alamos National Laboratory, USA;
Takayoshi Nakano, Osaka University, Japan

1:30 PM Keynote
Additive Manufacturing: Promise and Challenges: *C. Davies*[1]; [1]Monash University

1:55 PM Invited
4D Printing Technology: a Review: J. Choi[1,2]; O. Kwon[1,3]; M. Moon[1]; *H. Lee*[1]; [1]Korea Institute of Science and Technology; [2]Department of Multimedia Science, Sookmyung Women's University; [3]Department of Mechanical Systems Engineering, Hansung University

2:15 PM
Molecular Dynamics Simulation on the Structure Evolution in Heat-Affected Zone during the Preparation of Metallic Glasses with Laser Solid Forming: *S. Guo*[1]; M. Wang[1]; X. Lin[1]; W. Huang[1]; [1]State Key Laboratory of Solidification Processing,Northwestern Polytechnical University

2:30 PM
Linking Microstructure, Performance and Prediction: *V. Livescu*[1]; C. Bronkhorst[1]; S. Vander Wiel[1]; D. Brown[1]; J. Mayeur[1]; G. Gray Iii[1]; J. Carpenter[1]; O. Dippo[1]; M. Lovato[1]; [1]Los Alamos National Laboratory

2:45 PM
Melt Pool Characterization and Modelling of Electron Beam Melting for IN718: *X. Ding*[1]; Y. Koizumi[2]; A. Chiba[2]; [1]Tohoku University; [2]Institute for Material Research, Tohoku University

August 4 (Thu) AM

1.Advanced Steels and Processing: Deformation (1)

Thursday AM Room: A August 4, 2016

Session Chairs: Hossein Beladi, Deakin University, Australia;
Shiro Torizuka, University of Hyogo, Japan

9:00 AM Keynote
Influence of Microstructure and Composition on the Plastic and Damage Response of Dual-Phase Steels – Experiments and Micromechanical Modeling: *L. Brassart*[1]; K. Ismail[2]; A. Pierman[2]; T. Pardoen[2]; P. Jacques[2]; Q. Lai[3]; Y. Bréchet[3]; A. Perlade[4]; [1]Monash University; [2]Université catholique de Louvain; [3]Université de Grenoble Alpes; [4]R&D Automotive Products, ArcelorMittal

9:25 AM
Quantitative Analysis of Microstructural Evolution during Warm Deformation of Ferrite with Different Initial Structures: U. Lee[1]; G. Miyamoto[1]; *T. Furuhara*[1]; [1]Tohoku University

9:40 AM
Thickness Dependence on Void Nucleation Behavior during Tensile Test of Industrial Pure Iron and Its Effect on Deformation Energy: *Y. Takeda*[1]; C. Kiattisaksri[1]; M. Aramaki[1]; S. Munetoh[1]; O. Furukimi[1]; M. Yamamoto[2]; [1]Kyushu University; [2]Yamamoto Scientific Tool Laboratory

9:55 AM
Effect of Elastic Strain Due to Ferrite/Cementite Misfit on Strength in Pearlitic Steel: *N. Nakada*[1]; Y. Tanaka[2]; T. Tsuchiyama[2]; S. Takaki[2]; [1]Tokyo Institute of Technology; [2]Kyushu University

10:30 AM
ECCI+EBSD Characterization of an Al-Added Duplex Stainless Steel during Uniaxial Tensile Deformation at Various Temperatures: *R. Rahimi*[1]; C. Ullrich[2]; D. Rafaja[2]; H. Biermann[3]; J. Mola[1]; [1]Institute of Iron and Steel Technology, Technische Universität Bergakademie Freiberg; [2]Institute of Materials Science, Technische Universität Bergakademie Freiberg; [3]Institute of Materials Engineering, Technische Universität Bergakademie Freiberg

10:45 AM Invited
Deformation Behavior of Lath Martensite in Low-Alloyed Steel during Large Tensile Elongation: *J. Inoue*[1]; M. Ojima[1]; S. Nambu[1]; T. Koseki[1]; [1]The University of Tokyo

11:05 AM
The Microstructure of Dislocated Martensitic Steel: *J. Morris Jr*[1]; C. Kinney[1]; K. Pytlewski[1]; A. Khachaturian[1]; [1]University of California - Berkeley

11:20 AM
Relationship between Bain Unit Size and Low-Temperature Toughness in Low-Carbon Bainitic Steel: *M. Tsuboi*[1]; A. Shibata[1,2]; N. Tsuji[1,2]; [1]Kyoto University; [2]Elements Strategy Initiative for Structural Materials (ESISM)

11:35 AM Invited
Deformation and Ductile Fracture Behaviors of a Ferritic Steel Strengthened by Cu Dispersion Particles: *T. Tsuchiyama*[1,2]; M. Asano[3]; I. Shimoji[4]; S. Takaki[1,2]; [1]Kyushu University; [2]International Institute for Carbon-Neutral Energy Research (WPI-I2CNER), Kyushu University; [3]Graduate School of Engineering, Kyushu University; [4]Graduate School of Engineering, Kyushu University

(Now at NSK)

2.Advanced High Temperature Structural Materials: Ti-Al Intermetallics and Inorganic Compounds

Thursday AM Room: B-1 August 4, 2016

Session Chairs: Kyosuke Kishida, Kyoto Univesity, Japan; Mingiie Fu, AVIC Beijing Aeronautical Manufacturing Technology Research Institute, China

9:00 AM Invited
Design Approaches and Properties on High-Performance TiAl Alloys: *M. Takeyama*[1]; [1]Tokyo Institute of Technology

9:20 AM
Fabrication Conditions of SiC Fiber Reiforced TiAl Intermetallics by Hot Press: *K. Hashimoto*[1]; T. Ando[1]; H. Kato[1]; R. Kono[1]; [1]Teikyo University

9:35 AM
Reinforcement of Ti-Mo-Al Alloys by TiC Particles: *Y. Lu*[1]; H. Kato[1]; K. Yoshimi[2]; [1]Institute for Material Research, Tohoku University; [2]Department of Material Science, Graduate School of Engineering, Tohoku University

9:50 AM
Room Temperature Deformation Behavior of $SrTiO_3$ Single Crystals: *A. Nakamura*[1]; K. Yasufuku[1]; Y. Furushima[1]; K. Toyoura[1]; K. Matsunaga[1]; [1]Nagoya University

10:05 AM
TEM Characterization of the 1/3<-1101> Dislocation in a Low-Angle Grain Boundary of α-Al_2O_3: *E. Tochigi*[1]; A. Nakamura[2]; T. Mizoguchi[1]; N. Shibata[1]; Y. Ikuhara[1,3]; [1]The University of Tokyo; [2]Nagoya University; [3]Japan Fine Ceramics Center

2. Advanced High Temperature Structural Materials: Advanced Ti-based Alloys

Thursday AM Room: B-1 August 4, 2016

Session Chairs: Masao Takeyama, Tokyo Institute of Technology, Japan; Yuanyuan Lu, Tohoku University, Japan

10:30 AM
Effect of Ga Addition on Microstructure, Tensile and Creep Properties in Alpha and Near-Alpha Titanium Alloys: *T. Kitashima*[1,2]; Y. Yang[2]; Y. Yamabe-Mitarai[1]; T. Hara[1]; Y. Hara[1]; S. Iwasaki[1]; S. Kuroda[1]; [1]National Institute for Materials Science; [2]Kyushu University

10:45 AM
Influence of Colony Size on Mechanical Properties of Bi-Lamellar Ti-6Al-4V: *Y. Chong*[1]; J. Yi[1]; N. Tsuji[1,2]; [1]Kyoto University; [2]Elements Strategy Initiative for Structural Materials (ESISM), Kyoto University

11:00 AM
Effects of Strain and Strain Rate on Globularization Behavior of Ti-6Al-4V with Lamellar Structure: *J. Yi*[1]; Y. Chong[1]; N. Tsuji[1,2]; [1]Kyoto University; [2]Elements Strategy Initiative for Structural Materials (ESISM), Kyoto University

3.Light Metals and Alloys: Aluminum (1)

Thursday AM Room: D August 4, 2016

Session Chairs: Gang Liu, Xi'an Jiaotong University, China; Kenji Matsuda, Toyama University, Japan

9:00 AM Keynote
Three Strategies to Achieve Concurrent Strengthening by Ultrafine-Grained and Precipitation Hardenings for Severely Deformed Age-Hardenable Aluminum Alloys: *S. Hirosawa*[1]; Y. Tang[1]; Z. Horita[2]; K. Matsuda[3]; S. Lee[3]; D. Terada[4]; [1]Yokohama National University; [2]Kyushu University; [3]University of Toyama; [4]Chiba Institute of Technology

9:25 AM Invited
What Is the Strength Limitation of Aluminum Alloy?: *C. Ma*[1]; W. Xiao[1]; [1]Beihang University

9:45 AM
The Complex Precipitation Sequences of AlCuLiMg Alloys Characterized in Relation with Thermal-Ageing Processes: Z. Gao[1]; *X. Yang*[1]; J. Chen[1]; S. Duan[1]; [1]Hunan University

3.Light Metals and Alloys: Aluminum (1)

Thursday AM Room: D August 4, 2016

Session Chairs: Shoichi Hirosawa, Yokohama National University, Japan; Keith Knipling, US Naval Research Laboratory, USA

10:30 AM Invited
Effect of Interfacial Sc Segregation on Ductile Fracture of Al-Cu-Sc Alloys: *G. Liu*[1]; B. Chen[1]; J. Sun[1]; [1]Xi'an Jiaotong University

10:50 AM
Microstructure and Mechanical Properties of Thermomechanically Treated AlMg5Si2Mn Alloy Sheets: *Y. Lee*[1]; J. Cha[1]; H. Kim[1]; C. Lim[1]; S. Kim[1]; [1]Korea Institute of Materials Science

11:05 AM
Revisiting to the Hardening Precipitates in Aluminum Alloys: *J. Chen*[1]; [1]Hunan University

4. Solidification, Deformation and Related Processing: Microstructural Control of Titanium and Steel

Thursday AM Room: C-2 August 4, 2016

Session Chairs: Xiaoguang Fan, Northwestern Polytechnical University, China; Kohei Morishita, Kyoto University, Japan

9:00 AM Keynote
Fabrication of Ultrafine-Grained Bulk Ti-Alloy Sheets and Rods: *C. Lee*[1]; T. Lee[2]; C. Park[3]; D. Shih[4]; [1]POSTECH; [2]Northwestern University; [3]Korean Institute of Materials Science; [4]Boeing Company

9:25 AM Invited
Multiscale Simulation on Effect of Hetero-Nanostructure on Mechanical Properties of Severe Rolled Stainless Steel: *Y. Aoyagi*[1]; T. Uoji[1]; C. Watanabe[2]; M. Kobayashi[3]; Y. Todaka[3]; H.

Miura[3]; [1]Tohoku University; [2]Kanazawa University; [3]Toyohashi University of Technology

9:45 AM
Microstructure Evolution of Ti-5Al-2Sn-2Zr-4Mo-4Cr during the Isothermal Compression: *L. Li*[1]; M. Li[1]; [1]Northwestern Polytechnical University

4. Solidification, Deformation and Related Processing: Welding

Thursday AM Room: C-2 August 4, 2016

Session Chairs: Huijun Li, University of Wollongong, Australia; Kiyokazu Yasuda, Osaka University, Japan

10:30 AM
Biomimetic Welding Design for Aluminum Alloy and Carbon Fiber Reinforced Polymer: *K. Yasuda*[1]; [1]Osaka University

10:45 AM
Discontinuities in a Bond Line of High-Mn TWIP Steel Pipe Welded by HF-ERW: *G. Park*[1]; H. Kang[2]; C. Lee[1]; [1]Hanyang University; [2]Husteel

11:00 AM
The Research on Welding Forming of Ultra-Thin Beryllium Curved Shell: *X. Cao*[1]; [1]Beijing Institute of Space Mechnics and Electricity

5.Thin Films and Surface Engineering: Multilayers

Thursday AM Room: G August 4, 2016

Session Chairs: Kourosh Kalantar-Zadeh, RMIT University, Australia;
Naoki Wakiya, Shizuoka University, Japan

9:00 AM Keynote
Deterministic and Robust Room–Temperature Exchange Coupling in Monodomain Multiferroic $BiFeO_3$/Co Heterostructures: *C. Eom*[1]; [1]University of Wisconsin-Madison

9:25 AM Invited
Designing Multifunctionality into Electronic Layered Oxides: *V. Gopalan*[1]; [1]Pennsylvania State University

9:45 AM Invited
Defect Engineered Complex Oxide Thin Films with Tunable Multifunctionalities: *C. Chen*[1]; [1]University of Texas at San Antonio

10:05 AM
Interlayer-Driven Spin-Reorientation Transition in Nanogranular Films: *Y. Cao*[1]; Y. Zhang[1]; S. Ohnuma[1,2]; N. Kobayashi[2]; H. Masumoto[1]; [1]Tohoku University; [2]Research Institute for Electromagnetic Materials

5.Thin Films and Surface Engineering: Thin Films (2)

Thursday AM Room: G August 4, 2016

Session Chairs: Feng Huang, Chinese Academy of Sciences, Ningbo Institute of Materials Technology and Engineering, China; Hideki Katayama, National Institute for Materials Science, Japan

10:35 AM Invited
Effects of Temperature on Properties and Microstructure of Cu Film Synthesized by Electrochemical Deposition: *B. Yoo*[1]; S. Park[1]; S. Jin[1]; S. Seo[1]; [1]Hanyang University

10:55 AM
Nitrogenous Quaternary Copper Alloy Films Based on the Stable Solid Solution Cluster Model: *Y. Zheng*[1]; X. Li[1,2]; M. Liu[1]; W. Sun[1]; C. Dong[1,2]; [1]Dalian University of Technology; [2]Changzhou Institute of Dalian University of Technology

6. Biomaterials, Smart Materials and Structures: Smart Biomaterials (1)

Thursday AM Room: I August 4, 2016

Session Chairs: Young Bin Choy, Seoul National University College of Medicine, Korea;
Sengo Kobayashi, Ehime University, Japan

9:00 AM Keynote
Smart Biomaterials for Theranostic Applications: *S. Hahn*[1]; D. Keum[1]; H. Jung; [1]Pohang University of Science and Technology

9:25 AM Invited
Enhanced Antibacterial Performance of Ti Implants by Construction of Drug and Ag Carrier System: *S. Wu*[1]; T. Wang[1]; X. Liu[1]; K. Yeung[2]; P. Chu[3]; [1]Hubei University; [2]The University of Hong Kong; [3]City University of Hong Kong

9:45 AM Invited
Mucoadhesive Nanostructured Microparticles for Enhanced Bioavailability of Glaucoma Drug: *Y. Choy*[1]; [1]Seoul National University College of Medicine

10:05 AM
Bio-Inspired Coating of Tissue Engineering Scaffolds in Regenerative Medicine: J. Lee[1]; S. Madhurakkat Perikamana[1]; *H. Shin*[1]; [1]Hanyang University

6. Biomaterials, Smart Materials and Structures: Smart Biomaterials (2)

Thursday AM Room: I August 4, 2016

Session Chairs: Sei Kwang Hahn, Pohang University of Science and Technology, Korea;
Naoyuki Nomura, Tohoku University, Japan

10:35 AM Invited
Effects of Surface Treatments of a Ti Alloy on the Behavior of Osteoblast-Like Cell and on the Initial Stage of Regenerate Bone: *S. Kobayashi*[1]; Y. Kiyokane[1]; S. Okano[1]; T. Okamoto[1]; T. Sakamoto[1]; [1]Ehime University

7. Materials Characterization and Evaluation: Characterization of Structural Materials (1)

Thursday AM Room: E August 4, 2016

Session Chairs: Ze Zhang, Zhejiang University, China; Yo Tomota, NIMS, Japan

9:00 AM Keynote
Commonalities in Plastic Deformation of Disordered Materials: D. Strickland[1]; D. Magagnosc[1]; J. Hor[2]; Y. Huang[2]; D. Lee[2]; *D. Gianola*[1]; [1]University of Pennsylvania; [2]University of Pennsylvania, Department of Chemical and Biomolecular Engineering

9:25 AM
Dislocation Density of Cold-Rolled Fe-Ni Martensitic Steel Measured by X-Ray Line Profile Analysis: *D. Akama*[1,2]; T. Tsuchiyama[1,2]; S. Takaki[1,2]; [1]Kyushu University; [2]International Institute for Carbon Neutral Energy Research, Kyushu University

9:40 AM
Multi-Probe Tracking of Nano-Scale Tempering Reactions in Low-Carbon Lath Martensite: *L. Morsdorf*[1]; E. Emelina[1]; C. Tasan[1]; D. Ponge[1]; D. Raabe[1]; [1]Max-Planck-Institut fuer Eisenforschung GmbH

9:55 AM
Recent Progress in Standardization for Porous and Cellular Metals: *S. Suzuki*[1]; M. Kobashi[2]; F. Ono[3]; N. Kanetake[2]; [1]Waseda University; [2]Nagoya University; [3]Osaka Science and Technology Center

7. Materials Characterization and Evaluation: Characterization of Structural Materials (2)

Thursday AM Room: E August 4, 2016

Session Chairs: Daniel Gianola, University of California, USA; Ken-ichi Ikeda, Hokkaido University, Japan

10:30 AM Invited
Yielding and Work Hardening Behaviors of $\alpha+\gamma$ and $\alpha'+\gamma$ Lamellar Structures in an Fe-10Mn-3Al-0.5Mo-0.2C Alloy: *Y. Heo*[1]; D. Kim[1]; N. Heo[1]; S. Kim[1]; [1]Pohang University of Science and Technology

10:50 AM
Microstructure and Mechanical Properties Evolution of Clam Steel during Thermal Aging at 550: *F. Zhao*[1,2,3]; [1]Guizhou University; [2]Key Laboratory for Mechanical Behavior and Microstructure of Materials of Guizhou; [3]Institute of Nuclear Energy Safety Technology, Chinese Academy of Sciences

11:05 AM
Carbon Heterogeneity and Its Impact on Microstructure and Properties of Japanese Sword: *A. Pham*[1]; T. Ohba[2]; S. Morito[2]; T. Hayashi[3]; [1]Shimane University; [2]Shimane University, Department of Materials Science; [3]Shimane University, Department of Material Analysis

8. Composites and Hybrid Materials: Polymer Matrix Composites

Thursday AM Room: C-1 August 4, 2016

Session Chairs: Cheolmin Park, Yonsei University, Korea; Takashi Nishino, Kobe University, Japan

9:20 AM Invited
Thermal Stability of Polymer Based Nanocomposites: *L. Le Pluart*[1]; [1]LCMT - Université de Caen Normandie

9:40 AM
Development of Structural and Functional Hybrid Nanocomposites with Carbon Nanostructures: *S. Hong*[1]; H. Ryu[1]; [1]Korea Advanced Institute of Science and Technology

9:55 AM Invited
Solution-Processed Nanocomposites with Self Assembled Polymers for Flexible Photo-Electronic Devices: *C. Park*[1]; [1]Yonsei University

10:15 AM
Polymer Nanocomposites with Nanodiamond and Graphene Oxide: *T. Nishino*[1]; S. Morimune-Moriya[1]; [1]Kobe University

8. Composites and Hybrid Materials: Ceramics Matrix Composites

Thursday AM Room: C-1 August 4, 2016

Session Chairs: Cheolmin Park, Yonsei University, Korea; Takashi Nishino, Kobe University, Japan

10:30 AM
The Influence of the Graphene Additive on Cryogenic Properties of Alumina Matrix Composites Fabricated by Colloidal Process: *W. Wu*[1]; [1]School of Material Science and Engineering, Tsinghua University

10:45 AM
A Novel BN-MAS System Composite Ceramics with Greatly Improved Mechanical Properties Prepared by Low Temperature Hot-Pressing: *J. Zhang*[1]; D. Cai[2]; Z. Yang[2]; [1]Beijing Institute of Space Long March Vehicle; [2]Harbin Institute of Technology

9. Bulk Metallic Glasses, Nanocrystalline Material and Ultrafine-Grained Materials: Graded Nanostructured Materials (1)

Thursday AM Room: B-2 August 4, 2016

Session Chairs: Karoline Sophie Kormout, Erich Schmid Institute Leoben, Austria; Naoya Kamikawa, Hirosaki University, Japan

9:00 AM Invited
New Developments in Bulk Nanostructured Materials Produced by Severe Plastic Deformation: *Y. Estrin*[1]; Y. Beygelzimer[2]; R. Kulagin[3]; [1]Monash University; [2]Donetsk Institute for Physics and Engineering named after A. A. Galkin, National Academy of Sciences of Ukraine; [3]Institute of Nanotechnology (INT), Karlsruhe Institute of Technology (KIT)

9:20 AM
Mechanical Properties and Strain Hardening of Gradient Nanostructure Cu and Cu-Zn Alloys: *Z. Yin*[1]; J. Yang[1]; L. Sun[1]; Y. Shen[1]; Y. Pang[1]; Y. Gong[1]; X. Zhu[1]; [1]Kunming University of Science and Technology

9:35 AM
Harmonic Structure Design for Innovative Structural Materials with Outstanding Mechanical Properties: *K. Ameyama*[1]; M. Ota[1]; S. Vajpai[1]; [1]Ritsumeikn University

9:50 AM
Surface Nanocrystallization of Low Activation Steel and Its Thermal Stability: *W. Liu*[1]; C. Zhang[2]; Z. Yang[2]; [1]Xi'an Jiaotong University; [2]Tsinghua University

9. Bulk Metallic Glasses, Nanocrystalline Material and Ultrafine-Grained Materials: Graded Nanostructured Materials (2)

Thursday AM Room: B-2 August 4, 2016

Session Chairs: Yuri Estrin, Monash University, Australia; Kei Ameyama, Ritsumeikan University, Japan

10:35 AM
Effect of Deformation Temperature on Shear Localization in Cu-Ag Nanocomposites: *K. Kormout*[1]; Z. Zhang[1]; B. Yang[1]; R. Pippan[1]; [1]Erich Schmid Institute Leoben

10:50 AM
High Temperature Deformation Behavior of Harmonic Structured Pure Nickel: *M. Ota*[1]; S. Okada[1]; M. Nakatani[1]; S. Vajpai[1]; K. Ameyama[1]; C. Menapace[2]; A. Molinari[2]; [1]Ritsumeikan University; [2]University of Trento

10. Modelling and Simulation of Microstructures and Processing: Atomistic Simulations (1)

Thursday AM Room: F August 4, 2016

Session Chairs: Timothy C. Germann, Los Alamos National Laboratory, USA; Yasushi Shibuta, The University of Tokyo, Japan

9:00 AM Keynote
Physical Metallurgy in CrCoFeMnNi High-Entropy Alloys: An Atomistic Simulation Study: *B. Lee*[1]; [1]POSTECH

9:25 AM
Investigation of the Reaction Process between Edge Dislocation and Faceted Void with MD Simulation.: *K. Yabuuchi*[1]; T. Suzudo[2]; [1]Kyoto University; [2]Japan Atomic Energy Agency

9:40 AM
Monte-Carlo Simulations of Phase Equilibria of Binary Nano-Alloys: *H. Nam*[1]; K. Yun[1]; [1]Kookmin University

9:55 AM
Tight-Binding Quantum Chemical Molecular Dynamics Simulations on Synthesis and Etching Processes of Silicon Carbide: *M. Kubo*[1]; [1]Tohoku University

10. Modelling and Simulation of Microstructures and Processing: Atomistic Simulations (2)

Thursday AM Room: F August 4, 2016

Session Chairs: Byeong-Joo Lee, POSTECH, Korea; Ying Chen, Tohoku University, Japan

10:25 AM Invited
Microstructural Effects on the Shock and Spall Response of Tantalum: Large-Scale Molecular Dynamics Simulations: E. Hahn[1,2]; *T. Germann*[1]; S. Fensin[1]; R. Ravelo[1,3]; M. Meyers[2]; [1]Los Alamos National Laboratory; [2]University of California – San Diego; [3]University of Texas – El Paso

10:45 AM Invited
Nucleation and Evolution of Dynamic Damage at Bimetal Interfaces Using Molecular Dynamics: *S. Fensin*[1]; S. Valone[1]; E. Cerreta[1]; G. Gray[1]; [1]Los Alamos National Laboratory

11. Materials for Energy and Environment: Structural Materials for Nuclear, Oil, Gas and Other Energy Power Plants (1)

Thursday AM Room: H August 4, 2016

Session Chairs: Hiroaki Abe, University of Tokyo, Japan; Feng Qiang, University of Science and Technology Beijing, China

9:00 AM Keynote
Innovation Research of Novel High Performance Steels for Oil and Gas Industry: *C. Shang*[1]; [1]University of Science and Technology Beijing

9:25 AM Invited
Relation between Laves Phase and Impact Toughness in 9-12Cr Heat-Resistant Steels: *Y. Shan*[1]; X. Hu[1]; W. Yan[1]; W. Wang[1]; [1]Institute of Metal Research, Chinese Academy of Sciences

9:45 AM Invited
Long-Term Thermal Aging and Further Ion Irradiation Induced Degradation in Cast Duplex Stainless Steels: *X. Wang*[1]; S. Li[2]; Y. Wang[2]; F. Xue[3]; [1]University of Science and Technology Beijing; [2]State Key Laboratory for Advanced Metals and Materials, University of Science and Technology Beijing; [3]Suzhou Nuclear Power Research Institute, China Guangdong Nuclear Power Group

10:05 AM
Development of Iron-Based Composite Materials with High Thermal Conductivity: *N. Hashimoto*[1]; X. Zhao[1]; Y. Sawa[1]; [1]Hokkaido University

11. Materials for Energy and Environment: Structural Materials for Nuclear, Oil, Gas and Other Energy Power Plants (1)

Thursday AM Room: H August 4, 2016

Session Chairs: Shang Chengji, University of Science and Technology Beijing, China;
Ken Kurosaki, Osaka University, Japan

10:45 AM
Effects of Microstructure Variation on Fracture Toughness in Heavy-Section Mn-Mo-Ni Low Alloy Steel for Reactor Pressure Vessel: *S. Hong*[1]; M. Kim[1]; K. Choi[1]; B. Lee[1]; [1]Korea Atomic Energy Research Institute

11:00 AM
SCC Behaviors on Candidate Materials in Hydrogenated Supercritical Pressurized Water: *Y. Huang*[1]; A. Kimura[2]; [1]Kyoto University; [2]Institute of Advanced Energy

11:15 AM
Effects of Anion on the Corrosion Behaviors of Carbon Steel under Artificial Rainfall: *D. To*[1,2]; S. Tadashi[1]; U. Osamu[2]; [1]National Institute for Material Science (NIMS); [2]Yokohama National University (YNU)

12.Electronic and Magnetic Materials: Electronic Materials (1)

Thursday AM Room: K August 4, 2016

Session Chairs: Atsushi Koizumi, Osaka University, Japan;
Yojiro Oba, Kyoto University, Japan

9:00 AM Keynote
Wide Bandgap III-Nitride and Diamond Materials and Devices: *Y. Koide*[1]; [1]National Institute for Materials Science

9:25 AM
One-Step Synthesis of Nanocomposite Thin Film with Lead and Zinc Chalcogenide: *S. Abe*[1]; [1]Research Institute for Electromagnetic Materials

9:40 AM
Development of Coherent Terahertz Light Source and Its Promising Killer Applications for Non-Destructive Inspection of Materials: *Y. Oyama*[1]; [1]Tohoku University

9:55 AM
Stoichiometry Controlled Liquid Phase Growth of GaSe Crystals for Highly Efficient THz Generation: *S. Zhao*[1]; K. Suzuki[1]; Y. Sato[1]; K. Maeda[1]; Y. Oyama[1]; [1]Tohoku University

12.Electronic and Magnetic Materials: Electronic Materials (1)

Thursday AM Room: K August 4, 2016

Session Chairs: Yutaka Oyama, Tohoku University, Japan;

10:30 AM
Nanowire Formation in PbSe/ZnSe Composite Thin Films Prepared by Hot-Wall Deposition: *K. Sato*[1]; S. Abe[2]; [1]Tohoku University (Present address: Osaka University); [2]Research Institute for Electromagneic Materials

10:45 AM
Formation of Nanocrystals in PbSe-ZnSe Composite Thin Film Characterized by Small-Angle X-Ray Scattering: *Y. Oba*[1]; S. Abe[2]; M. Ohnuma[3]; N. Sato[1]; R. Inoue[1]; M. Sugiyama[1]; [1]Kyoto University; [2]Research Institute for Electromagnetic Materials; [3]Hokkaido University

13.Additive Manufacturing: Materials and Processing (2)

Thursday AM Room: J August 4, 2016

Session Chairs: Xin Lin, Northwestern Polytechnical University, China;
Soshu Kirihara, Osaka University, Japan

9:00 AM Keynote
Polymer Composites and Alloys for Selective Laser Sintering Technology: *Y. Shi*[1]; C. Yan[1]; W. Zhu[1]; S. Wen[1]; Q. Wei[1]; J. Liu[1]; Z. Li[1]; L. Zhang[1]; B. Song[1]; L. Wang[1]; [1]Huazhong University of Science and Technology

9:25 AM
Additive Manufacturing Advanced Cemented Carbide Materials: *C. Li*[1]; K. Chang[1]; A. Yeh[1]; J. Yeh[1]; S. Lin[1]; C. Wang[2]; [1]National Tsing-Hua University; [2]Engineering, Minghsin University of Science and Technology

9:40 AM Invited
Alloy 718 Rods Additively Manufactured by Electron-Beam Melting (EBM): *Y. Koizumi*[1]; S. Sun[1,2]; T. Saito[1]; K. Yamanaka[1]; Y. Li; Y. Cui; D. Xiao[1,2]; A. Chiba[1]; [1]Tohoku University; [2]Department of Materials Processing, Tohoku University

10:00 AM
Laser-Beam Induced Formation of Oxide Particle Dispersed Layer at Zircaloy Surface: *Y. Jung*[1]; D. Park[1]; J. Park[1]; J. Park[1]; H. Kim[1]; Y. Koo[1]; [1]Korea Atomic Energy Research Institute

August 4 (Thu) PM

1.Advanced Steels and Processing: Deformation (2)

Thursday PM Room: A August 4, 2016

Session Chairs: Heung Nam Han, Korea;
Nobuo Nakada, Tokyo Institute of Technology, Japan

1:30 PM
Dissolution of Cu Dispersion Particles during Severe Plastic Deformation and Its Effect on Mechanical Property of Aged Fe-Cu Binary Alloy: *M. Asano*[1]; D. Akama[1]; T. Tsuchiyama[1]; S. Takaki[1]; [1]Kyushu University

1:45 PM Invited
Strengthening of Steels by Nano-Sized Precipitates and Clusters: *G. Miyamoto*[1]; T. Furuhara[1]; [1]Tohoku University

2:05 PM
High Dimensional Microstructure Data-Driven Prediction of Stress-Strain Curve by Artificial Intelligence: *Y. Adachi*[1]; S. Sadamatsu[1]; [1]Kagoshima University

2:20 PM
Effects of Temperature and Strain Rate on Deformation Twinning Behavior in Polycrystalline Fe–5wt%Si Alloy: *T. Mizuguchi*[1]; K. Ikeda[2]; N. Karasawa[2]; T. Ito[3]; [1]Ehime University; [2]Kagawa University; [3]National Institute of Technology, Kagawa College

1.Advanced Steels and Processing: Deformation (2)

Thursday PM Room: A August 4, 2016

Session Chairs: Nam Hoe Heo, POSTECH, Korea; Hideyuki Ohtsuka, NIMS, Japan

3:10 PM Invited
Dislocation-Based Model for Twinning and Martensitic Transformation in Austenitic Steels: *T. Lee*[1]; H. Ha[1]; J. Kang[1]; J. Moon[1]; C. Lee[1]; S. Park[1]; [1]Korea Institute of Materials Science

3:30 PM Invited
The Role of Phase Transformation Mechanism on Grain Boundary Character Distribution in HSLA Steels: *H. Beladi*[1]; [1]Deakin University

3:50 PM
Adapted Multi-Phase Microstructures by Intercritical Annealing and Press Hardening: L. Wolf[1]; D. Rodman[1]; H. Maier[1]; *F. Nürnberger*[1]; [1]Leibniz Universität Hannover

4:05 PM
Difference in Mehcanical Stability of Austenite between Carbon- and Nitrogen-Added Metastable Austenitic Stainless Steels: *T. Masumura*[1]; K. Fujino[1]; T. Tsuchiyama[1,2]; S. Takaki[1,2]; [1]Kyushu University; [2]International Institute for Carbon-Neutral Energy Research

4:20 PM
Machinability Improvement of SUS304 Austenitic Stainless Steel by h-BN Precipitation: *S. Emura*[1]; M. Kawajiri[2]; X. Min[3]; S. Yamamoto[1]; K. Sakuraya[1]; K. Tsuzaki[1,4]; [1]National Institute for Materials Science; [2]Formerly Graduate Student, Graduate School of Pure and Applied Sciences, University of Tsukuba (Now at Seiko Epson Corporation); [3]School of Materials Science and Engineering, Dalian University of Technology; [4]Formerly Graduate School of Pure and Applied Sciences, University of Tsukuba

4:35 PM
Effect of Heat Treatments on Microstructure and Mechanical Property of 30Si2MnCrMoV Welded Specimen: *D. Sun*[1]; [1]Harbin Institute of Technology

4:50 PM
Microstructure and Properties of Mn18Cr18N Nonmagnetic Stainless Steel Plate during Hot Rolling: Y. Song[1]; *C. Li*[1]; Y. Han[1]; B. Ma[1]; [1]Northeastern University

5:05 PM
Temperature Dependence of Deformation Mode under Tensile Loading and Cyclic Loading in Fe-28Mn-6Si-5Cr Shape Memory Alloy: *W. Tasaki*[1]; T. Sawaguchi[2]; I. Gutierrez Urrutia[2]; K. Tsuchiya[1,2]; [1]University of Tsukuba; [2]National Institute for Materials Science

5:20 PM
Influence of Cryogenic Treatment and Deep Cryogenic Treatment on the Microstructure and Reversed Austenites in Super Martensitic Stainless Steel: S. Zheng[1]; *K. Zhao*[2]; [1]Kunming University of Science and Technology,; [2]Kunming University of Science and Technology

5:35 PM
Effects of Shot-Peening for Fe-30Mass%Ni Alloy on Its Phase Transformation Temperatures: *H. Sato*[1]; M. Okada[1]; N. Tsuboi[1]; Y. Watanabe[1]; [1]Nagoya Institute of Technology

2. Advanced High Temperature Structural Materials: Ni-based Superalloys (3)

Thursday PM Room: B-1 August 4, 2016

Session Chairs: Peter F. Tortorelli, Oak Ridge National Laboratory, USA; Yu Tao, Central Iron & Steel Research Institute, China

1:30 PM Invited
Recent Advances and Challenges in Polycrystalline Ni-Base Superalloys: *S. Tin*[1]; [1]Illinois Institute of Technology

1:50 PM Invited
Computational Alloy Design of Ni Base Superalloys: *Y. Yoo*[1]; S. Seo[1]; H. Jeong[1]; D. Yun[1]; [1]Korea Institute of Materials Science

2:10 PM
Creep Property and Microstructural Evolution of Grain Boundary Precipitation Strengthening Ni-Based Heat-Resistant Alloy: *T. Ito*[1]; S. Yamasaki[1]; M. Mitsuhara[1]; H. Nakashima[1]; M. Nishida[1]; M. Yonemura[2]; [1]Kyushu University; [2]Nippon Steel & Sumitomo Metal Corporation

2:25 PM
Tensile Flow Behaviors of Alloy 625 at Different Temperatures: S. Lee[1]; H. Kim[1]; S. Park[1]; D. Nam[2]; *Y. Choi*[1]; [1]Pusan National University; [2]Korea Institute of Industrial Technology

2. Advanced High Temperature Structural Materials: Ni-Based Superalloys (4)

Thursday PM Room: B-1 August 4, 2016

Session Chairs: Haruyuki Inui, Kyoto University, Japan; Yizhou Zhou, Institute of Metal Rearch Chinese Academy of Sciences, China

3:30 PM Keynote
Characterisation and Evaluation of Gas Atomised PM Superalloys: *G. Zhang*[1]; Z. Li[1]; W. Xu[1]; H. Yuan[1]; N. Liu[1]; L. Zheng[1]; [1]Beijing Institute of Aeronautical Materials

3:55 PM
Effect of EDM and ESM Holes on Stress Rupture Properties of DD32 Single Crystal Superalloy: *J. Yu*[1]; J. Xie[1]; X. Sun[1]; T. Jin[1]; Z. Hu[1]; [1]Institute of Metal Research, Chinese Academy of Sciences

4:10 PM
A Comparison between As-Welded and High Temperature-Exposed Weldments between Inconel 617 (IN 617) and 1CrMoV Steel: *A. Dato Seri Laila Jasa Haji Ahmad*[1,2]; D. Pengiran Mahmud[3]; Z. Abu Samah[1]; [1]Institut Teknologi Brunei; [2]Politeknik Brunei; [3]Sekolah Vokasional Sultan Bolkiah

4:25 PM
The Interfacial Instability between Ni-Base Superalloy and Ceramic Core: *L. Zheng*[1]; G. Zhang[1]; C. Xiao[1]; M. Gorley[2,4]; Z.

Hong[2]; S. Day[3]; C. Tang[3]; [1]Beijing Institute of Aeronautical Materials; [2]Department of Materials, University of Oxford; [3]Diamond Light Source, Harwell Science and Innovation Campus; [4]Culham Centre for Fusion Energy, Culham Science Centre

3.Light Metals and Alloys: Magnesium (4)

Thursday PM Room: C-1 August 4, 2016

Session Chairs: Alexei Vinogradov, Norwegian University of Science and Technology - NTNU, Norway;
Hidetoshi Somekawa, National Institute for Materials Science, Japan

1:30 PM Keynote
The PRISMS Center Framework: An Integrated Predictive Multi-Scale Capability for the Global Materials Community: *J. Allison*[1]; [1]University of Michigan

1:55 PM
Creep Life Assessment of Die-Cast Mg-Al-Ca Alloys: *Y. Terada*[1]; Y. Murata[2]; [1]Tokyo Institute of Technology; [2]Nagoya University

2:10 PM
Creep Deformation Mechanism and Dislocation Substructures in Low Stacking Fault Energy Type Mg-Y-Zn Dilute Solid Solution Alloy: *M. Suzuki*[1]; F. Kondo[2]; [1]Toyama Prefectural University; [2]Graduate Student, Toyama Prefectural University

2:25 PM
Microstructure of Aluminum/Magnesium Butt Joints Welded by FSW Process with Tinfoil as an Interlayer: *S. Yang*[1]; J. Zhou[1]; X. Cheng[1]; H. Zhang[1]; [1]Beijing Institute of Technology

2:40 PM
Effect of Welding Conditions on Microstructures and Mechanical Properties of Extruded AZ61 Alloy Subjected to Friction Stir Welding: *Y. Go*[2]; W. Lee[2]; J. Kim[2,3]; B. You[1,2]; Y. Kim[1,2]; [1]Korea Institute of Materials Science; [2]University of Science and Technology; [3]Korea Railroad Research Institute

2:55 PM
Direct Extrusion and Mechanical Properties of Magnesium Wires: *A. Jager*[1]; K. Tesar[1]; V. Gartnerova[1]; V. Haiblikova[1]; [1]Institute of Physics

3.Light Metals and Alloys: Magnesium (4)

Thursday PM Room: C-1 August 4, 2016

Session Chairs: John E Allison, University of Michigan, USA;
Sung Soo Park, Ulsan National Institute of Science and Technology, Korea

3:40 PM
Microstructure and Properties of Mg Wires Prepared by Direct Extrusion: *V. Gartnerova*[1]; K. Tesar[1]; A. Jager[1]; [1]Institute of Physics AVCR

3:55 PM
Effect of Alloying Element on Fracture Toughness in Magnesium Binary Alloys: *H. Somekawa*[1]; A. Singh[1]; T. Inoue[1]; [1]National Institute for Materials Science

4:10 PM
Microstructure of Extruded Mg-Cd-Yb Alloys: *A. Singh*[1]; H. Somekawa[1]; S. Ohhashi[2]; A. Tsai[2]; A. Kato[3]; [1]National Institute for Materials Science; [2]Tohoku University; [3]Toyota Motor Corporation

4:25 PM
Optimization of Composition and Microstructure of Extruded Mg-Al-Ca Alloys with Good Combination of High Strength and Ductility: X. Huang[1]; *Y. Chino*[1]; H. Ueda[2]; M. Inoue[2]; F. Kido[3]; T. Matsumoto[3]; [1]National Institute of Advanced Industrial Science and Technology; [2]Fuji Light Metal Co., Ltd.; [3]Tobata Seisakusho Co., Ltd.

4:40 PM
Modeling Twin Formation in Mg Alloys: M. Kumar[1]; *I. Beyerlein*[1]; C. Tomé[1]; [1]Los Alamos National Laboratory

3.Light Metals and Alloys: Aluminum (2)

Thursday PM Room: D August 4, 2016

Session Chairs: Chaoli Ma, Beihang University, China;
Shinji Kumai, Tokyo Institute of Technology, Japan

1:30 PM Invited
Development of Advanced Al-Si Based Alloys for Automotive Engine Components: H. Roh[1]; S. Yu[1]; S. Lee[1]; K. Kim[1]; *M. Kim*[1]; [1]Inha Uniersity

1:50 PM
Improving Thermal Stability of Al-Si Cast Alloys through Micro-Additions of Transition Metals: *F. Czerwinski*[1]; B. Shalchi-Amirkhiz[1]; W. Kasprzak[1]; [1]CanmetMATERIALS, Natural Resources Canada

2:05 PM
Combined Effect of Ultrasonic Melt Treatment and Si Addition on the Microstructure and Mechanical Properties of Al-Si Piston Alloy: *J. Jung*[1]; J. Lee[1]; Y. Cho[1]; W. Yoon[1]; [1]Korea Institute of Materials Science

2:20 PM
Study on 7055 Alloy DC Casting Process by A-EMS Melt Treatment: *Z. Zhang*[1]; [1]General Research Institute for Non-ferrous Metals Beijing

2:35 PM
Grain Refinement Performance of Pure Al by Unstable Nucleation Sites: *Y. Watanabe*[1]; H. Sato[1]; [1]Nagoya Institute of Technology

3.Light Metals and Alloys: Aluminum (2)

Thursday PM Room: D August 4, 2016

Session Chairs: Mok-Soon Kim, Inha Uniersity, Korea;
Seji Saikawa, Toyama University, Japan

3:35 PM
Formation of Macro-Segregation in Twin-Roll Cast Al-Mg Alloy Sheets: *M. Kim*[1]; D. Jo[1]; D. Koh[1]; H. Kim[1]; C. Lim[1]; [1]Korea Institute of Materials Science (KIMS)

3:50 PM
Surface Quality and Microstructure of Al-Mg Alloy Strips Fabricated by Vertical-Type High-Speed Twin Roll Casting: *D. Kikuchi*[1]; Y. Harada[1]; S. Muraishi[1]; S. Kumai[1]; [1]Tokyo Institute of Technology

4:05 PM
Bake Hardening Properties of 7075 Aluminum Alloy Sheets Fabricated by Twin Roll Casting and Rolling.: *H. Kim*[1]; D. Koh[2]; Y. Lee[1]; M. Kim[1]; C. Lim[1]; [1]Korea Institute of Materials Science; [2]Pukyong National University

4:20 PM
Thermal History of Al-Cu Alloy/Pure Al Clad Strips Fabricated by Vertical-Type Tandem Twin-Roll Casting: *T. Sugiyama*[1]; Y. Takayama[1]; Y. Harada[1]; S. Kumai[1]; [1]Tokyo Institute of Technology

4:35 PM
Effect of Cavity Volume on Deformation Behavior of Tailored Step Cast Al Ingot: *Y. Kwon*[1]; [1]Korea Institute of Materials Science

4. Solidification, Deformation and Related Processing: Continuous Casting and Segregation

Thursday PM Room: C-2 August 4, 2016

Session Chairs: Dianzhong Li, Institute of Metal Research, China; Hisao Esaka, National Defense Academy, Japan

1:30 PM Keynote
Formation Mechanism of Macro-Segregation and Related Control Technologies in Solidifying Large Steel Ingots: *D. Li*[1]; [1]Institute of Metal Research

1:55 PM Invited
Evaluation Methodology for Centre Line Segregation of Continuously Cast Slabs: L. Su[1]; *H. Li*[1]; C. Lu[1]; J. Li[1]; L. Fletcher[1]; I. Simpson[1]; L. Zheng[2]; M. Bai[2]; J. Shen[2]; [1]University of Wollongong; [2]Baosteel

2:15 PM
Solidification and Strain Energy Relationship during the Continuous Casting of Microalloyed Advanced High Strength Steels: *S. Jansto*[1]; [1]CBMM North America, Inc.

2:30 PM
Thermo-Mechanical Behavior of Shell Solidification in 1530mm×230mm Slab Continuous Casting Mold: *Z. Cai*[1]; M. Zhu[1]; [1]Northeastern Univesity

2:45 PM
Massive-like Transformation from δ Phase to γ Phase after/during δ Solidification in Fe-Cr-Ni Alloys: *T. Nishimura*[1]; K. Sugimura[1]; K. Yoshida[1]; K. Morishita[1]; T. Nagira[2]; M. Yoshiya[2]; H. Yasuda[1]; [1]Kyoto University; [2]Osaka University

3:00 PM
Relation between Undercooling for Nucleation and Volume Fraction of Primary Phase: R. Yoshimura[1]; *H. Esaka*[1]; K. Shinozuka[1]; [1]National Defense Academy

4. Solidification, Deformation and Related Processing: Microsegregation and External Fields

Thursday PM Room: C-2 August 4, 2016

Session Chairs: Seong Moon Seo, Korea Institute of Materials Science, Korea;
Kenichi Osasa, Akita University, Japan

3:30 PM Invited
The Effect of Ultrasonic Treatment on the As-Cast Grain Structure during the Solidification of an Al-2Cu Alloy: *G. Wang*[1]; M. Dargusch[1]; D. Stjohn[1]; [1]The University of Queensland

3:50 PM Invited
Methodological Effect on the Analysis of Microsegregation Behavior in Ni-Base Superalloy: *S. Seo*[1]; H. Jeong[1]; D. Yun[1]; Y. Yoo[1]; J. Lee[2]; [1]Korea Institute of Materials Science; [2]Changwon National University

4:10 PM
The Effect of Ultrasonic Treatment on the Microstructure of Sn-58Bi Alloy: J. Kang[1]; *S. Wang*[1]; X. Zhang[1]; Y. Hu[1]; Z. Guo[1]; [1]Tsinghua University

4:25 PM
In Situ Synchrotron Radiographic Studies of Ultrasonic Processing Dynamics in Metal Matrix Nano Composite Melts: *W. Mirihanage*[1]; P. Lee[1]; W. Xu[1]; J. Tamayo-Ariztondo[2]; D. Eskin[2]; P. Srirangam[3]; [1]The University of Manchester; [2]Brunel Centre for Advanced Solidification Technology, Brunel University; [3]WMG, University of Warwick

4. Solidification, Deformation and Related Processing: Microsegregation and External Fields

Thursday PM Room: C-2 August 4, 2016

Session Chairs: Gui Wang, The University of Queensland, Australia;
Hideyuki Yasuda, Kyoto University, Japan

4:40 PM
Microstructure and Orientation Evolution in Unidirectional Solidified Al-Zn Alloys: *Z. Chen*[1]; [1]Northwestern Polytechnical University

4:55 PM
Microstructure and Properties of Thermomechanical-Processed Cu-Ag Alloy Directionally Solidified under a Static Magnetic Field: *E. Wang*[1]; X. Zuo[1]; C. Zhao[1]; R. Li[1]; K. Han[2]; [1]Northeastern University; [2]National High Magnetic Field Laboratory, Florida State University

5:10 PM
In-Situ Measurement of Solute Partition at Solidifying Front of Ni-Based Super Alloys: I. Uwabe[1]; S. Yamashita[1]; *H. Yasuda*[1]; K. Morishita[1]; T. Nagira[2]; M. Yoshiya[2]; [1]Kyoto University; [2]Osaka University

5.Thin Films and Surface Engineering: Thin Films (3)

Thursday PM Room: G August 4, 2016

Session Chairs: Do-Geun Kim, Korea Institute of Materials Science, Korea;
Jian Zhen Ou, RMIT University, Australia

1:30 PM Invited
Preparation of Novel Transparent Conductive Oxide Having Spinel Structure: *N. Wakiya*[1]; N. Sakamoto[1]; K. Shinozaki[2]; H. Suzuki[1]; [1]Shizuoka University; [2]Tokyo Institute of Technology

1:55 PM
Amorphous Semiconductor Fe-Si Films: *X. Li*[1,2]; L. Jin[1]; Y. Zheng[1]; C. Dong[1,2]; [1]Dalian University of Technology; [2]Changzhou

Institute of Dalian University of Technology

2:15 PM
Preparation of Al_2O_3–ZrO_2 Nanocomposite Films Using Laser CVD and their Nanostructures: *A. Ito*[1]; F. Kobayashi[1]; M. Kaneta[1]; T. Goto[1]; [1]Tohoku University

5.Thin Films and Surface Engineering: Coating (1)

Thursday PM Room: G August 4, 2016

Session Chairs: Chuang Dong, Dalian University of Technology, China;
Akihiko Ito, Yokohama National University, Japan

3:30 PM
Influence of Spray Distance on the Microstructure and Mechanical Properties of HVOF Sprayed WC-12Co Thermal Spray Coatings: *S. Bang*[1]; T. Jung[1]; C. Lee[1]; Y. Park[1]; W. Whang[2]; J. Han[3]; S. Hyun[1]; [1]Inha Univ; [2]Eutectic Korea Ltd.; [3]Young Chang Saw&Knife Co.,Ltd.

3:45 PM
Evaluation of Mechanical Properties of Thermal Barrier Coating Made by Suspension Plasma Spray: *M. Gizynski*[1,2]; X. Chen[1]; H. Araki[1]; M. Watanabe[1]; S. Kuroda[1]; Z. Pakiela[2]; [1]National Institute for Materials Science; [2]Warsaw University of Technology, Faculty of Materials Science and Engineering

4:00 PM
Tribological Properties of C Incorporated Hard Coatings: *Y. Wang*[1]; Z. Li[1]; J. Du[1]; Y. Hua[1]; H. Wang[1]; [1]Northwest Institute for Nonferrous Metal Research

5.Thin Films and Surface Engineering: Coating (1)

Thursday PM Room: G August 4, 2016

Session Chairs: Kyu-Hwan Lee, The Korea Institute of Materials Science, Korea;
Masahiro Goto, National Institute for Materials Science, Japan

4:15 PM
Multiscale Microstructure and Mechanical Properties of in Situ Synthesized (Ti, Zr)B_2–(Ti, Zr)C-CNTs Composite Coatings by Plasma Technology: *H. Cui*[1]; [1]Shandong University of Science and Technology

4:30 PM
Application of Arc Ion Plating Technology for the Design of Accident Tolerant Fuel Cladding: *J. Park*[1]; H. Kim[1]; J. Park[1]; Y. Jung[1]; D. Park[1]; Y. Koo[1]; [1]KAERI

6. Biomaterials, Smart Materials and Structures: Tissue and Tissue Regeneration

Thursday PM Room: I August 4, 2016

Session Chairs: Yin Xiao, Queensland University of Technology, Australia;
Takayoshi Nakano, Osaka University, Japan

1:30 PM Keynote
Developing Immunoregulatory Biomaterials for Bone Regeneration: *Y. Xiao*[1]; [1]Queensland University of Technology

1:55 PM
Formation of Protein Adsorbed Titanium Implants and Their Osteoconductivity: *K. Kuroda*[1]; Y. Yamaguchi[2]; M. Okido[1]; [1]Nagoya University; [2]Department of Materials Science and Engineering, Nagoya University

2:10 PM
Change in Preferential Alignment of Bone Apatite in Response to Artificially Altered Principal Strain in Regenerated Rat Ulna: *T. Ishimoto*[1]; A. Murakami[1]; T. Nakano[1]; [1]Graduate School of Engineering, Osaka University

2:25 PM
Effects of Transient Cytoskeletal Change on Construction of Anisotropic Bone Matrix: *A. Matsugaki*[1]; T. Nakano[1]; [1]Osaka University

2:40 PM
Big Polymeric Microneedle Patch for Fast and Sustained Delivery of Lidocaine: H. Kathuria[1]; *L. Kang*[1]; [1]National University of Singapore

6. Biomaterials, Smart Materials and Structures: Bioceramics

Thursday PM Room: I August 4, 2016

Session Chairs: Hui-Suk Yun, Korea Institute of Materials Science, Korea;
Takuya Ishimoto, Osaka University, Japan

3:30 PM Invited
3D Printing Process for Fabrication of Calcium Phosphate and Cell-Laden Alginate Core/Shell Scaffolds: *H. Yun*[1,2]; N. Raja[1,2]; [1]Korea Institute of Materials Science; [2]Korea University of Science and Technology

3:50 PM Invited
Piezoelectric Potassium-Sodium Niobate Ceramics Covered with Ta/Zn Anti-Bacterial Coating through Megnetron Sputtering: *C. Ning*[1]; [1]Ning's Lab,South China University of Technology

4:10 PM
In Vitro Dissolution Behavior and Antibacterial Activity of Ag-Containing Biphasic Calcium Phosphates: *O. Gokcekaya*[1]; K. Ueda[1]; T. Narushima[1]; K. Ogasawara[1]; H. Kanetaka[1]; [1]Tohoku University

4:25 PM
Microstructure of Hydroxyapatite Directly Fabricated by Selective Laser Melting: *S. Sun*[1]; T. Kurozumi[1]; T. Nakano[1]; [1]Osaka University

4:40 PM
Effect of β-TCP Size and Porosity on Mechanical Properties of Ti-6Al-4V/β-TCP Composites for Biomedical Applications: *T. Okai*[1]; K. Narita[1]; Y. Lantang[1]; E. Kobayashi[1]; [1]Tokyo Institute of Technology

4:55 PM
Effect of Phase Transformation on the Slow Crack Behavior of Y-TZP Dental Ceramic: *J. Gui*[1]; [1]School of Material Science and Engineering,Tsinghua University

7.Materials Characterization and Evaluation: Sufaces and Interfaces

Thursday PM Room: E August 4, 2016

Session Chairs: Youngwoon Kim, Seoul National University, Korea;
Kenji Matsuda, University of Toyama, Japan

1:30 PM Keynote
Exploring Surfaces and Interfaces: *P. Pigram*[1]; [1]La Trobe University

1:55 PM
Distribution of the Minor Solute Elements Detected by Microcalorimeter EDS in Aluminum: *S. Ii*[1]; S. Emura[1]; K. Tsuchiya[1]; T. Hara[1]; [1]National Institute for Materials Science

2:10 PM
Acoustic Modulations of Metallic Fractal Cavities by Stereolithographic Additive Manufacturing: *S. Kisanuki*[1]; S. Kirihara[1]; [1]Joining and Welding Research Institute

2:25 PM
Understanding the Surface Chemistry of Stainless Steels Exposed to Supercritical and Ultrasupercritical Water: D. Rodriguez[1]; *D. Chidambaram*[1]; [1]University of Nevada, Reno

2:40 PM
Misfit Accommodation Mechanism at the Heterointerface between Diamond and Cubic Boron Nitride: *C. Chen*[1]; Z. Wang[1]; T. Kato[2]; N. Shibata[3]; T. Taniguchi[4]; Y. Ikuhara[1,2,3]; [1]Tohoku University; [2]Nanostructures Research Laboratory, Japan Fine Ceramics Center; [3]Institute of Engineering Innovation, The University of Tokyo; [4]National Institute for Materials Science

7. Materials Characterization and Evaluation: Characterization of Structural Materials (3)

Thursday PM Room: E August 4, 2016

Session Chairs: Yoon-Uk Heo, Pohang University of Science and Technology, Korea;
Seiichiro Ii, NIMS, Japan

3:30 PM
Spinel Nano-Octahedron Catalyzing the Initiation of Pitting Corrosion in Austenitic Stainless Steels: *X. Ma*[1]; S. Zheng[1]; B. Zhang[1]; Y. Wang[1]; Y. Zhou[1]; [1]Institute of Metal Research, Chinese Academy of Sciences

3:45 PM
Corrosion Properties of Friction Stir Welded of Dissimilar Metals (Al6061 and HT590): *B. Seo*[1]; E. Kim[1]; K. Song[1]; K. Park[1]; [1]Korea Institute of Industrial Technology

4:00 PM
Electrochemical Characterization of Corrosion Resistance of 444-Type Ferritic Stainless Steel Containing W and Ce: *M. Ma*[1]; H. Liu[1]; C. He[2]; L. Chen[1]; [1]Northeastern University; [2]Shenyang University

4:15 PM
Hydrogen effect on mechanical properties in a electrolitically charged duplex stainless steel: G. Itoh[1]; *A. Yousefi*[1]; [1]Ibaraki Engineering University

9. Bulk Metallic Glasses, Nanocrystalline Material and Ultrafine-Grained Materials: Nanomaterials and Nanocomposites (1)

Thursday PM Room: B-2 August 4, 2016

Session Chairs: Z. P. Lu, University of Science and Technology Beijing, China;
Zenji Horita, Kyushu University, Japan

1:30 PM Keynote
Chemical Synthesis of Exchange-Coupled Nanocomposite Magnets: *Y. Hou*[1]; [1]Peking University

1:55 PM Invited
On-Chip Microsupercapacitor Integrated Photodetecting Systems: *G. Shen*[1]; Z. Lou[1]; [1]Institute of Semiconductors, Chinese Academy of Sciences

2:15 PM
Micro- and Macro-Scale Motions Actuated by a Metal-Insulator Phase Transition: *K. Liu*[1]; [1]Tsinghua University

2:30 PM Invited
One-Dimensional Nanomaterial for Energy Storage: *L. Mai*[1]; [1]Wuhan University of Technology

2:50 PM Invited
Sub-1nm Ultrathin Nanocrystals: *X. Wang*[1]; [1]Tsinghua University

9. Bulk Metallic Glasses, Nanocrystalline Material and Ultrafine-Grained Materials: Nanomaterials and Nanocomposites (2)

Thursday PM Room: B-2 August 4, 2016

Session Chairs: Yanglong Hou, Peking University, China;
Yoshifumi Ikoma, Kyushu University, Japan

3:10 PM
Developing High Strength Nanoporous AuPt by Dealloying: X. Ye[1]; L. Liu[1]; *H. Jin*[1]; [1]Institute of Metal Research, Chinese Academy of Sciences

9. Bulk Metallic Glasses, Nanocrystalline Material and Ultrafine-Grained Materials: Ultrafine Grained Materials and Bulk Nano Metals (5) ~Functional Materials

Thursday PM Room: B-2 August 4, 2016

Session Chairs: Guozhen Shen, Institute of Semiconductors, Chinese Academy of Sciences, China;
Mie Ota, Ritsumeikan University, Japan

3:40 PM
Hydrogen Generation Behavior of Al-Bi Based Alloys in Pure Water after Processing by High-Pressure Torsion: *F. Zhang*[1,2]; K. Edalati[2]; M. Arita[1]; Z. Horita[1,2]; [1]Kyushu University; [2]WPI, International Institute for Carbon-Neutral Energy Research (I2CNER)

3:55 PM
Production of Nanograined ZnTe by Severe Plastic Deformation under High Pressure: *Y. Ikoma*[1]; Y. Ejiri[1]; K. Saito[2]; Q. Guo[2]; Z. Horita[1]; [1]Kyushu University; [2]Saga University

4:10 PM
Electrical Characteristics of Bulk Nanocrystalline Si Processed by High-Pressure Torsion: *B. Chon*[1]; Y. Fukushima[1]; Y. Ikoma[1]; Z. Horita[1]; [1]Kyushu University

10. Modelling and Simulation of Microstructures and Processing: Computational Thermodynamics and Kinetics

Thursday PM Room: F August 4, 2016

Session Chairs: Mark Asta, University of California, USA; Hiroshi Ohtani, Tohoku University, Japan

1:30 PM
Relaxation Kinetics of an Alloy Studied by Path Probability Method: *T. Mohri*[1]; R. Yamada[2]; [1]IMR, Tohoku University; [2]Virginia Tech.

1:45 PM
Thermodynamic Properties of Ni-Al Alloys Using a First Principles Renormalized Potential: *R. Sahara*[1]; T. Osada[1]; K. Ohno[2]; [1]National Institute for Materials Science; [2]Yokohama National University

2:00 PM
First-Principles Study of Stability of $NdFe_{12}$ and $NdFe_{12}N$ Compounds: *Y. Chen*[1]; A. Saengdeejing[1]; M. Matsuura[2]; S. Sugimoto[2]; [1]Tohoku University; [2]Department of Materials Science, School of Engineering,Tohoku University

2:15 PM
Development of Stacking Fault Energy (SFE) Modeling of Co-Based Alloys by Thermodynamics and First Principles Calculations: *T. Achmad*[1]; W. Fu[1]; H. Chen[1]; C. Zhang[1]; Z. Yang[1]; [1]Tsinghua University

2:30 PM
First-Principles Study of Ti-V Solid Solutions Using Cluster Expansion Method: *N. Otani*[1]; A. Kuwabara[1]; T. Ogawa[1]; A. Seko[2,3,4]; I. Tanaka[1,2,3,4]; E. Akiba[5,6,7]; J. Matsuda[7]; [1]Japan Fine Ceramics Center; [2]Department of Materials Science and Engineering, Kyoto University; [3]Elemental Strategy Initiative for Structural Materials, Kyoto University; [4]National Institute for Materials Science; [5]Department of Mechanical Engineering, Kyushu University; [6]International Research Center for Hydrogen Energy, Kyushu University; [7]International Institute for Carbon-Neutral Energy Research, Kyushu University

2:45 PM
Effect of Ni Addition on the Interfacial Reaction between Cu Alloy and Sn-Cu Solder: *T. Maeshima*[1]; H. Ikehata[1]; [1]Toyota Central Research and Development Laboratories Incorporated

10. Modelling and Simulation of Microstructures and Processing: Microstructure Simulations

Thursday PM Room: F August 4, 2016

Session Chairs: Saryu Fensin, Los Alamos National Lab, USA; Tomohiro Takaki, Kyoto Institute of Technology, Japan

3:30 PM Keynote
Computational Methods for Exploring the Causes and Effects of Fast Grain Boundary Motion: *E. Holm*[1]; B. Decost[1]; J. Humberson[1]; P. Goins[1]; [1]Carnegie Mellon University

3:55 PM
Microstructural Modeling of Static Recrystallization Using Cellular Automation: *Y. Liu*[1]; Y. Lin[1]; M. Chen[1]; [1]Central South University

4:10 PM
Simulation of Solidification in Fe-Cr-Ni-Mo-C Duplex Stainless Steel Using CALPHAD-Coupled Multi-Phase-Field Model Based on Non-Equal Diffusion Potential Assumption: *S. Nomoto*[1]; M. Segawa[2]; K. Mori[1]; A. Yamanaka[2]; [1]ITOCHU Techno-Solutions Corporation; [2]Tokyo University of Agriculture and Technology

4:25 PM
Phase-Field Simulations on Rafting Kinetics during High-Temperature Creep in Nickel-Based Superalloy: *Y. Tsukada*[1]; T. Koyama[1]; Y. Murata[1]; Y. Kondo[2]; [1]Nagoya University; [2]National Defense Academy

4:40 PM
On the Formation of β'_F and β' Precipitates and Their Interactions in a Mg-Gd Alloy: *H. Liu*[1]; W. Xu[2]; N. Wilson[3]; L. Peng[2]; W. Ding[2]; J. Nie[1]; [1]Monash University; [2]National Engineering Research Centre of Light Alloy Net Forming and State Key Laboratory of Metal Matrix Composites; [3]CSIRO Manufacturing, Clayton

4:55 PM
Phase-Field Simulation of the Pre-Precipitated Phase of Ordered Intermetallic Compounds in Ni-Al-V Alloy: *Y. Lu*[1]; G. Lu[1]; F. Liu[1]; Z. Chen[1]; [1]Northwestern Polytechnical University

11. Materials for Energy and Environment: Structural Materials for Nuclear, Oil, Gas and Other Energy Power Plants (2)

Thursday PM Room: H August 4, 2016

Session Chairs: Hong Seokmin, Korea Atomic Energy Research Institute, Korea; Shigeharu Ukai, Hokkaido University, Japan

1:30 PM Invited
Microstructural Degradation and Service Condition Evaluation of a Directionally-Solidified DZ125 Superalloy Turbine Blade: Y. Chen[1]; W. An[1]; C. Fu[1]; Y. Zheng[1]; C. Xiao[2]; *Q. Feng*[1]; [1]University of Science and Technology Beijing (USTB); [2]Beijing Institute of Aeronautical Materials

1:50 PM Invited
Physical Properties and High-Temperature Stability of Zirconium Hydrides Containing a Small Amounts of Hafnium: *K. Kurosaki*[1]; Y. Ohishi[1]; H. Muta[1]; S. Yamanaka[1,2]; [1]Osaka University; [2]University of Fukui

2:10 PM
Fabrication of Porous Cu-X (X=Ni, Co, Mn, Si, Sn, P) with Long Cylindrical Pores by Nidirectional Solidification under Hydrogen Gas: *S. Kim*[1]; J. Lee[1]; T. Jung[1]; S. Hyun[1]; [1]Inha University

2:25 PM
Energy Efficiency of Iron-Boron-Silicon Metallic Glasses in Sulphuric Acid Solutions: *K. Habib*[1]; [1]Kuwait Institute for Scientific Research (KISR)

2:40 PM
Elastocaloric Effect Caused by Lattice Softening in an Iron-Palladium Shape Memory Alloy: *T. Fukuda*[1]; F. Xiao[1,2]; T. Kakeshita[1]; [1]Osaka University; [2]Shanghai Jiao Tong University

11. Materials for Energy and Environment: Structural Materials for Nuclear, Oil, Gas and Other Energy Power Plants (2)

Thursday PM Room: H August 4, 2016

Session Chairs: Naoyuki Hashimoto, Hokkaido University, Japan; Wang Xitao, University of Science and Technology Beijing, China

3:30 PM Invited
R&D on FeCrAl-ODS Ferritic Steels as Accident Tolerant Cladding in Light Water Reactors: *S. Ukai*[1]; N. Oono[1]; T. Kaito[2]; T. Torimaru[3]; K. Sakamoto[3]; A. Kimura[4]; S. Hayashi[5]; [1]Hokkaido University; [2]Japan Atomic Energy Agency; [3]Nippon Nuclear Fuel Development Co., LTD.; [4]Kyoto University; [5]Tokyo Institute of Technology

3:50 PM
Design of New High-Cr Ferritic ODS Alloys for Energy Generation Systems: *A. Kimura*[1]; K. Yabuuchi[2]; W. Han[2]; S. Ukai[3]; N. Oono[3]; [1]Kyoto University; [2]Kyoto University; [3]Hokkaido University

4:05 PM
Influence of Rhenium Addition on the High Temperature Strength of Oxide Dispersion Strengthened Ferritic Steels: *S. Noh*[1]; G. Kim; S. Kang; T. Kim; [1]Korea Atomic Energy Research Institute

4:20 PM
The Effect of Yttrium Additions on Static Recrystallization and Precipitation Behaviors in V-4Cr-4Ti Alloy Sheet after Cold Rolling: *L. Peng*[1]; X. Lai[1]; C. Jiang[1]; [1]China Academy of Engineering Physics

4:35 PM
Full Scale of Defect Distribution in Polycrystalline Tungsten after Dual-Beam Irradiation: *Z. Zhang*[1]; K. Yabuuchi[2]; A. Kimura[2]; [1]Kyoto University; [2]Institute of Advanced Energy, Kyoto University

4:50 PM
Ion Irradiation Hardening Effects in W(100) and W(011) Single Crystals: *E. Hasenhuetl*[1]; Z. Zhang[1]; K. Yabuuchi[2]; A. Kimura[2]; [1]Kyoto University; [2]Kyoto University, Institute of Advanced Energy

12. Electronic and Magnetic Materials: Rare Earth Doped Electronic Materials

Thursday PM Room: K August 4, 2016

Session Chairs: Yasuo Koide, NIMS, Japan;

1:30 PM Invited
Current Understanding of Eu Emission Centers in Eu-Doped GaN Grown by Organometallic Vapor Phase Epitaxy: *A. Koizumi*[1]; Y. Fujiwara[1]; [1]Osaka University

1:50 PM
Effect of NH_4Cl Additive on Combustion Synthesis of Eu-doped Ca-α-SiAlON Phosphors: *Y. Ge*[1]; X. Yuan[2]; Z. Tian[1]; S. Sun[1]; [1]Tsinghua University; [2]Renmin University of China

12. Electronic and Magnetic Materials: Electronic Devices and Measurements

Thursday PM Room: K August 4, 2016

Session Chairs: Seishi Abe, Research Institute for Electromagnetic Materials, Japan;
Yiyao Ge, Tsinghua University, China

3:30 PM Keynote
Strain-Driven Self-Assembly for High-Performance, Energy and Electronic Applications: *A. Goyal*[1]; [1]University at Buffalo RENEW

3:55 PM Invited
Materials and Characterization Technology for EUV Lithography Masks: *J. Ahn*[1]; [1]Hanyang University

4:15 PM Invited
Large Area Radiation Detectors for Security Applications: *B. Gnade*[1]; [1]University of Texas at Dallas

4:35 PM
High Temperature Complex Permittivity Measurement of Low Loss Dielectric Material by Short Waveguide Method: *Y. Xu*[1]; E. Li[2]; J. Zhang[1]; [1]Beijing Institute of Space Long March Vehicle; [2]University of Electronic Science and Technology

4:50 PM
Sticker-Type Electrochemical Display Device Based on Ion Gel Electrolyte: *K. Hong*[1]; [1]Korea Institute of Materials Science

13. Additive Manufacturing: Processing and Properties

Thursday PM Room: J August 4, 2016

Session Chairs: Chris H.J.Davies, Monash University, Australia; Kenta Aoyagi, Tohoku University, Japan

1:30 PM Invited
Additive Manufacturing for Development of Bone Implants for Orthopedic Applications: *T. Nakano*[1]; [1]Osaka University

1:50 PM
Control of Microstructure and Mechanical Properties of Laser Solid Forming Inconel 718 Superalloy by Electromagnetic Stirring: *F. Liu*[1,2]; X. Lin[2]; X. Yu[1,2]; H. Cheng[1]; C. Zhong[1]; [1]Nanchang Hangkong University; [2]Northwestern Polytechnical University

2:05 PM
Mechanical Properties of CoCrFeNiTi-Based High-Entropy Alloy Additive Manufactured Using Selective Electron Beam Melting: *T. Fujieda*[1]; H. Shiratori[2]; K. Kuwabara[1]; M. Hirota[1]; T. Kato[1]; K. Yamanaka[2]; Y. Koizumi[2]; A. Chiba[2]; S. Watanabe[3]; [1]Hitachi,Ltd.; [2]Institute for Materials Research, Tohoku University; [3]Center for Advanced Research of Energy and Materials, Faculty of Engineering, Hokkaido University

2:20 PM
Corrosion Properties of CoCrFeNiTi-Based High-Entropy Alloy

Additive Manufactured Using Selective Electron Beam Melting: *K. Kuwabara*[1]; T. Fujieda[1]; H. Shiratori[2]; M. Hirota[1]; T. Kato[1]; K. Yamanaka[2]; Y. Koizumi[2]; A. Chiba[2]; [1]Hitachi Ltd.; [2]Institute for Materials Research, Tohoku University

2:35 PM
The Effect of Preheating Temperature on Microstructure and Cracking Behavior of Laser Solid Formed Nickel-Base Superalloy Inconel 738LC: *J. Xu*[1]; X. Lin[2]; L. Xue[3]; [1]Northwestern Polytechnical University; [2]Northwestern Polytechnical University; [3]Xi'an Bright Laser Technologies Ltd.,

13.Additive Manufacturing: Titanium Alloys (1)

Thursday PM Room: J August 4, 2016

Session Chairs: Heon Ju Lee, Korea Institute of Science and Technology, Korea;
Naoyuki Nomura, Tohoku University, Japan

3:30 PM Invited
Microstructure Characterization and Mechanical Behavior of Additively Manufactured Metals: *J. Lewandowski*[1]; [1]Case Western Reserve University

3:50 PM Invited
Microstructure Control in Additively Manufactured Ti-6Al-4V by Selective Laser Melting: Turning α' Martensite into (α+β) towards High Mechanical Performance: *W. Xu*[1]; [1]Macquarie University; [2]RMIT University

4:10 PM
Study on the Tensile Behavior of Laser Repaired Ti17 Titanium Alloy: *Z. Zhao*[1]; J. Chen[1]; H. Tan[1]; X. Lin[1]; W. Huang[1]; [1]Northwestern Polytechnical University

4:25 PM
Engineering the Grain Morphology and Grain Size of Additively Manufactured Metal Components: *D. Qiu*[1]; M. Easton[1]; [1]RMIT University

4:40 PM
Microstructure and Mechanical Properties for Electron Beam Melting Additive Manufactured Ti-6Al-4V: *P. Wang*[1]; X. Tan[2]; M. Nai[1]; W. Sin[1]; S. Tor[2]; J. Wei[1]; [1]Singapore Institute of Manufacturing Technology; [2]Singapore Centre for 3D Printing, School of Mechanical & Aerospace Engineering, Nanyang Technological University

4:55 PM
Microstructure and Mechanical Properties Dependencies on Processing Parameters for Ti-6Al-4V Alloy Produced by Electron Beam Melting: *X. Shui*[1]; K. Yamanaka[1]; K. Shinzawa[1]; M. Mori[2]; Y. Nagata[3]; K. Kurita[3]; A. Chiba[1]; [1]Tohoku University; [2]National Institute of Technology, Sendai College; [3]Koiwai Co., Ltd.

5:10 PM
Distribution of Porosity in Electron Beam Melting Additive Manufactured Ti-6Al-4V Component: *C. He*[1]; P. Wang[2]; M. Nai[2]; J. Wei[2]; [1]Singapore Institute of Manufacturing Technology; [2]School of Mechanical & Aerospace Engineering, Nanyang Technological University

August 5 (Fri) AM

1. Advanced Steels and Processing: Effect of Alloying Element and Process (1)

Friday AM Room: A August 5, 2016

Session Chairs: Emmanuel De Moor, USA;
Sadahiro Tsurekawa, Kumamoto University, Japan

9:00 AM
High Performance Steels Used for Railway Bridge Structures in China: *H. Wang*[1]; S. Jansto[2]; [1]CITIC Metal Co., Ltd.; [2]CBMM-North America, Inc.

9:15 AM
First-Principles Calculation of Effects of Carbon and Nitrogen on Tetragonality and Magnetic Moment in Fe−(C, N) Systems: *H. Ohtsuka*[1]; V. Dinh[2]; K. Tsuzaki[3]; K. Tsuchiya[1]; R. Sahara[1]; T. Duy[4]; T. Ohwaki[4]; H. Kitazawa[1]; T. Nakamura[1]; [1]NIMS; [2]Osaka University; [3]Kyushu University; [4]Nissan Arc

9:30 AM
Interaction between Interstitial and Substitutional Solute Atoms in Alpha Iron: Experimental Study: *H. Numakura*[1]; R. Nakamura; M. Souissi; [1]Osaka Prefecture University

9:45 AM
Interaction between Interstitial and Substitutional Solute Atoms in Alpha Iron: First-Principles Study: *M. Souissi*[1]; Y. Chen[2]; M. Sluiter[3]; H. Numakura[4]; [1]Osaka Prefecture University; [2]Tohoku University; [3]Delft University of Technology; [4]Osaka Prefecture University

10:00 AM
Research on the Microstructures and Mechanical Properties of Cold Rolled Hot-Dip Galvanizing CP980 Steels: *Y. Han*[1]; [1]ShouGang Research Institute of Technology

10:30 AM
Effect of Strain Rate on Dynamic Deformation Behavior of a Hot-Dip Galvanized Dual Phase DP780 Steel: *H. Liu*[1]; [1]Shougang Corporation

10:45 AM
Composition Formulas of Alloy Steels: *Q. Wang*[1]; C. Dong[1]; [1]Dalian University of Technology

11:15 AM
Factors Controlling Proeutectoid Ferrite/Pearlite Fractions in Hypoeutectoid Steels: *H. Wu*[1,3]; G. Miyamoto[2]; Z. Yang[3]; C. Zhang[3]; T. Furuhara[2]; [1]Tohoku University; [2]Institute for Materials Research, Tohoku University; [3]School of Materials Science and Engineering, Tsinghua University

2.Advanced High Temperature Structural Materials: Ultra-high-Temperature Materials (1): Structural Ceramics

Friday AM Room: B-1 August 5, 2016

Session Chairs: Junichi Tatami, Yokohama National University, Japan;
Kouichi Yasuda, Tokyo Institute of Technology, Japan

9:00 AM Invited
Advanced Synthesis, Structure and Mechanical Properties of

Structural Ceramics: *T. Goto*[1]; Y. Li[1]; H. Katsui[1]; [1]Tohoku University

9:20 AM
Degradation and Mechanical Properties of ZrO_2-4mol% Y_2O_3 Thermal Barrier Coatings: *B. Jang*[1]; K. Yasuda[2]; S. Kim[3]; Y. Oh[3]; H. Kim[3]; [1]National Institute for Materials Science (NIMS); [2]Tokyo Institute of Technology; [3]Korea Institute of Ceramic Engineering and Technology

9:35 AM
Internal Structure and Mechanical Property of Dense Zirconia Ceramics: *S. Tanaka*[1]; M. Zamzam[1]; [1]Nagaoka University of Technology

9:50 AM
Toward Standardization of Indentation Fracture (IF) Method for Ceramic Materials: *H. Miyazaki*[1]; Y. Yoshizawa[1]; H. Hyuga[1]; [1]National Institute of Advanced Industrial Science and Technology

10:05 AM
Investigation of Tungsten-Based ODS Alloy Dispersed with $Y_2Ti_2O_7$: *C. Chen*[1]; Y. Zeng[1]; [1]National Dong Hwa University

2.Advanced High Temperature Structural Materials: Ultra-high-Temperature Materials (2): Structural Ceramics

Friday AM Room: B-1 August 5, 2016

Session Chairs: Martin Heilmaier, Karlsruher Institute of Technology, Germany;
Atsutomo Nakamura, Nagoya University, Japan

10:30 AM
Micro-Structure Arrangement of Self-Healing Ceramics: *W. Nakao*[1]; [1]Yokohama National University

10:45 AM
Effect of Grain Necking on the High Temperature Properties of Porous Alumina: *S. Honda*[1]; Y. Daiko[1]; S. Hashimoto[1]; Y. Iwamoto[1]; [1]Nagoya Institute of Technology

11:00 AM
Thermal Conductivity and Strength of Ceramic Thermal Insulators Prepared by Freezing Route: *C. Matsunaga*[1]; M. Fukushima[1]; H. Hyuga[1]; Y. Yoshizawa[1]; [1]National Institute of Advanced Industrial Science and Technology

11:15 AM
Bending Strength and Fracture Toughness of Si_3N_4 Ceramic Surface in Contact with Molten Aluminum Measured Using Microcantilever Beam Specimens: J. Tatami[1]; [1]Yokohama National University

11:30 AM
Electrical Resistivity of Yb_2O_3 Doped Si_3N_4 Ceramics at Elevated Temperature: *J. Tatami*[1]; D. Kawai[1]; T. Takahashi[2]; M. Iijima[1]; [1]Yokohama National University; [2]Kanagawa Academy of Science and Technology

3.Light Metals and Alloys: Magnesium (5)

Friday AM Room: C-1 August 5, 2016

Session Chairs: Irene Beyerlein, Los Alamos National Laboratory, USA;
Wencai Liu, Shanghai Jiao Tong University, China

9:00 AM Invited
Cyclic Deformation of Mg Alloys: Identification of Underlying Mechanisms by Acoustic Emission: *A. Vinogradov*[1,2]; E. Vasil'Ev[2]; M. Linderov[2]; [1]Norwegian University of Science and Technology - NTNU; [2]Togliatti State Univeristy

9:20 AM
High Temperature Deformation Processing of Dilute Magnesium Alloy Z1 for Bioimplant Application: *P. Kamineni*[1]; M. Bagheripoor[2]; H. Dieringa[3]; N. Hort[3]; [1]City University of Hong Kong; [2]Western University, Canada; [3]Helmholtz-Zentrum Geesthacht, Germany

9:35 AM
Influence of CaO Addition on Hot Deformation Behavior of Commercial AZ31 Alloy: *H. Son*[1]; J. Lee[1]; T. Jung[1]; S. Hyun[1]; Y. Yoon[2]; S. Kim[2]; [1]Inha University; [2]Korea Institute of Industrial Technology

9:50 AM
Microstructural Investigation of a Hot Compressed ZK60 Mg Alloy: *T. Bhattacharjee*[1]; M. Joshi[1]; S. Gao[1]; H. Li[1]; A. Shibata[1,2]; T. Sasaki[3]; K. Hono[3,4]; N. Tsuji[1,2]; [1]Kyoto University; [2]Elements Strategy Initiative for Structural Materials (ESISM), Kyoto University; [3]National Institute for Materials Science, Tsukuba; [4]Graduate School of Pure and Applied Sciences, University of Tsukuba

10:05 AM
Microstructural Evolution and Mechanical Properties of Mg-Gd-Y Alloy after Multi-Directional Impact Forging: *D. Wu*[1]; J. Li[1]; M. Hong[1]; R. Chen[1]; E. Han[1]; W. Ke[1]; [1]Institute of Metal Research, Chinese Academy of Sciences

3.Light Metals and Alloys: Titanium (1)

Friday AM Room: C-1 August 5, 2016

Session Chairs: Yongqing Zhao, Northwest Institute for Non-Ferrous Metal Research, China;
Equo Kobayashi, Tokyo Institute of Technology, Japan

10:35 AM Keynote
Research and Development of New High Strength Titanium Alloys in China: *Y. Zhao*[1]; [1]Northwest Institute for Nonferrous Metal Research

11:00 AM
Effects of Deformation Temperature on Twinning during Compressive Deformation in Polycrystalline Pure Titanium: *G. Tsukamoto*[1]; H. Seto[1]; T. Kunieda[1]; K. Takahashi[1]; H. Fujii[1]; [1]Nippon Steel & Sumitomo Metal Corporation

11:15 AM
The Cracks Formed and Inhibited of a Novel Titanium Alloy Produced by Selective Laser Melting: *Y. Zhou*[1]; W. Li[1]; Q. Wei[1]; Y. Shi[1]; [1]Huazhong University of Science and Technology

11:30 AM
Effects of Orientation on Anisotropic Tensile Deformation Behavior in Cold-Rolled and Annealed Pure Titanium: *N. Saji*[1]; T. Kunimine[2]; A. Shibata[1,2]; N. Tsuji[1,2]; [1]Kyoto University; [2]Elements Strategy Initiative for Structural Materials (ESISM), Kyoto University

3.Light Metals and Alloys: Aluminum (3)

Friday AM Room: D August 5, 2016

Session Chairs: Christopher Schuh, Massachusetts Institute of Technology, USA;
Yoshimi Watanabe, Nagoya Institute of Technology, Japan

9:00 AM Invited
Materials Processing for Light Metals with Mesoscale Structures; Porous Metals: *M. Kobashi*[1]; [1]Nagoya University

9:20 AM
Microstructures and Mechanical Properties in Al-La_2O_3 and Al-Y_2O_3 Fabricated by Mechanical Alloying: *T. Sakamoto*[1]; S. Kukeya[2]; S. Kobayashi[1]; [1]Ehime University; [2]Graduate Student in Ehime University

9:35 AM
Hot Deformation Characteristics of Modified Al-Mg-Si Alloy by Hot Torsion Tests: *J. Lee*[1]; T. Jung[1]; H. Choi[1]; Y. Yoon[2]; S. Kim[2]; S. Hyun[1]; [1]Inha University; [2]Korea Institute of Industrial Technology

3.Light Metals and Alloys: Aluminum (3)

Friday AM Room: D August 5, 2016

Session Chairs: Makoto Kobashi, Nagoya University, Japan;
Prakash Srirangam, University of Warwick, England

10:35 AM
Experimental and Numerical Analyses on Dissimilar-Metal Joining Using Impact Welding: *S. Kumai*[1]; [1]Tokyo Institute of Technology

10:50 AM
Effect of Heat Treatment on Interfacial Characteristics and Mechanical Properties of Three-Ply Al-Mg-Si/Al-Zn-Mg-Cu/Al-Mg-Si Aluminum Alloy Clad Sheets: *J. Cha*[1]; H. Kim[1]; S. Kim[1]; Y. Lee[1]; Y. Choi[2]; [1]Korea Institute of Materials Science; [2]Pusan National University

11:05 AM
Microstructure of High-Speed Deformed Pure Aluminum by Magnetic Pulse Forming: *Y. Kedo*[1]; T. Kambe[1]; J. Nishiwaki[1]; S. Muraishi[1]; S. Kumai[1]; [1]Tokyo Institute of Technology

11:20 AM
Effect of Solution Treatment on Microstructures and Mechanical Properties of Double-Sided Friction Stir Processing 7050-T7451 Al Alloy: *W. Yang*[1]; H. Ding[1]; J. Li[2]; Y. Chen[1]; W. Zhang[1]; [1]Northeastern University; [2]Beijing Aeronautical Manufacturing Technology Research Institute

11:35 AM
Microstructure of High-Speed Deformed Pure Copper and Numerical Analysis of Magnetic Pulse Forming: *T. Kambe*[1]; Y. Kedo[1]; J. Nishiwaki[1]; S. Muraishi[1]; S. Kumai[1]; [1]Tokyo Institute of Technology

11:50 AM
Hybrid Al Sheet with Improved Mechanical Properties by Multi-Layer Accumulative Roll-Bonding Process: *C. Lim*[1]; S. Lee[2]; [1]Korea Institute of Materials Science; [2]Mokpo National University

5.Thin Films and Surface Engineering: Surface Modification (2)

Friday AM Room: G August 5, 2016

Session Chairs: Chonglin Chen, University of Texas at San Antonio, USA;
Hiroshi Masumoto, Tohoku University, Japan

9:00 AM Invited
Physisorptive NO_2 Sensors Based on Two-dimensional Tin Disulfide: *J. Ou*[1]; Y. Li[1,2]; K. Kalantar-Zadeh[1]; [1]RMIT University; [2]Shanghai Institute of Ceramics, Chinese Academy of Sciences

9:20 AM Invited
Highly Stable Silver Nanowires Transparent Electrode with Plasma Treatment: *D. Kim*[1]; [1]Korea Institute of Materials Science

5.Thin Films and Surface Engineering: Surface Modification (2)

Friday AM Room: G August 5, 2016

Session Chairs: Cao Yang, Tohoku University, Japan;
Hanae Aoki, Tohoku University, Japan

9:40 AM
Anti-Radiation Performance against Ar^{12+} Ions of Bulk Metallic Glass $Co_{61.2}B_{26.2}Si_{7.8}Ta_{4.8}$: *X. Mei*[1]; X. Zhang[1]; Y. Wang[1]; [1]Dalian University of Technology

9:55 AM
Study of Irradiation Damage Induced by High Intensity Pulsed Ion Beam Irradiation in W Metal: *X. Zhang*[1]; X. Mei[1]; Y. Wang[1]; [1]Dalian University of Technology

5.Thin Films and Surface Engineering: Coating (2)

Friday AM Room: G August 5, 2016

Session Chairs: Eiji Tada, Tokyo Institute of Technology, Japan;

10:25 AM Keynote
Old Stagnant Technology Becoming Hot Technology: Electroplating Advanced Functional Materials: *N. Myung*[1]; [1]University of California-Riverside

10:50 AM Invited
Improved Thermoelectric Property of Electrodeposits by Modified Plating Techniques: N. Heo[1,2]; Y. Song[1]; J. Kim[3]; D. Lim[1]; K. Lee[1]; K. Kim[2]; N. Myung[3]; *J. Lim*[1]; [1]Korea Institute of Materials Science; [2]Pusan National University; [3]University of California Riverside

11:10 AM
Ultra-thick Cr/CrN Multilayers Deposited by Arc Deposition with Large Arc Source: *X. Hu*[1]; B. Chen[1]; C. Dong[1]; D. Chen[2]; W. Gu[2]; [1]Dalian University of Techology; [2]Dalian Nano-Crystal Tech. Co.,Ltd.

11:25 AM
Zinc Oxide Low-Friction Coating - From Nanotribological Investigation to Bearing Application -: *M. Goto*[1]; M. Sasaki[2]; A. Kasahara[2]; M. Tosa[2]; [1]National Institute for Materials Science; [2]HTM Unit, National Institute for Materials Science

11:40 AM
Surface and Friction Properties of Fluoropolymer Anti-Sticky Coatings for Food Moulds: E. Privas[1]; S. Bistac[1]; *M. Brogly*[1]; [1]Université de Haute Alsace

11:55 AM
Influence of Indium Addition on Whisker Growth in Electroplated Sn: S. Das Mahapatra[1]; H. Yang[1]; L. Meinshausen[1]; S. Bhassyvasantha[2]; S. Banerjee[1]; B. Majumdar[2]; *I. Dutta*[1]; [1]Washington State University; [2]New Mexico Tech

6. Biomaterials, Smart Materials and Structures: Metal Biomaterials (1)

Friday AM Room: I August 5, 2016

Session Chairs: Peter King, CSIRO, Australia;
Masaaki Nakai, Kinki University, Japan

9:00 AM Keynote
Precipitation in Metallic Biomaterials Used for Biomedical Stents: *T. Narushima*[1]; [1]Tohoku University

9:25 AM Invited
Processing of New Generation β Titanium Biomedical Alloys: *D. Kent*[1,2]; Y. Zhang[2]; G. Wang[2]; T. Li[3]; J. Cairney[3]; M. Dargusch[2]; [1]University of the Sunshine Coast; [2]The University of Queensland; [3]The University of Sydney

9:45 AM
Improvement of Static and Dynamic Strength of a Biomedical Beta-Type Titanium Alloy by Adding Oxygen: *M. Niinomi*[1]; M. Nakai[1]; H. Liu[1]; S. Obara[2]; [1]Tohoku University; [2]Graduate Student of Tohoku University

10:00 AM
Novel Beta Titanium Alloys for Biomedical Applications: *C. Wen*[1]; S. Ozan[2]; J. Lin[3,4]; Y. Li[1]; [1]RMIT University; [2]Faculty of Engineering and Architecture, Bozok University; [3]Department of Materials Science and Engineering, Jilin University; [4]Advanced Material Research and Development Center, Zhejiang Industry & Trade Vocational College

6. Biomaterials, Smart Materials and Structures: Metal Biomaterials (2)

Friday AM Room: I August 5, 2016

Session Chairs: Cuie Wen, RMIT University, Australia;
Takayuki Narushima, Tohoku University, Japan

10:30 AM Invited
Advances in Titanium Powder and Additive Manufacturing Technologies: S. Gulizia[1]; *P. King*[1]; D. Fraser[1]; A. Oh[1]; A. Urban[1]; C. Doblin[1]; R. Wilson[1]; Y. Sun[1,2]; [1]CSIRO; [2]RMIT University

10:50 AM
Solid Solution Strengthening of Ti by Mg in Sputtered Film: *M. Nakai*[1]; M. Niinomi[1]; H. Liu[1]; Y. Suzuki[1]; K. Cho[2]; J. Nakamura[3]; K. Yoshimi[3]; [1]Tohoku University; [2]Graduate School of Engineering, Osaka University; [3]Graduate School of Engineering, Tohoku University

11:05 AM
Microstructures and Mechanical Properties of β-Type Ti-Mn-Mo Alloys for Biomedical Applications: *K. Cho*[1]; H. Kobata[1]; P. Santos[2]; H. Yasuda[1]; M. Niinomi[2]; [1]Osaka University; [2]Tohoku University

11:20 AM
Microstructure and Magnetic Susceptibility of Low Magnetic Zr Compacts Preventing Artifacts in MRI: *N. Nomura*[1]; E. Andreola[2]; K. Kikuchi[1]; A. Kawasaki[1]; [1]Tohoku University; [2]University of Trento

11:35 AM
Processing, Microstructure and Mechanical Properties of Co-Cr-Mo Alloy Rods for Spinal Instrumentation Surgery: *K. Yamanaka*[1]; M. Mori[2]; K. Yoshida[1]; K. Kuramoto[3]; A. Chiba[1]; [1]Tohoku University; [2]National Institute of Technology, Sendai College; [3]Eiwa Co., Ltd.

11:50 AM
Development of Zr Based Biomedical Alloys with Low Young's Modulus: *M. Todai*[1]; K. Fukunaga[1]; T. Nakano[1]; [1]Osaka University

7.Materials Characterization and Evaluation: 3D/4D Imaging (1)

Friday AM Room: E August 5, 2016

Session Chairs: Cem Tasan, Massachusetts Institute of Technology, USA;
Hiroyuki Toda, Kyushu University, Japan

9:00 AM Invited
What can Micro-CT do for you? Applications at the Synchrotron and in the Lab.: *S. Mayo*[1]; [1]CSIRO

9:20 AM
Evaluation of Local Deformation in Grain Microstructure by Using X-Ray Microtomography and Image-Based Simulation: *M. Kobayashi*[1]; A. Kouno[1]; T. Matsuyama[1]; H. Toda[2]; H. Miura[1]; O. Kuwazuru[3]; [1]Toyohashi University of Technology; [2]Kyusyu University; [3]Fukui University

9:35 AM
Development and Application of Laboratory-Based in situ X-ray Microscopy in Materials Science: *W. Harris*[1]; H. Bale[1]; L. Lavery[1]; C. Holzner[1]; J. Yoon[1]; [1]Carl Zeiss X-ray Microscopy

9:50 AM
Extraordinary Plasticity of SiCp/Al in Ti-(SiCp/Al) Laminated Composites Synthesized by Roll Bonding: *G. Fan*[1]; [1]Harbin Institute of Technology

10:05 AM
3D Strain Mapping Applied to Hydrogen Embrittlement in Al-Zn-Mg-Cu Aluminum Alloys: *H. Su*[1]; H. Toda[1]; R. Masunaga[1]; K. Uesugi[2]; A. Takeuchi[2]; N. Sakaguchi[3]; Y. Watanabe[3]; [1]Kyushu

University; [2]Japan Synchrotron Radiation Research Institute; [3]UACJ Corporation

7.Materials Characterization and Evaluation: 3D/4D Imaging (2)

Friday AM Room: E August 5, 2016

Session Chairs: Sheridan Mayo, CSIRO, Australia; Masakazu Kobayashi, Toyohashi University of Technology, Japan

10:40 AM
Diffraction Contrast Tomography in the Laboratory - Applications and Future Directions: *C. Holzner*[1]; E. Lauridsen[2]; F. Bachmann[2]; K. Nielsen[2]; L. Lavery[1]; W. Harris[1]; P. Reischig[2]; A. Lyckegaard[2]; [1]Carl Zeiss X-ray Microscopy, Inc.; [2]Xnovo Technology ApS

10:55 AM
Holistic Characterisation of Titanium Products Produced by CSIRO's Additive Manufacturing Centre: *N. Wright*[1]; S. Gulizia[1]; A. Seeber[1]; M. Greaves[2]; C. Easton[1]; [1]CSIRO; [2]CSIRO Manufacturing

11:10 AM
Naturally Occurring Transition Metal Oxide Nanoparticles Characterized by EELS and Electron Tomography: *M. Murayama*[1]; M. Khalifa[2]; S. Ulrich[3]; M. Hochella, Jr.[3]; [1]Virginia Tech; [2]Physics and Engineering, Washington and Lee University; [3]Department of Geosciences, Virginia Tech

11:25 AM
Characterization of Nano-Sized Precipitates in Advanced High-Strength Steel by Correlative Atom Probe Tomography and Transmission Electron Microscopy: *J. Wang*[1]; I. Timokina[1]; I. Bikmukhametov[1]; P. Hodgson[1]; [1]Deakin University

11:40 AM
Practical Issues of Electron Tomography Observation in Ferrous Alloys: *S. Hata*[1]; T. Yoshimoto[2]; K. Ikeda[3]; H. Nakashima[1]; [1]Kyushu University; [2]Kyushu University (Graduate School); [3]Hokkaido University

9. Bulk Metallic Glasses, Nanocrystalline Material and Ultrafine-Grained Materials: High Entropy Alloys (1)

Friday AM Room: B-2 August 5, 2016

Session Chairs: Hidemi Kato, Tohoku University, Japan;

9:00 AM Keynote
Atomic Level Stresses in Metallic Glasses and High Entropy Alloys: *T. Egami*[1]; [1]University of Tennessee

9:25 AM Invited
Effect of Hydrogen on the Tensile Behavior of FeCoNiMnCr High Entropy Alloy: *J. Suh*[1]; Y. Zhao[2]; H. Kim[1]; M. Phaniraj[1]; J. Shim[1]; S. Park[3]; J. Jang[2]; [1]Korea Institute of Science and Technology; [2]Hanyang University; [3]Korea Institute of Materials Science

9:45 AM
Hot Deformation Behavior of CoCrFeMnNi FCC High Entropy Alloy: *R. Eleti*[1,2]; P. Bhattacharjee[2]; L. Zhao[3]; T. Bhattacharjee[1]; N. Tsuji[1,4]; [1]Kyoto University; [2]Department of Materials Science and Metallurgical Engineering, Indian Institute of Technology Hyderabad; [3]Advanced Steel Processing and Products Research Center (ASPPRC), Colorado School of Mines; [4]Elements Strategy Initiative for Structural Materials (ESISM), Kyoto University

9. Bulk Metallic Glasses, Nanocrystalline Material and Ultrafine-Grained Materials: High Entropy Alloys (2)

Friday AM Room: B-2 August 5, 2016

Session Chairs: Peter K. Liaw, Seoul National University, Korea; Hidemi Kato, Tohoku University, Japan

10:30 AM
Variation of Grain Structure and Mechanical Property of AlCoCrFeNi High Entropy Alloy with Ti Addition: *Y. Na*[1]; K. Lim[1]; K. Lee[1]; H. Chang[2]; [1]Korea Institute of Materials Science; [2]Korea Institute of Science and Technology

10:45 AM
Microstructure and Mechanical Properties of a Nanocrystalline AlNbTiV High-Entropy Alloy: *B. Schuh*[1]; B. Völker[1]; J. Li[1]; V. Maier-Kiener[2]; A. Hohenwarter[1]; [1]Montanuniversität Leoben; [2]Erich Schmid Institute of Materials Science

9. Bulk Metallic Glasses, Nanocrystalline Material and Ultrafine-Grained Materials: Bulk Metallic Glass (1)

Friday AM Room: B-2 August 5, 2016

Session Chairs: Jin-Yoo Suh, Korea Institute of Science and Technology, Korea; Takeshi Egami, University of Tennessee, USA

11:00 AM
Characterization of Shear-Band Dynamics by Thermography for Bulk Metallic Glasses: X. Xie[1]; Y. Lo[2]; Y. Tong[3]; J. Qiao[4]; G. Wang[1]; S. Ogata[2,5]; H. Qi[1]; Y. Gao[1]; K. Dahmen[6]; *P. Liaw*[1]; [1]University of Teneessee; [2]Kyoto University; [3]City University of Hong Kong; [4]Taiyuan University of Technology; [5]Osaka University; [6]University of Illinois at Urbana Champaign

10. Modelling and Simulation of Microstructures and Processing: Solidification

Friday AM Room: F August 5, 2016

Session Chairs: Pil-Ryung Cha, Kookmin University, Korea; Sukeharu Nomoto, ITOCHU Techno-Solutions Corporation, Japan

9:00 AM Invited
Discussion on Solidification and Microstructure Evolution from Atomistic Point of View: Large-Scale Molecular Dynamics Simulations: *Y. Shibuta*[1]; S. Sakane[2]; T. Takaki[2]; M. Ohno[3]; [1]The University of Tokyo; [2]Kyoto Institute of Technology; [3]Hokkaido University

9:20 AM Invited
Large-Scale Phase-Field Simulations of Dendrite Growth Using a GPU Supercomputer: *T. Takaki*[1]; M. Ohno[2]; Y. Shibuta[3]; S. Sakane[1]; T. Shimokawabe[4]; T. Aoki[4]; [1]Kyoto Institute of Technology; [2]Hokkaido University; [3]The University of Tokyo;

[4]Tokyo Institute of Technology

9:40 AM
On the Solidification Kinetics of Metal Alloys: A Study Using 3-D Phase Field Modeling and Synchrotron X-Ray Image Techniques: *Z. Guo*[1,2]; M. Yang[1]; S. Wang[1]; S. Xiong[1,2]; [1]Tsinghua University; [2]Key Laboratory for Advanced Materials Processing Technology, Ministry of Education, China

9:55 AM
Numerical Simulation of Solidification Structure of Continuous Casting Bloom of High Speed Railway Steel: *S. Luo*[1,2]; Q. He[1]; M. Zhu[1]; Y. Chen[2]; H. Guo[2]; T. Chen[2]; L. Chen[2]; H. Li[2]; [1]Northeastern University; [2]Ansteel Corporation

10. Modelling and Simulation of Microstructures and Processing: Computational Approaches on Ferrous Alloys

Friday AM Room: F August 5, 2016

Session Chairs: Elizabeth A. Holm, Carnegie Mellon University, USA;
Tetsuo Mohri, Tohoku University, Japan

10:25 AM Invited
Phase Field Study on Various Phase Transformations in Steels: *P. Cha*[1]; D. Kim[1]; S. Kim[2]; W. Kim[3]; [1]Kookmin University; [2]Kunsan University; [3]Cheongjoo University

10:45 AM
Molecular Dynamics Simulations of the Austenite to Ferrite Transformation in Pure Fe.: *H. Song*[1]; J. Hoyt[1]; [1]McMaster University

11:00 AM
Monte Carlo Simulation of Solute Clusters in Iron Alloys: *M. Enoki*[1]; M. Saeki[1]; H. Ohtani[1]; [1]Tohoku University

11:15 AM
Validation of a Neighbor Orientation Based Model for Phase Transformation in Hot Rolling Steel Sheets.: *Y. Tanaka*[1,4]; T. Tomida[2]; H. Hosoda[3]; T. Inamura[3]; [1]Tokyo Institute of Technology; [2]Nippon Steel and Sumikin Technology; [3]Tokyo Institute of Technology; [4]Nippon Steel and Sumitomo Metal Corporation

11:30 AM
In Situ EBSD Heating Analysis on Reverse Phase Transformation from Ferrite to Austenite in Fe-Mn-C Alloys: *K. Hata*[1]; M. Wakita[1]; K. Fujiwara[1]; K. Kawano[1]; T. Tomida[2]; M. Sugiyama[3]; T. Kakeshita[3]; [1]Nippon Steel and Sumitomo Metal Corporation; [2]Nippon Steel and Sumitomo Metal Technology Corporation; [3]Department of Materials Science and Engineering, Osaka University

11:45 AM
Prediction of Deoxidation Phenomena during Ladle Furnace Refining Process with Combining Transport and Thermodynamics Modelling: *K. Yi*[1]; W. Lee[1]; [1]Seoul National University

12:00 PM
Mathematical Modelling and Computer Simulation of Steel Quenching: *B. Smoljan*[1]; D. Iljkić[1]; D. Rubeša[1]; L. Štic[1]; M. Maretić[1]; [1]Faculty of Engineering, University of Rijeka

11. Materials for Energy and Environment: Materials for Batteries and Fuel Cells (1)

Friday AM Room: H August 5, 2016

Session Chairs: Cara M. Doherty, CSIRO, Australia;
Yuji Okuyama, University of Miyazaki, Japan

9:00 AM Keynote
Intrinsic Interface Resistance across $Li_3PO_{4-x}N_x/LiCoO_2$ Interfaces: *T. Hitosugi*[1]; [1]Tohoku University

9:25 AM Invited
Visualization of Conduction Pathways of Li Ions in a Promising Solid Electrolyte: $Li_7P_3S_{11}$ Metastable Crystal: *K. Mori*[1]; T. Fukunaga[1]; [1]Kyoto University

9:45 AM
Li-Ion Conductivity and Phase Stability of Ca-Doped $LiBH_4$ under High Pressure: *T. Mezaki*[1]; [1]Tohoku university

11. Materials for Energy and Environment: Materials for Batteries and Fuel Cells (1)

Friday AM Room: H August 5, 2016

Session Chairs: Sung-Jin Kim, Ewha Womans University, Korea;
Koji Sakaki, National Institute of Advanced Industrial Science and Technology, Japan

10:00 AM Invited
Triboelectric Nanogenerators for Self-Powered Electronics: *S. Kim*[1]; [1]Sungkyunkwan University

10:35 AM Invited
Adaptive Porous Materials for Energy and the Environment: *C. Doherty*[1]; P. Falcaro[1]; A. Hill[1]; [1]CSIRO

10:55 AM
TiO_2 Nanotubes - Carbon Nanofiber Heterostructured as an Anode for High Energy and Power Lithium Ion Batteries: *T. Song*[1]; [1]Yeungnam University

11:10 AM
Two-Dimensional Nanosheets of MoS_2: A Promising Material With High Dielectric Properties and Microwave Absorption Performances: *M. Ning*[1]; H. Jin[1]; J. Li[1]; Y. Zhao[1]; C. Wang[1]; D. Su[1]; [1]Beijing Institute of Technology

11:25 AM
Synthesis of Beta Voltaic Battery Using Electroplated ^{63}Ni on Foil: *Y. Uhm*[1]; B. Choi[2]; J. Kim[1]; J. Kim[1]; K. Son[1]; [1]Korea Atomic Energy Research Institute (KAERI); [2]Electronics and Telecommunications Research Institute (ETRI)

12.Electronic and Magnetic Materials: Electronic Materials (2)

Friday AM Room: K August 5, 2016

Session Chairs: Akira Heya, University of Hyogo, Japan;

9:00 AM Keynote
Transparent Nanostructures for Flexible Optoelectronics: J.

Ham[1]; W. Dong[1]; I. Lee[1]; J. Park[1]; *J. Lee*[1]; [1]POSTECH

9:25 AM Invited
Low-Dimensional Semiconductors for Electronics, Sensors and Energy: *A. Davydov*[1]; [1]National Institute of Standards and Technology

9:45 AM Invited
Heteroepitaxial Stacking and Stitching of Transition-Metal Dichalcogenide Monolayers: *M. Jo*[1]; [1]IBS/POSTECH

12.Electronic and Magnetic Materials: Electronic Materials (2)

Friday AM Room: K August 5, 2016

Session Chairs: Kazuhiro Ito, Osaka University, Japan; Takashi Onishi, Kobe Steel Ltd, Japan

10:30 AM
Microstructure and Properties of Ag-MeO/Ag-Cu Electrical Contact Materials: *H. Min*[1]; J. Song[2]; J. Lee[1]; [1]Kongju National University; [2]Shin Saeng Metal Ind. Co., Ltd

10:45 AM
Role of Vacancy for Crystallization of Amorphous Silicon and Germanium Films by Flash Lamp Annealing: *A. Heya*[1]; N. Matsuo[1]; S. Hirano[1]; Y. Nakamura[2]; T. Yokomori[2]; M. Yoshioka[2]; N. Kawamoto[3]; [1]University of Hyogo; [2]USHIO INC.; [3]Yamaguchi University

11:00 AM
AIN-to-Metal Direct Bonding by Sintering of In-Situ Generated Ag Nanoparticles: *K. Motoyama*[1]; T. Sano[1]; A. Hirose[1]; [1]Osaka University

13.Additive Manufacturing: Emerging Technologies in AM

Friday AM Room: J August 5, 2016

Session Chairs: John Lewandowski, Case Western Reserve University, USA; Kosuke Kuwabara, Hitachi Ltd., Japan

9:00 AM Keynote
Fabrication and Characteristics of Eutectic and Non-Eutectic Metals for 3D Printed Electronics: *H. Shin*[1]; Y. Yang[1]; I. You[1]; [1]Daelim Chemical Ltd.

9:25 AM
Non-Contact Post-Processing of SLM Titanium for Improved Surface Finish of Complex Geometries: *M. Jurg*[1]; A. Molotnikov[1]; W. Yan[1]; [1]Monash University

9:40 AM
The Study on Forming Tungsten Alloy by Selective Laser Melting: *L. Li*[1]; W. Wang[1]; Y. Yuan[1]; [1]Central South University

13.Additive Manufacturing: Strategies for Qualification in AM

Friday AM Room: J August 5, 2016

Session Chairs: Wei Xu, RMIT University, Australia; Kenta Yamanaka, Tohoku University, Japan

10:30 AM Invited
Effect of Microstructure on Micromechanical Deformation and Failure Behaviors of AlSi10Mg Alloy Fabricated by Selective Laser Melting during Uniaxial Tension: J. Hwang[1]; E. Kim[1]; K. Park[1]; *S. Choi*[1]; [1]Sunchon National University

10:50 AM
Observation of Molten Pool during Electron Beam Selective Melting by Infrared Thermal Imaging: *C. Guo*[1,2,3]; W. Ge[1]; F. Lin[1,2]; B. Zhou[1]; [1]Tsinghua University; [2]Tianjin Research Institute for Advanced Equipment, Tsinghua University; [3]Tianjin SciTsinghua QuickBeam Tech. Co., Ltd.

11:05 AM
Assessment of Critical Factors Influencing Fatigue Properties of Ti-6Al-4V Alloy Fabricated by Electron Beam Melting: *K. Yamanaka*[1]; X. Shui[1]; M. Mori[2]; A. Chiba[1]; [1]Tohoku University; [2]National Institute of Technology, Sendai College

11:20 AM
Effect of Solid Solution Elements on Crack Susceptibility of a Single Crystal Superalloy Processed by Selective Laser Melting: *J. Liang*[1]; Y. Yang[1]; Y. Zhou[1]; T. Jin[1]; X. Sun[1]; Z. H[1]; [1]Institute of Metal Research, Chinese Academy of Sciences

11:35 AM
On the Effect of Microstructural Anisotropy on the Mechanical and Thermophysical Properties of Ti6Al4V Processed by Laser Beam Melting: *A. Mertens*[1]; H. Paydas[1]; O. Rigo[2]; R. Carrus[2]; J. Lecomte-Beckers[1]; [1]University of Liege/Faculty of Applied Science; [2]Sirris Research Center, Liège

11:50 AM
Structure / Property Characterization of Additively Manufactured 316L and 304L SS: *G. Gray Iii*[1]; V. Livescu[1]; C. Trujillo[1]; J. Carpenter[1]; T. Lienert[1]; [1]Los Alamos National Laboratory

August 5 (Fri) PM

1. Advanced Steels and Processing: Effect of Alloying Element and Process (2)

Friday PM Room: A August 5, 2016

Session Chairs: Naoki Takata, Japan; Hisashi Sato, Nagoya Institute of Technology, Japan

1:30 PM
Effect of Austenitizing Process on Microstructure and Impact Toughness of 1.0C-1.5Cr Bearing Steel: Z. Li[1]; *C. Li*[1]; J. Zhang[1]; B. Li[1]; [1]Northeastern University

1:45 PM
Microstructure Evolution and Mechanical Properties of High Strength Cold Rolled Sheet under Ultra-Fast Cooling: *R. Song*[1]; L. Wang[2]; E. Wen[1]; [1]University of Science and Technology Beijing; [2]Research Institute of Metallurgy Engineering, University of Science and Technology Beijing

2:00 PM
Effects of Heat Treatment on Microstructure and Fracture Toughness of Railway Wheel Steel: *X. Ren*[1]; J. Gao[1]; [1]University of Science and Technology Beijing

2:15 PM
Effect of Deformation Condition on Hydrogen Embrittlement Behavior in Low-Carbon Martensitic Steel: *Y. Momotani*[1]; A. Shibata[1,2]; N. Tsuji[1,2]; [1]Kyoto University; [2]Elements Strategy Initiative for Structural Materials (ESISM)

2:30 PM
Evolution and Optimization of Retained Austenite in the Self-Reinforcing Low Hardness Wear Resistant Steels: *W. Xu*[1,2]; [1]Northeastern University; [2]Delft University of Technology

2:45 PM
Effects of Start Cooling Temperature on Tensile Properties of Strain-Based API X60 Pipeline Steels: *H. Sung*[1]; D. Lee[2]; S. Lee[2]; H. Kim[2]; Y. Ro[3]; C. Lee[4]; B. Hwang[5]; S. Shin[6]; [1]Gyeongsang National University; [2]Pohang University of Science and Technology; [3]SK Innovation; [4]POSCO; [5]Seoul National University of Science and Technology; [6]University of Ulsan

1. Advanced Steels and Processing: Effect of Alloying Element and Process (2)

Friday PM Room: A August 5, 2016

Session Chairs: Ilana Timokhina, Deakin University, Australia; Toshiiro Tsuchiyama, Kyushu University, Japan

3:30 PM
Granular Bainite Transformation of 20CrNi2MoV Steel in Hot Deformation Process: B. Li[1]; C. Li[1]; *J. Zhang*[1]; Z. Li[1]; [1]Northeastern University

3:45 PM
Effect of Cooling Procedure on Strength and Toughness of Hot Rolled 20CrNi2Mo Steel: *J. Zhang*[1]; C. Li[1]; B. Li[1]; Z. Li[1]; [1]Northeastern University

4:00 PM
Influence of Cold Asymmetric Rolling on the Microstructure and Properties of Press-Hardening Steel 22MnB5: *O. Grydin*[1]; A. Andreiev[1]; M. Schaper[1]; [1]Paderborn University

4:15 PM
Effects of Warm Deformation on Duplex Microstructure in a Mn-Rich Steel: *G. Cheng*[1]; Y. Huang[1]; H. Yen[1]; [1]National Taiwan University

4:30 PM
Microstructure and Mechanical Behavior of Ultrafine-Grained Fe-15Mn-0.03C Steel: *Y. Huang*[1]; G. Cheng[1]; [1]National Taiwan University

1. Advanced Steels and Processing: Solidification and Surface Phenomena

Friday PM Room: C-2 August 5, 2016

Session Chairs: Kaori Kawano, Nippon Steel & Sumitomo Metal Corporation, Japan;

1:35 PM
Analysis of Nano-TiO_2 Additive Oil-In-Water Lubricant in Rolling Process: *W. Xia*[1]; Z. Jiang[1]; J. Zhao[1]; H. Wu[1]; S. Jiao[2]; [1]University of Wollongong; [2]Research Institute, Baoshan Iron and Steel Co., Ltd.,

1:50 PM
Effects of Liquid Phase Fluidity in Iron Ore Fines on Production and Quality Indexes in Sinter: *X. Zhai*[1]; S. Wu[1,2]; B. Su[1]; W. Zhang[1]; [1]University of Science and Technology Bejing; [2]Jiangxi University of Science and Technology

2:05 PM
Dynamic Process Model for Phosphorus and Sulfur Reactions in Scrap-Pig Iron EAF Steelmaking: *M. Tayeb*[1]; [1]SABIC

2:20 PM
Experimental Investigation on Solidification Structure of Continuous Casting Bloom of U75V Steel: *Y. Chen*[1]; H. Guo[1]; T. Chen[1]; S. Luo[1,2]; Q. He[2]; M. Chen[2]; [1]Ansteel Corporation; [2]Northeastern University

1. Advanced Steels and Processing: Solidification and Surface Phenomena

Friday PM Room: C-2 August 5, 2016

Session Chairs: Hiroshi Numakura, Osaka Prefecture University, Japan;

3:30 PM
Quantifying Phase Transformations as a Fonction of Cooling Rate in a Low Alloy Steel Using Direct Strip Casting: *T. Dorin*[1]; K. Wood[2]; A. Taylor[1]; P. Hodgson[1]; N. Stanford[3]; [1]Deakin University; [2]Australian Nuclear Science and Technology Organisation, Bragg Institute; [3]Faculty of Engineering, Monash University

3:45 PM
Effects of Si Content and Dew Point on Properties of Surface Film in Bright Annealed Austenitic Stainless Steel: *F. Ichikawa*[1]; S. Teraoka[1]; A. Seki[2]; [1]Nippon Steel & Sumitomo Metal Corporation; [2]Nippon Steel & Sumikin Technology Co., Ltd.

4:00 PM
High Temperature Oxidation of Advanced High Strength Steels: M. Story[1]; *B. Webler*[1]; [1]Carnegie Mellon University

4:15 PM
Solid Fe/Liquid Zn Interfacial Reaction of Hot-Dip Galvanized Dual-Phase Steels: *N. Takata*[1]; M. Kobashi[1]; M. Takeyama[2]; [1]Nagoya University; [2]Tokyo Institute of Technology

4:30 PM
Investigations of a Ferritic-Austenitic Steel Deformed by High Pressure Torsion: *K. Grundner*[1]; A. Hohenwarter[2]; R. Pippan[1]; [1]Austrian Academy of Sciences; [2]University of Leoben

4:45 PM
A Method for Estimating Vickers Hardness Values Based on Nanoindentation Hardness Values: *M. Yamamoto*[1]; M. Onishi[2]; O. Furukimi[3]; M. Aramaki[3]; T. Yamamoto[1]; [1]Yamamoto Scientific Tool Lab. Co.,Ltd.; [2]Asahi Chiyoda Kogyo Co.,Ltd.; [3]Kyushu University

5:00 PM
Irradiation Hardening of Reduced Activation Ferritic/Martensitic Steels Irradiated by Fe^{3+}And He^{+}: Comparison with Pure Fe and Fe-Cr Model Alloy.: *H. Kanai*[1]; K. Yabuuchi[2]; A. Kimura[2]; M. Ando[3]; D. Hamaguchi[3]; H. Tanigawa[3]; [1]Kyoto University; [2]Institute of Advanced Energy, Kyoto University; [3]National Institutes for Quantum and Radiological Science and Technology

5:15 PM
Enhancement of Creep Strength of Ferrtic-Martensitic Steel T91 via Grain Boundary Engineering: *S. Tsurekawa*[1]; R. Ishii[1]; Y. Morizono[1]; [1]Kumamoto University

2.Advanced High Temperature Structural Materials: Ultra-high-Temperature Materials (3): Structural Silicides

Friday PM Room: B-1 August 5, 2016

Session Chairs: Takashi Goto, Tohoku University, Japan; Seiji Miura, Hokkaido University, Japan

1:15 PM Invited
The Influence of Pack-Cementation Borosilica Based Coating on High-Temperature Properties of Mo-Si-B Alloys: *M. Heilmaier*[1]; D. Schliephake[1]; J. Perepezko[2]; [1]Karlsruhe Insitute of Technology; [2]University of Wisconsin – Madison, Department of Materials Science and Engineering

1:35 PM
Three Dimensional Observation of the Three-Phase Eutectic Microstructure of Mo-Nb-Si-B Alloys: *N. Sekido*[1]; N. Takata[2]; M. Takeyama[2]; M. Follett-Figueroa[3]; J. Perepezko[3]; [1]National Institute for Materials Science; [2]Tokyo Institute of Technology; [3]University of Wisconsin-Madison

1:50 PM
Mechanical Property Improvement by Controlling Lattice Misfits and Interface Segregation in $MoSi_2$/Mo_5Si_3-Based Eutectic Composites: *K. Kishida*[1]; H. Matsunoshita[1]; J. Vega[1]; H. Inui[1]; [1]Kyoto University

2:05 PM
Oxidation Resistance of NiAl/(Mo,Cr,Si) Eutectic Systems: *M. Zhao*[1]; A. Kunimoto[1]; K. Yoshimi[1]; [1]Tohoku Universtiy

2:20 PM
Effect of Boron Addition for Microstructure and Toughness in $NbSi_2$/$MoSi_2$ Duplex Crystals: *M. Todai*[1]; K. Hagihara[1]; K. Kishida[2]; H. Inui[2]; T. Nakano[1]; [1]Osaka University; [2]Kyoto University

2:35 PM
Influence of Vanadium on the High Temperature Properties and Room Temperature Fracture Toughness of a Ternary Eutectic Nb-Si-Cr Alloy: *F. Gang*[1]; M. Heilmaier[1]; [1]Karlsruhe Insitute of Technology

2.Advanced High Temperature Structural Materials: Ultra-high-Temperature Materials (4): Processing

Friday PM Room: B-1 August 5, 2016

Session Chairs: Nick Birbilis, Monash University, Australia; Wataru Nakao, Yokoyama National University, Japan

3:30 PM
Stochastic Model for Ceramic Granule Collapse during Cold Isostatic Pressing: *K. Yasuda*[1]; S. Tanaka[2]; M. Naito[3]; [1]Tokyo Institute of Technology; [2]Nagaoka University of Technology; [3]Osaka University

3:45 PM
Consolidation of Yttria Ceramics by Flash Sintering: Cation Doping Effect: *H. Yoshida*[1]; K. Morita[1]; B. Kim[1]; Y. Sakka[1]; T. Yamamoto[2]; J. Lebrun[3]; R. Raj[3]; [1]National Institute for Materials Science; [2]Nagoya University; [3]University of Colorado at Boulder

4:00 PM
High-Speed Preparation of Yb–Si–O Films Using Laser Chemical Vapor Deposition: *A. Ito*[1]; M. Sekiyama[1]; T. Goto[1]; [1]Tohoku University

4:15 PM
Fabrication of High Thermal Conductive Si_3N_4 Ceramics by the C-Axis Orientation Using a Rotating Magnetic Field: *T. Takahashi*[1]; J. Tatami[2]; S. Tanaka[3]; H. Nakano[4]; [1]Kanagawa Academy of Science and Technology; [2]Yokohama National University; [3]Nagaoka University of Technology; [4]Toyohashi University of Technology

4:30 PM
Application of Scribing/Breaking Technique to Ceramic Thin Plates for High Efficient Cutting: *N. Tomei*[1,2]; K. Murakami[1]; T. Hashimoto[1]; M. Kitaichi[1]; S. Hirano[1]; T. Fukunishi[1]; S. Yoshida[2]; J. Matsuoka[2]; [1]Mitsuboshi Diamond Industrial Co., Ltd.; [2]The University of Shiga Prefecture

3.Light Metals and Alloys: Titanium (2)

Friday PM Room: C-1 August 5, 2016

Session Chairs: Hideki Fujii, Toho Titanium Co.,Ltd., Japan; Eri Miura-Fujiwara, University of Hyogo, Japan

1:30 PM Invited
Development and Thermomechanical Processing of High Strength Ti-Al-Fe-Si Alloy: *J. Yeom*[1]; S. Lee[1]; C. Park[1]; J. Hong[1]; S. Kim[1]; D. Shih[2]; [1]Korea Institute of Materials Science; [2]Boeing Research & Technology, The Boeing Company

1:50 PM
Different Interaction between Slip and Alpha/Beta Interphases and Strengthening of TC21 Alloy: *Q. Sun*[1]; C. Tan[1]; L. Xiao[1]; J. Sun[1]; [1]Xi'an Jiaotong University

2:05 PM
Effect of Oxygen on TWIP/TRIP Effects in Beta-Type Ti-Mo Alloys: *X. Min*[1]; M. Li[1]; S. Emura[2]; X. Ji[2]; C. Cheng[1]; K. Tsuchiya[2]; [1]Dalian University of Technology; [2]Research Center for Strategic Materials, National Institute for Materials Science

2:20 PM
Effect of β Phase Stability on Tensile Stress-Strain Behavior in

Ti-Mo-Fe Alloys: *X. Ji*[1]; S. Emura[2]; I. Gutierrez-Urutia[2]; K. Tsuchiya[1,2]; [1]University of Tsukuba; [2]National Institute for Materials Science

3.Light Metals and Alloys: Titanium (2)

Friday PM Room: C-1 August 5, 2016

Session Chairs: Jong-Taek Yeom, Korea Institute of Materials Science, Korea;
Takayoshi Nakano, Osaka University, Japan

2:35 PM
Tribology Property of α-Pure Titanium Strengthened by Nitrogen Solid-Solution: *Y. Yamabe*[1]; H. Imai[2]; J. Umeda[2]; K. Kondoh[2]; [1]Division of Mechanical Engineering, Graduate School of Engineering, Osaka University; [2]Joining and Welding Research Institute

2:50 PM
Effect of Equiaxed-Microstructure on Heterogeneous Plastic Deformation and Ductile Fracture Behaviors in (α+β) Ti-4Cr Alloy: *S. Hashimoto*[1]; T. Masumura[1]; T. Tsuchiyama[1,2]; S. Takaki[1,2]; [1]Kyushu University; [2]International Institute for Carbon-Neutral Energy Research

3.Light Metals and Alloys: Titanium (3)

Friday PM Room: C-1 August 5, 2016

Session Chairs: Naoyuki Nomura, Tohoku University, Japan;
Yusuke Tsutsumi, Tokyo Medical and Dental University, Japan

3:20 PM Invited
Unique Performances of Titanium Alloys Utilizing Ubiquitous Alloying Elements: *H. Fujii*[1]; [1]Noppn Steel & Sumitomo Metal Corporation

3:35 PM
Enhanced Microhardness in TC4 Alloy with a Nanostructured Surface Layer Induced by Shot Peening: *Y. Liu*[1]; M. Li[1]; [1]Northwestern Polytechnical University

3:50 PM
Influence of Initial Microstructures on Hot Deformation Behaviors in Ti-5Al-2Fe-3Mo: *Y. Tatsuzawa*[1]; T. Kunieda[1]; A. Kawakami[1]; H. Fujii[1]; [1]Nippon Steel & Sumitomo Metal

4:05 PM
Interfacial Structure and Mechanism of Diffusion Bonding between SiC and Ti under Electric Field: *Q. Wang*[1]; Q. Li[1]; J. Gong[1]; D. Sun[1]; X. Han[1]; [1]Harbin Institute of Technology

3.Light Metals and Alloys: Titanium (3)

Friday PM Room: C-1 August 5, 2016

Session Chairs: Hideki Fujii, Toho Titanium Co., Ltd., Japan;
Sengo Kobayashi, Ehime University, Japan

4:20 PM
Effect of Solution Temperature and Time on the Microstructure and Hardness of Ti-17 Alloy: *H. Li*[1]; M. Li[1]; J. Yan[1]; [1]Northwestern Polytechnical University

4:35 PM
Deformation Behavior of a Multilayered Beta Ti-Mo-Fe Alloy: *C. Li*[1]; S. Emura[1]; I. Gutierrez-Urrutia[1]; X. Min[2]; K. Tsuchiya[1]; [1]National Institute for Materials Science; [2]School of Materials Science and Engineering, Dalian University of Technology

4:50 PM
Preparation of V-4Cr-4Ti Alloys from Mixed Oxides by Electro-Reduction in Molten Chloride Salts: *X. Cao*[1]; Q. Li[1]; Y. Shi[2]; H. Yang[1]; T. Jiang[1]; X. Xue[1]; [1]Northeastern University; [2]Chinalco Shenyang Non-ferrous Metal Processing Co., Ltd.

3.Light Metals and Alloys: Aluminum (4)

Friday PM Room: D August 5, 2016

Session Chairs: James C. Earthman, University of California, USA; Hirofumi Inoue, Osaka Prefecture University, Japan

1:30 PM Invited
Atom Probe Tomography Studies of the Initiation of Localised Corrosion in Aluminium Alloy 2024: R. Parvizi[2]; *R. Marceau*[1]; A. Hughes[1,3]; M. Tan[1,2]; M. Forsyth[1]; [1]Deakin University; [2]Deakin University, School of Engineering, Geelong; [3]Commonwealth Scientific and Industrial Research Organisation (CSIRO), Division of Materials Science and Engineering

1:50 PM
Surface Modification of Aluminium Alloy by Shot Lining and Laser: *Y. Harada*[1]; M. Matsumoto[2]; A. Nagao[3]; K. Takahashi[4]; [1]University of Hyogo; [2]Graduate School of Engineering, University of Hyogo; [3]School of Engineering, University of Hyogo; [4]National Institute of Technology, Toyama College

2:05 PM
Dehydration of Scandium Chloride Hexahydrate and Subsequent Preparation of Aluminium-Scandium: C. Doblin[2]; E. Grimmond[2]; S. Tassios[1]; L. Prentice[1]; *P. King*[1]; [1]CSIRO Manufacturing; [2]CSIRO Mineral Resources

2:20 PM
Determination of Phase Equilibria in the Al-Rich Portion of Al-Fe Binary System: *K. Han*[1]; I. Ohnuma[2]; K. Okuda[1,3]; R. Kainuma[1]; [1]Tohoku University; [2]Computational Materials Science Unit, National Institute for Materials Science; [3]Steel research laboratory, JFE Steel Co.

2:35 PM
Structural Origin of Industrial Alloys: C. Dong[1]; Q. Wang[1]; *X.* H u [1]; [1]Dalian University of Technology

3.Light Metals and Alloys: Aluminum (4)

Friday PM Room: D August 5, 2016

Session Chairs: Ross K.W. Marceau, Deakin University, Australia; Masahiro Kubota, Nihon University, Japan

3:30 PM Invited
Electroforming of Lightweight Nanostructured Aluminum Alloys with High Strength and Toughness: *C. Schuh*[1]; S. Ruan[2]; [1]Massachusetts Institute of Technology; [2]Xtalic Corporation

3:50 PM Invited
Stabilization of Nanocrystalline Alloys with Molecular Dia-

mond: *J. Earthman*[1]; [1]University of California

4:10 PM
Improvement of Fatigue Properties of 2024-T3 Aluminum Alloy Using Femtosecond Laser-Peening: *T. Eimura*[1]; T. Sano[1]; A. Hirose[1,3]; S. Tsutsumi[2]; K. Masaki[3]; K. Arakawa[4]; Y. Sano[5]; [1]Osaka University; [2]Joining and Welding Research Institute, Osaka University; [3]Okinawa National College of Technology; [4]Shimane University; [5]Toshiba Corporation

4:25 PM
Effect of Brazing Condition on Material Property for Brazed Al-Mn Alloy: *M. Yoshino*[1]; S. Iwao[1]; S. Muraishi[2]; S. Kumai[2]; [1]Mitsubishi Aluminum Co.,Ltd.; [2]Tokyo Institute of Technology

4:40 PM
Mechanism of {111}<110> Recrystallization Texture Evolution for Al-Mg-Si Alloy Sheets Processed by Symmetric/Asymmetric Combined Rolling: *H. Inoue*[1]; N. Kageyama[1]; Y. Mori; [1]Osaka Prefecture University

4:55 PM
Development of Through-Thickness Texture Gradient and Retention of Shear-Type Components during Annealing of Aluminum Sheet Processed by Accumulative Roll Bonding: *S. Li*[1]; J. Yang[1]; N. Qin[1]; [1]Central South University

5.Thin Films and Surface Engineering: Nanomaterials

Friday PM Room: G August 5, 2016

Session Chairs: Yiwen Zhang, Tohoku University;
Shinji Muraishi, Tokyo Institute of Technology, Japan

1:30 PM
Sonoelectrochemical Synthesis of Amorphous Fe and Its Alloy Particles: *H. Lee*[1]; B. Yoo[1]; [1]Hanyang University

1:45 PM
Fabrication of ZnO Nanostructures via Submerged Photo-Synthesis and Their Opto-Electronic Properties Investigation: *M. Jeem*[1]; J. Ishioka[2]; L. Zhang[2]; T. Shibayama[1,2]; T. Kato[2,3]; S. Watanabe[1,2]; [1]Hokkaido University; [2]Faculty of Engineering, Hokkaido University; [3]Hitachi, Ltd., Research & Development Group

2:00 PM
Microstructure and Magnetic Properties of Nano-Structured Fe-Pd Ferro Magnetic Shape Memory Alloy by Means of Glancing Angle Deposition Method: *S. Muraishi*[1]; T. Kuno[1]; J. Shi[1]; Y. Nakamura[1]; M. Taya[2]; [1]Tokyo Institute of Technology; [2]University of Washington

5.Thin Films and Surface Engineering: Coating (3)

Friday PM Room: G August 5, 2016

Session Chairs: Vilupanur A Ravi, California State Polytechnic University, USA;
Masatoshi Sakairi, Hokkaido University, Japan

3:30 PM
A Self-Healing Anticorrosion Coating on Mg Alloy: F. Fan[1]; *J. Szpunar*[1]; [1]University of Saskatchewan

3:45 PM
Fullerene Films Applied to ODS Steels: *D. Morrall*[1]; A. Kimura[2]; K. Yabuuchi[3]; [1]Kyoto University; [2]Institute for Advanced Energy; [3]Institute for Advanced Energy

4:00 PM
Detection of Hydrogen Permeating through Steel Using Electrochromic Tungsten Oxide Film: *Y. Sugawara*[1]; Y. Sakaizawa[1]; A. Shibata[1,2]; I. Muto[1]; N. Hara[1]; [1]Tohoku university; [2]Tamagawa Seiki Co., Ltd

7.Materials Characterization and Evaluation: Precipitation behavior

Friday PM Room: E August 5, 2016

Session Chairs: Paul Pigram, La Trobe University, Australia;
Mitsuhiro Murayama, Virginia Tech, USA

1:35 PM Invited
TEM Observation of Aged Al-Mg-Ge Alloy with Difference Aging Times: S. Lee[1]; A. Kawai[2]; S. Ikeno[3]; *K. Matsuda*[1]; [1]University of Toyama; [2]Graduate School of Science and Engineering for Education, University of Toyama; [3]Professor Emeritus, University of Toyama

1:55 PM
Metastable Omega Phase in Carbon and Nitrogen Steels: *D. Ping*[1]; T. Ohmura[1]; M. Ohnuma[2]; [1]National Institute for Materials Science; [2]Hokkaido University

2:10 PM
Crystallographic Features of Austenite Precipitation in Duplex Stainless Steel: *X. Fang*[1]; W. Yin[1]; C. Qin[1]; Y. Zhu; J. Zhang[1]; [1]Shandong University of Technology

2:25 PM
Change of Coherency in Precipitates during Creep Rupture Test in TP347H Austenitic Stainless Steels: *C. Hong*[1]; Y. Heo[1]; N. Heo[1]; S. Kim[1]; [1]POSTECH University

2:40 PM
Grain Boundary Character Dependence on Initiation of Discontinuous Precipitation for Age-Hardenable Cu-Ti Alloys: *S. Semboshi*[1]; M. Sato[1]; Y. Kaneno[2]; T. Takasugi[2]; A. Iwase[2]; [1]Institute for Materials Research, Tohoku University; [2]Department of Materials Science, Osaka Prefecture University

7. Materials Characterization and Evaluation: Characterization of Structural Materials (4)

Friday PM Room: E August 5, 2016

Session Chairs: Satoshi Senboshi, Tohoku University, Japan;

3:30 PM
Growth of Various Oxide Particles in Oxide Dispersion Strengthened (ODS) Steels: *N. Oono*[1]; S. Ukai[1]; S. Hayashi[2]; S. Ohtsuka[3]; T. Kaitoh[3]; A. Kimura[4]; T. Torimaru[5]; K. Sakamoto[5]; [1]Hokkaido University; [2]Tokyo Institute of Technology; [3]Japan Atomic Energy Agency; [4]Institute of Advanced Energy, Kyoto University; [5]Nippon Nuclear Fuel Development, Co., Ltd.

3:45 PM
Effects of Initial δ Phase on Dynamic Recrystallization Behavior of an Nb Containing Ni-Fe-Cr-Based Superalloy: *D. Wen*[1]; Y. Lin[1]; M. Chen[1]; [1]Central South University

4:00 PM
Study of Microstructural Evolution and Interaction in an Aged Nickel-Based Superalloy during Hot Compression: *D. He*[1]; Y. Lin[1]; M. Chen[1]; C. Zhao[1]; S. Luo[1]; [1]Central South University

4:15 PM
Wire Drawing and Thermal Treatments on the Mechanical Properties of MP35N Wires.: S. Sai[1]; *M. Tan*[1]; Z. Liu[2]; [1]Nanyang Technological University; [2]Researh & Development, Heraeus Medical Components

4:30 PM
Twinning Behavior of {11-21} in Pure Ti under High Strain Rate Compression: *D. Zhou*[1]; D. Xiao[2]; D. Fan[3]; G. Sang[1]; [1]Science and Technology on Surface Physics and Chemistry Laboratory; [2]Insititute of Materials, CAEP; [3]Institute of Nuclear Physics and Chemistry, CAEP

9. Bulk Metallic Glasses, Nanocrystalline Material and Ultrafine-Grained Materials: Bulk Metallic Glass (2)

Friday PM Room: B-2 August 5, 2016

Session Chairs: Kenneth F. Kelton, Washington University, USA; Tokujiro Yamamoto, Utsunomiya University, Japan

1:35 PM Invited
Designing Ductility in Magnesium-based Bulk Metallic Glasses: *K. Shamlaye*[1]; K. Laws[2]; J. Löffler[1]; [1]ETH Zurich (Swiss Federal Institute of Technology in Zurich); [2]The University of New South Wales

1:55 PM
Synthesis and Mechanical Properties of Bulk Metallic Glasses for Mechanical Applications: *M. Abad*[1]; L. Mortimer[1]; P. Meagher[1]; D. Browne[1]; [1]University College Dublin

2:10 PM
Molecular Dynamics Study on Control of Structural and Mechanical Properties of Cu-Zr Metallic Glasses by Rejuvenation Techniques: *M. Wakeda*[1]; J. Saida[2]; N. Miyazaki[1]; S. Ogata[1,3]; [1]Osaka University; [2]Frontier Research Institute for Interdisciplinary Sciences, Tohoku University; [3]Center for Elements Strategy Initiative for Structural Materials (ESISM), Kyoto University

2:25 PM
Influence of Large Plastic Straining on Mechanical and Thermal Properties in Zr-Cu-Ni-Al Metallic Glasses: *J. Qiang*[1,2]; S. Ii[1]; K. Tsuchiya[1,2]; [1]National Institute for Materials Science; [2]Graduate School of Pure and Applied Sciences, University of Tsukuba

9. Bulk Metallic Glasses, Nanocrystalline Material and Ultrafine-Grained Materials: Bulk Metallic Glass (3)

Friday PM Room: B-2 August 5, 2016

Session Chairs: Karl Francis Shamlaye, ETH Zurich (Swiss Federal Institute of Technology in Zurich), Switzerland; Masato Wakeda, Osaka University, Japan

2:40 PM Invited
Universal Behavior in Viscosity of Metallic Glass-Forming Liquids: *K. Kelton*[1]; M. Blodgett[1]; N. Weingartner[1]; Z. Nussinov[1]; [1]Washington University

2:55 PM Invited
High Aspect Ratio Grating by Imprinting Gd-Based Metallic Glass with Less Viscous Workability: M. Sadeghilaridjani[2]; *H. Kato*[1]; [1]Tohoku University; [2]Department of Materials Science, Graduate School of Engineering, Tohoku University

3:10 PM
Microstructure of Melt-Spun Ribbons in Al-Co-La-Pb Immiscible Alloys with an Amorphous Phase: *T. Nagase*[1]; M. Takemura[2]; M. Matsumuro[2]; M. Matsumoto[3]; Y. Fujii[3]; [1]Osaka University; [2]Technology Research Institute of Osaka Prefecture; [3]Kobe University

3:25 PM
Surface Roughness Change for Pd-Cu-Ge Metallic Glass Thin Films upon Glass Transition and Crystallization: *T. Yamamoto*[1]; K. Sudo[2]; K. Okada[2]; [1]Utsunomiya University; [2]Graduate Student, Utsunomiya University

10. Modelling and Simulation of Microstructures and Processing: Computation on Mechanical Behaviors

Friday PM Room: F August 5, 2016

Session Chairs: Toshiyuki Koyama, Nagoya University, Japan; Tokuteru Uesugi, Osaka Prefecture University, Japan

1:35 PM Invited
Ductile Damage Simulation for Hetero-Structure Control of Multi-Phase Steel: *M. Ohata*[1]; H. Shoji[1]; [1]Osaka University, Graduate School of Engineering

1:55 PM Invited
A Study on the Micromechanical Deformation Behaviors of Austenite Phase in Duplex Stainless Steel during a Nano-Indentation Test: *S. Choi*[1]; E. Kim[1]; J. Lee[2]; H. Han[2]; [1]Sunchon National University; [2]Department of Materials Science and Engineering, Seoul National University

2:15 PM
Hardness Prediction in HAZ of Low-Alloy Steel Produced by Laser Temper Bead Welding: *L. Yu*[1]; K. Saida[1]; M. Mochizuki[1]; K. Nishimoto[2]; [1]Osaka University; [2]Fukui University of Technology

2:30 PM
Multi-Surface Approach for Describing Nonlinear and Hysteretic Elastic Behavior: J. Lee[1]; *M. Lee*[1]; [1]Korea University

10. Modelling and Simulation of Microstructures and Processing: Other Computational Modelling

Friday PM Room: F August 5, 2016

Session Chairs: Mitsuru Ohata, Osaka University, Japan; Toshiyuki Koyama, Nagoya University, Japan

3:30 PM
Transport and Entrapment of Inclusion Cluster in a Continuous Casting Mold: *Z. Liu*[1]; B. Li[1]; [1]Northeastern University

3:45 PM
DEM Numerical Simulation on the Packing Densification of Equal Tetrahedral Particles under Mechanical Vibrations: *X. An*[1]; [1]Northeastern University

4:00 PM
Magnetization Processes Based on Magnetic Dipole Moments: *S. Obata*[1]; [1]Tokyo Denki University

4:15 PM
Effect of Small Amount of Differently Sized Impurities on Solidification Process of Monolayer Repulsive Colloids: *Y. Terada*[1]; [1]Tohoku University

11. Materials for Energy and Environment: Materials for Batteries and Fuel Cells (2)

Friday PM Room: H August 5, 2016

Session Chairs: Sang-Woo Kim, Sungkyunkwan University, Korea; Kazuhiro Mori, Kyoto University, Japan

1:35 PM
Performance of Protonic Ceramic Fuel Cells Using Lanthanum Ytterbium Based Perovskite Oxide as Electrolyte: *Y. Okuyama*[1]; R. Fujimura[2]; K. Okuyama[3]; Y. Mizutani[4]; N. Matsunaga[2]; G. Sakai[2]; [1]University of Miyazaki; [2]Department of Environmental Robotics, Faculty of Engineering, University of Miyazaki; [3]Policy and Planning Group, Technical Planning Department, Toho Gas Co., Ltd.; [4]Technical Research Institute, Toho Gas Co., Ltd.

1:50 PM
Hydrogen Permeation Characteristics of Vanadium-Nickel Membranes from Gas Mixtures of Hydrogen, Nitrogen and Ammonia.: *J. Tsai*[1,2]; H. Kimura[3]; C. Nishimura[1]; [1]National Institute for Materials Science; [2]National Taipei University of Technology; [3]Suzuki-Shokan Co. Ltd.

2:05 PM
Degradation Mechanism upon Cyclic Hydrogenation of Vanadium Based BCC Alloys: *K. Sakaki*[1]; H. Kim[1]; E. Majzoub[2]; D. Matsumura[3]; A. Machida[3]; T. Watanuki[3]; K. Ikeda[4]; T. Otomo[4]; Y. Nakamura[1]; [1]National Institute of Advanced Industrial Science and Technology; [2]University of Missouri; [3]Japan Atomic Energy Agency; [4]Institute of Materials Structure Science, KEK

2:20 PM
Hydrogen Storage Performance of TiFe-Based Compounds Processed by HPT: *K. Edalati*[1]; M. Matsuo[2]; H. Emami[1]; S. Itano[1]; A. Alhamidi[3]; A. Staykov[1]; D. Smith[4]; S. Orimo[2]; E. Akiba[1]; Z. Horita[1]; [1]Kyushu University; [2]Tohoku University; [3]Sultan Ageng Tirtayasa University; [4]Arizona State University, Tempe

2:35 PM
Regeneration of Ammonia Borane from Boron Nitride: *T. Nakagawa*[1]; H. Uesato[1]; H. Miyaoka[2]; T. Ichikawa[2]; Y. Kojima[2]; [1]University of the Ryukyus; [2]Hiroshima University

13. Additive Manufacturing: Qualification of Novel Materials

Friday PM Room: J August 5, 2016

Session Chairs: Yuichiro Koizumi, Tohoku University, Japan; Xiaoyong Tian, Xi'an Jiaotong University, China

1:35 PM Invited
Topological Interlocking Hybrid Materials - Towards New Hierarchical Composite Materials: L. Djumas[1]; *A. Molotnikov*[1]; G. Simon[1]; Y. Estrin[1]; [1]Monash University

1:55 PM
Constitutive Behaviour of Selective Laser Melted Metallic Struts in Microlattice Structures: *P. Li*[1]; Z. Wang[1]; [1]Nanyang Technological University

2:10 PM
Selective Laser Melting of Carbon Nanotubes/AlSi10Mg Composites: *B. Song*[1]; Q. Wei[1]; S. Wen[1]; J. Liu[1]; L. Zhang[1]; [1]Huazhong University of Science and Technology

2:25 PM
Influence of Powder Size on the Crystallization Behavior during Laser Solid Forming $Zr_{55}Cu_{30}Al_{10}Ni_5$ Bulk Amorphous Alloys: *Y. Zhang*[1]; X. Lin[1]; [1]State Key Laboratory of Solidification Processing

13. Additive Manufacturing: Titanium Alloys (2)

Friday PM Room: J August 5, 2016

Session Chairs: Akihiko Chiba, Tohoku University, Japan; Feng Lin, Tsinghua University, China

3:30 PM
Development of High Strength Pure Titanium by Electron-Beam Melting Method: *B. Lee*[1]; H. Kim[1]; S. Yang[1]; G. Kim[1]; K. Kim[1]; C. Lee; [1]Korea Institute of Industrial Technology

3:45 PM
Optimizing Building Parameters of Commercially Pure Titanium Built by Electron Beam Melting: *X. Wang*[1]; K. Yamanaka[1]; K. Shinzawa[1]; A. Chiba[1]; [1]Tohoku University