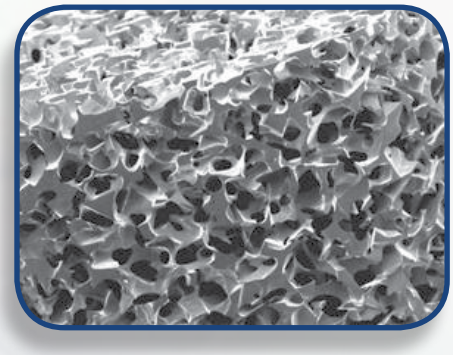
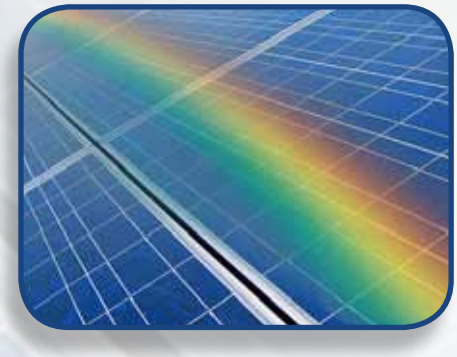
PRICM 8

THE 8TH PACIFIC RIM INTERNATIONAL CONGRESS ON ADVANCED MATERIALS AND PROCESSING

August 4-9, 2013 • Waikoloa, Hawaii USA





FINAL PROGRAM

Sponsored by:

The Chinese Society for Metals (CSM)

The Japan Institute of Metals (JIM)

The Korean Institute of Metals and Materials

Materials Australia (MA)

The Minerals, Metals & Materials Society (TMS)

Welcome to PRICM 8

THE 8TH PACIFIC RIM INTERNATIONAL CONGRESS ON ADVANCED MATERIALS AND PROCESSING

August 4-9, 2013 • Waikoloa, Hawaii USA

The information in this program is correct as of **July 10, 2013**.

For up-to-the-minute changes in presentation times or speakers, please visit **www.tms.org/Meetings/Specialty/PRICM8/techprog.aspx** and click on the link for session sheets.

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CONGRESS POLICIES

BADGES

All attendees must wear registration badges at all times during the congress to ensure admission to events included in the paid fee such as technical sessions, exhibition, and receptions.

REFUNDS

The deadline for all refunds was June 4, 2013. No refunds will be issued at the congress. Fees and tickets are nonrefundable.

PHOTOGRAPHY NOTICE

By registering for this congress, all attendees acknowledge that they may be photographed by congress personnel while at events and that those photos may be used for promotional purposes.

AUDIO/VIDEO RECORDING POLICY

Recording of sessions (audio, video, still photography, etc.) intended for personal use, distribution, publication, or copyright without the express written consent of TMS and the individual authors is strictly prohibited.

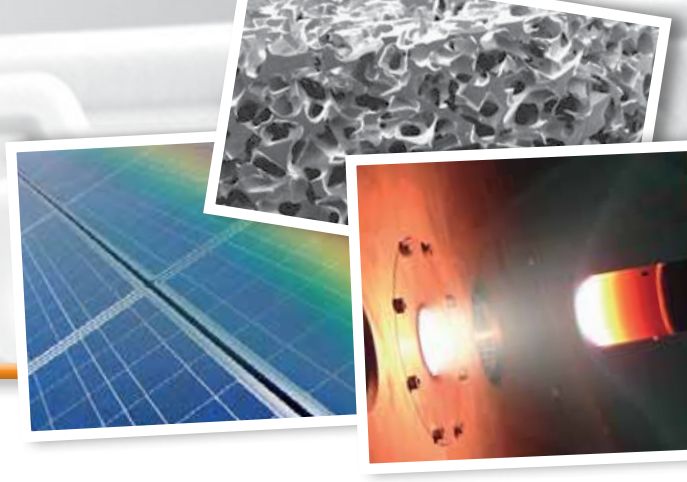
AMERICANS WITH DISABILITIES ACT

The federal Americans with Disabilities Act (ADA) prohibits discrimination against, and promotes public accessibility for, those with disabilities. In support of, and in compliance with ADA, we ask those requiring specific equipment or services to contact TMS Meeting Services at mtgserv@tms.org in advance.

CELL PHONE USE

In consideration of attendees and presenters, we kindly request that you minimize disturbances by setting all cell phones and other devices on "silent" while in meeting rooms.

Greetings from the Congress Organizing Chair



Dear Delegates and Colleagues,

Greetings everyone! Thank you for coming. On behalf of the In-Country Representatives, members of the International and Local Organizing Committees, and the Organizing Societies, it is my great pleasure to welcome you to The Eighth Pacific Rim International Congress on Advanced Materials and Processing (PRICM-8) and to the Hilton Waikoloa Village.

The PRICM Congress offers the most prominent and largest-scale interactions in the Pacific Rim Region. It is unique in its intrinsic nature and architecture which crosses many traditional discipline boundaries, geographic and administrative domains and develops unique interfaces and opportunities. It is organized jointly by Materials Australia, the Chinese Society for Metals, the Japan Institute of Metals, the Korean Institute of Metals and The Minerals, Metals & Materials Society (the host of PRICM-8). The hosting of this congress is held in rotation, and a brief history of the PRICM Congress rotation is as follows: PRICM-1: Hangzhou, China (1992), PRICM-2: Gyeongju, Korea (1995), PRICM-3: Honolulu, Hawaii (1998), PRICM-4: Honolulu, Hawaii (2001), hosted by Japan (canceled as a result of 9/11), PRICM-5: Beijing, China (2004), PRICM-6: Jeju Island, Korea (2007), and PRICM-7: Cairns, Australia.

We delegates and representatives from the PRICM-8 Congress's geographic and administrative domains—Australia, China, Japan, Korea, and the United States of America—gather here with representatives from around the world for a week of sharing, education, exploration, and camaraderie in a truly inspirational setting. Situated in the middle of the Pacific Rim Region, this location was selected in order to provide equally reasonable access to attendees from all the domains.

The PRICM Congress has a rich tradition and culture that is handed over from congress to congress and there is a certain expectation that those who host will continue these cultural values. PRICM-8 is living up to these expectations and going further to develop and execute innovations consistent with the current intrinsic and truly global nature of developing and applying science and technology. Among these innovations, three are specially worth mentioning: (1) The Vision and Plan for PRICM-8, (2) The Protocols for the Design and Execution of PRICM-8 Symposia, and (3) The Protocols for the Review of PRICM-8 Abstracts and Manuscripts. These are very important milestones in the PRICM evolution and will be available in the appropriate publications.

The PRICM-8 goals and milestones could not have been achieved without the very important contributions made by all with a special recognition to the In-Country Representatives, members of the International Organizing Committee, In-Country Symposia Organizers, Symposia Chairs and Session Chairs, and our speakers to whom I want to express my most heartfelt appreciation. The all-congress plenary session will play an important role in representing the perspective on Innovations in Science and Technology of the five core Governments and will set the stage for the 15 symposia to follow. The unprecedented number of abstracts submitted and accepted is a testament to the spirit of international cooperation and team work of all the organizers and we expect that each of the symposia will provide an opportunity for a very dynamic forum.

In addition to the technical program, there will be plenty of opportunities for all attendees and accompanying persons to explore the beautiful landscapes, the scenery, and the very rich Hawaiian culture.

I do sincerely hope that PRICM-8 will inspire and enrich us and that, together in an environment of mutual respect and camaraderie; we can explore new frontiers, strengthen our long-lasting partnerships and friendships, and forge new ones. We look forward to sharing and exploring PRICM-8 with you. I hope you will enjoy the congress and your stay in Hawaii.

Fernand D.S.Marquis
Naval Postgraduate School
PRICM-8 Congress Organizing Chair

PRICM 8

CONGRESS ORGANIZERS

The PRICM congress is organized by a committee comprised of representatives from the countries of the five sponsoring organizations. Representatives have been appointed to serve as In-country Technical Representatives, International Organizing Committee Members, and Advisory Board Members.

Congress Honorary Chair
Elizabeth Holm, *Carnegie Mellon University (CMU)*

Congress Organizing Chair
Fernand Marquis, *Naval Postgraduate School*

IN-COUNTRY CONGRESS ORGANIZERS

Australia Appointments

In-Country Technical Representative
Jian-Feng Nie, *Monash University*

International Organizing Committee Members
Allan Morton, *CSIRO*
Simon Ringer, *The University of Sydney*
Mal Couper, *Monash University*

International Advisory Board Members
George Collins, *CAST CRC*
Peter Hodgson, *Deakin University*
Jim Williams, *The Australian National University*

China Appointments

In-Country Technical Representative
Chengjia Shang, *University of Science and Technology Beijing*

International Organizing Committee Members
Pei Zhao, *Chinese Society for Metals*
Xishan Xie, *University of Science and Technology Beijing*
Yafang Han, *Beijing Institute of Aeronautical Materials*

International Advisory Board Members
Changxu Shi, *Chinese Academy of Sciences*
Yuqing Weng, *Chinese Society for Metals*
Zengyong Zhong, *Chinese Society for Metals*

Japan Appointments

In-Country Technical Representative
Tomoyuki Kakeshita, *Osaka University*

International Organizing Committee Members
Tadashi Furuhara, *Institute of Materials Research, Tohoku University*
Haruyuki Inui, *Kyoto University*

International Advisory Board Members
Yoshinao Mishima, *Tokyo Institute of Technology*
Masaharu Kato, *Tokyo Institute of Technology*
Shuichi Miyazaki, *University of Tsukuba*

Korea Appointments

In-Country Technical Representative
Do Hyang Kim, *Yonsei University*

International Organizing Committee Members
Dong Hyuk Shin, *Hanyang University*
Kwang Seon Shin, *Seoul National University*
Chong Soo Lee, *POSTECH*

International Advisory Board Members
Young Won Chang, *POSTECH*
Nack Joon Kim, *POSTECH*
Jun Hwa Hong, *Korea Atomic Energy Research Institute*

United States and Global Appointments

In-Country Representative
Fernand Marquis, *Naval Postgraduate School*

International Organizing Committee Members
Marc Meyers, *University of California at San Diego*
Naresh Thadhani, *Georgia Institute of Technology*

International Advisory Board Members
Diran Apelian, *Worcester Polytechnic Institute*
David Bourell, *University of Texas*
George T. "Rusty" Gray, *Los Alamos National Laboratory*

Organizational Liaison
James J. Robinson, *TMS*
Louise Wallach, *TMS*

PRICM-8 PLENARY SESSION

All PRICM-8 registrants are invited to participate in the congress plenary session on current and future materials innovations in China, Japan, Korea, Australia, and the United States. Five esteemed speakers, representing the government-funded laboratories and institutes from the five geographic domains represented by the PRICM organizing societies, have been invited to present overviews of their current activity areas and previews of what is on the horizon for materials science and engineering. The following presentations are planned:

Morning Sessions (8:00a.m. - 12:20 p.m.)	
8:00 to 8:20	**Opening Remarks** **Elizabeth Holm**, Congress Honorary Chair **Fernand Marquis**, Congress Organizing Chair
8:20 to 9:00	**Cathy Foley**, CSIRO Materials Science & Engineering, Australia
9:00 to 9:40	**Yuping Weng**, Academy of Engineering, China
9:40 to 10:20	**Teruo Kishi**, Tsukuba Innovation Arena, University of Tokyo, and NiMS, Japan
10:20 to 10:40	**Break**
10:40 to 11:20	**Dongwha Kum**, National Academy of Engineering of Korea and Korea Institute of Science and Technology
11:20 to 12:00	**Laurie E. Locascio**, National Institute of Standards and Technology (NIST), USA
12:00 to 12:20	**Questions and Answers**

Congress Honorary Chair

Elizabeth Holm,
Carnegie Mellon University

Congress Organizing Chair

Fernand Marquis,
Naval Postgraduate Chair

Cathy Foley

AUSTRALIA

Presentation:
"Will Advanced Materials Really Save the World?"
Presenter: **Cathy Foley**, Chief, CSIRO Materials Science and Engineering

Yuping Weng

CHINA

Presenter:
Yuping Weng, Vice President, Ministry of Metallurgy, Academy of Engineering

Teruo Kishi

JAPAN

Presentation:
"Material Research Strategy in Japan"
Presenter: **Teruo Kishi**, Chairman, Tsukuba Innovation Arena; Professor Emeritus, the University of Tokyo; and President Emeritus, NIMS

Dongwha Kum

KOREA

Presentation:
"New Era for Materials Technology in Korea"
Presenter: **Dongwha Kum**, Acting Vice President, National Academy of Engineering of Korea (NAEK), and Endowed Chair Researcher, Korea Institute of Science and Technology (KIST)

Laurie E. Locascio

UNITED STATES

Presentation: **"The Materials Genome Initiative: Catalyzing a New Paradigm in Materials Research"**
Presenter: **Laurie E. Locascio**, Director, Material Measurement Laboratory, National Institute of Standards and Technology (NIST)

CONGRESS PERKS

Your PRICM-8 Registration includes:

- Welcome Reception (Sunday)
- Technical Sessions (Monday, Tuesday, Thursday, & Friday)
- PRICM-8 Exhibition & Poster Sessions
- Refreshment Breaks
- Lunch (Monday, Tuesday, & Thursday)
- One Ticket to the Congress Dinner

Refreshment Breaks

Refreshments are available in the Grand Promenade of the Hilton Waikoloa Village during the morning and afternoon technical session breaks throughout the week.

Proceedings CD-ROM for Conference Registrants

Full-congress registrants receive one copy of the proceedings as part of the registration fee. Additional copies may be purchased for $395 at www.wiley.com. (TMS members receive a 35% discount.) Approximately eight weeks after the meeting, individual papers will be available through the Wiley Online Library at onlinelibrary.wiley.com.

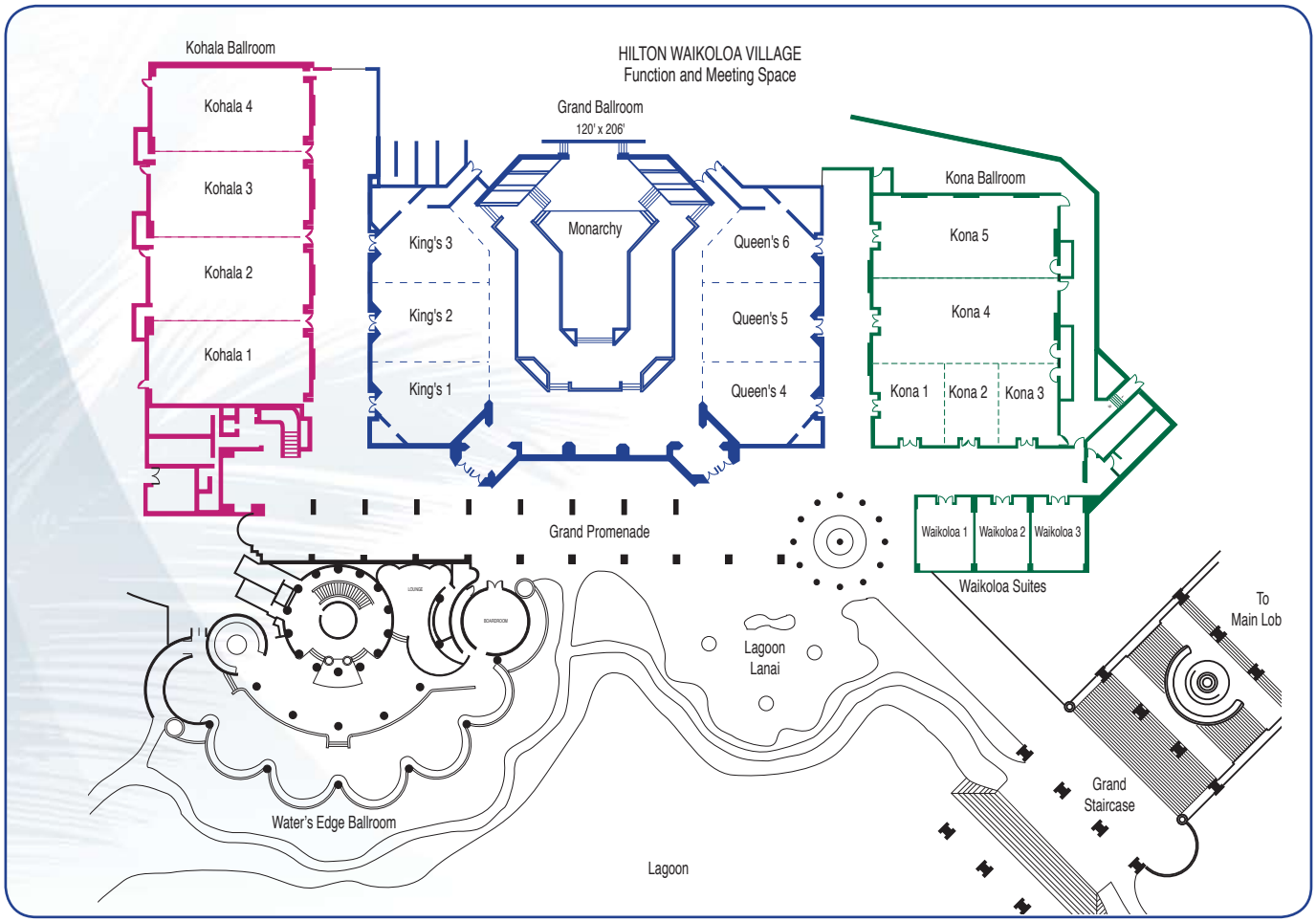
Internet Access

The Hilton has complimentary wireless for our attendees in their sleeping rooms, but not in public areas. Guests at the Marriott can purchase a $25 resort package which includes wireless, local calls and self-parking.

Message Board

For your convenience, a message board is located near the Registration area in the Grand Promenade of the Hilton Waikoloa Village to post messages for participants and attendees.

HOTEL MAPS




Hilton
WAIKOLOA VILLAGE
LAGOON TOWER
RESTAURANTS
L1 Kamuela Provision Company
L2 Kona Pool Bar
L3 Orchid Marketplace
L4 Waikoloa Coffee Co.
L5 Lagoon Grill
L6 Shaka Cones Ice Cream
ACTIVITIES
L7 Kona Pool Slide
L8 Kona Pool
L9 Children's Sand Pool
L10 Interactive Fountain
L11 Checker Board
L12 Dolphin Quest Village
L13 Ocean Sports
L14 Legends of the Pacific Luau
L15 Kohala Spa
L16 Kohala Tennis Garden
SHOPPING
L17 Tennis Shop
L18 Retail Shopping
L19 Big Island Market Place
AMENITIES
L20 Launderette (4th floor)
OCEAN TOWER
RESTAURANTS
O1 Kohala Pool Bar
O2 Boat Landing Cantina
O3 Waikoloa Coffee Co.
ACTIVITIES
O4 Seaside Putting Courses
O5 Kohala Pool
O6 Kohala Pool Slide
O7 Adult Pool
O8 Club Keiki (2nd Floor)
VENUES
O9 Buddha Point
O10 Ocean View Terrace
O11 Palm Terrace
SHOPPING
O12 Dancing Dolphins Sundry Shop
AMENITIES
O13 Launderette (1st floor)
PALACE TOWER
RESTAURANTS
P1 Dona & Toni's Pizza (1st floor)
P2 Kirin Chinese Restaurant
ACTIVITIES
P3 Wedding Chapel
P4 Wedding Gazebo
OUTDOOR VENUES
P5 Palace Garden
P6 Palace Lawn
LAGOON TOWER
OCEAN TOWER
PALACE TOWER
LAGOON BEACH
GRAND STAIR CASE
GRAND PROMENADE
MAIN LOBBY
GUEST PARKING
Valet Only
WAIKOLOA BEACH DRIVE
LOWER LOBBY
Asian Service Desk
Shopping/Golf Shuttle
Tour/Activity Buses
Resort Shuttle
Waikoloa Transportation
Kings' Shops and Queens' Marketplace
To Waikoloa Golf Courses
MAIN AREA
RESTAURANTS
M1 Malolo Lounge
M2 Imari
M3 Big Island Breakfast
SERVICES
M4 Business Center
M5 National Car Rental
M6 Registration / Check-Out
OUTDOOR VENUES
M7 Lagoon Lanai
CONVENTION CENTER
M8 Water's Edge Boardroom
M9 Waikoloa Suites
M10 Kona Ballrooms
M11 Queens Ballroom
M12 Monarchy Ballroom
M13 Kings Ballroom
M14 Kohala Ballrooms
• Beach Shuttle departs from the MAIN Lobby
• Please see your Concierge or call extension 53 for accessibility assistance and stroller access around the resort
Hilton Grand Vacations Club
at Hilton Waikoloa Village
DISCOVERING HAWAII
GUEST WELCOME CENTERS
SALES GALLERY
ISLAND ORIENTATION
MALOLO LOUNGE
Concierge (Dining & Activities)
808.886.1234, Ext.54
Hilton Waikoloa Village
69-425 Waikoloa Beach Drive
Waikoloa, Hawaii 96738
HiltonWaikoloaVillage.com
CONCIERGE
REST ROOMS
STAIRWAYS
ELEVATORS
BOAT WAY
TRAM
WALK WAY
HANDICAPPED ACCESSIBILITY
BOAT STOP
TRAM STOP
RECREATION DESK
ATM
WAIKOLOA SUNSET
SMOKING AREA
Wi-Fi AREA

EXHIBITOR DIRECTORY

NETZSCH Instruments North America, LLC

Thermal analysis, thermal properties, calorimetry, & contract testing services; DSC, DTA, TGA, STA (Simultaneous DSC/DTA-TGA) from cryogenic to +2400C, evolved gas analysis by coupled FTIR & MS & GC-MS, specific heat measurement, Dilatometers for thermal expansion, thermal conductivity, thermal diffusivity by laser flash method from cryo to +2800C, DMA, TMA, DEA for in-situ thermoset cure monitoring, & adiabatic reaction calorimeters to measure thermal & pressure properties of chemical reactions

STR US, Inc.

STR provides specialized software and consulting services for modeling and optimization of metallurgical processes and equipments, bulk crystal growth, epitaxy, and semiconductor device operation.

Thermo-Calc Software

Thermo-Calc Software is a leading developer of software and databases for calculations involving computational thermodynamics and diffusion controlled simulations. Thermo-Calc is a powerful tool for performing thermodynamic calculations for multicomponent systems. Calculations are based on thermodynamic databases produced by expert evaluation of experimental data. Databases are available for Al, Mg, steels, Ni-superalloys, Ti, solders and other materials. Programming interfaces are available which enable Thermo-Calc to be called directly from in-house developed software or MatLab. DICTRA is used for accurate simulations of diffusion in multicomponent alloys. TC-PRISMA is a new software package for the simulation of precipitation kinetics in multicomponent alloys.

Beijing Mag-Dragon Magnetics Co.

Beijing Mag-Dragon Magnetics Co.,Ltd was established in 2003, specializing in researching, manufacturing and selling sintered NdFeB magnets. We mainly focus on manufacturing those magnets used for mobile phone loudspeakers, sensors and micron-motors etc. Mag-Dragon has a wide range of clients within the many industries. We have maintained good partnerships with Multinational Customers and OEM's. Mag-Dragon had achieved the certification of ISO9000 and ISO14000. "Customer service, continuous improvement, environmental protection and harmonious development" have always been advocated as the quality policy of the company.

EXHIBIT HOURS

Monday, August 5
Exhibit hours: Noon-2:00 p.m., 4:00-5:30 p.m.

Tuesday, August 6
Exhibit hours: 9:30 a.m. – 11:00 a.m.,
Noon-2:00 p.m., 3:30-5:00 p.m.

Wednesday, August 7
No exhibit hours or technical programming

Thursday, August 8
Exhibit Hours: 9:30-11:00 a.m., Noon-2:00 p.m.

The joint organizers of PRICM-8 would like to thank the following sponsors of the event:

FRIENDS OF PRICM

PRICM 8

SESSION SCHEDULE

Symposium Name / Session Name	Date	Time	Room	Page
F. Composites and Hybrid Materials				
Layered Composites at Nano and Micro Scale	MON	PM	Queen 4	16
Metal Matrix Composites I	TUES	AM	Queen 4	25
Metal Matrix Composites II	TUES	PM	Queen 4	35
Foams and Porous Materials	THURS	PM	Queen 4	55
Fibrous Materials, Polymer and Ceramic Matrix Composites	FRI	AM	Queen 4	65
G. Biomaterials, Smart Materials, and Structures				
Biomaterials, Smart Materials, and Structures I	MON	PM	Queen 6	17
Biomaterials, Smart Materials, and Structures II	TUES	AM	Queen 6	25
Biomaterials, Smart Materials, and Structures III	TUES	PM	Queen 6	36
Biomaterials, Smart Materials, and Structures IV	THURS	AM	Queen 6	46
Biomaterials, Smart Materials, and Structures V	THURS	PM	Queen 6	55
Biomaterials, Smart Materials, and Structures VI	FRI	AM	Queen 6	65
H. Rare Earth, Electronic, and Magnetic Materials				
Magnetic Materials and Properties	MON	PM	Queen 5	17
Rare Earth and Magnetic Materials	TUES	AM	Queen 5	26
Rare Earth Free Magnets	TUES	PM	Queen 5	37
Magnetic Refrigeration	TUES	PM	Waikoloa 1	36
Electronic Materials	THURS	AM	Queen 5	47
Rare Earth Magnets	THURS	AM	Waikoloa 1	47
Nanostructrured Magnetic Materials	THURS	PM	Queen 5	56
Rare Earth and Optical Materials	THURS	PM	Waikoloa 1	56
I. Thin Films and Surface Engineering				
Thermal Barrier Coatings, Oxidation and Corrosion	MON	PM	Kohala 1	18
Thin Films and Multilayers	TUES	AM	Kohala 1	26
Thin Films and Nanomaterials: Synthesis and Characterization	TUES	PM	Kohala 1	37
Functional Materials and Surface Treatment	THURS	AM	Kohala 1	48
Coatings for Functional and Energy Applications	THURS	PM	Kohala 1	56
Surface Modification and Coatings	FRI	AM	Kohala 1	67
Functional Coatings	FRI	AM	Waikoloa 1	66
J. Materials and Processes for Enhanced Performance				
Processing Technology	MON	PM	King 3	19
Ferrous Alloys - Steel	TUES	AM	King 3	27
Ferrous Alloys (Co & Ni Alloys), Ceramics, and Nanomaterials	TUES	PM	King 3	38
Non-Ferrous Alloys - Al & Cu Alloys and Rare Metals	THURS	AM	King 3	48
Powder and Composite Materials	THURS	PM	King 3	57
Welding and Joining	FRI	AM	King 3	67
K. Solidification, Deformation and Related Processing				
Deformation	MON	PM	Kona 2	19
Deformation and Advanced Casting	TUES	AM	Kona 2	28
Solidification I	TUES	PM	Kona 2	38
Solidification II	THURS	AM	Kona 2	49

TECHNICAL PROGRAM

A. Materials for Energy: Session I

Program Organizers: Fernand Marquis, Naval Postgraduate School; Shaoxiong Zhou, Central Iron and Steel Research, China; Akihiko Kimura, Kyoto University; Young Hwan Cho, KIST; Shixue Dou, Wollongong University; Renkun Chen, University of California

Monday PM
August 5, 2013

Room: Kohala 2
Location: Hilton Waikoloa Village

Session Chairs: Junqiao Wu, University of California, Berkeley; Fuqiang Huang, Shanghai Institute of Ceramics, Chinese Academy of Sciences

2:00 PM Keynote
Engineering Point Defects for Charge and Energy Transport in Semiconductors: *Junqiao Wu*[1]; Joonki Suh[1]; [1]University of California, Berkeley

2:25 PM Keynote
Advanced Nanomaterials Structures for Enhanced Solar Energy Conversion: *Sungho Jin*[1]; [1]UC San Diego

2:50 PM Keynote
New Strategies to Harvest Solar Energy: *Fuqiang Huang*[1]; [1]Shanghai Institute of Ceramics, Chinese Academy of Sciences

3:15 PM
Materials for Organic Photovoltaic Solar Cells PBTTT and PTB7: Structural, Electronic and Linear Optical Properties: Long-Hua Li[1]; *Oleg Kontsevoi*[1]; Takao Tsumuraya[2]; Sung-Hyon Rhim[1]; Arthur Freeman[1]; [1]Northwestern University; [2]RIKEN Advanced Science Institute

3:30 PM
First-principles Study Using Hybrid-density Functional Theory for the Optical Conductivity of GaP Alloys: *Yoshihiro Gohda*[1]; Shinji Tsuneyuki[1]; [1]The University of Tokyo

3:45 PM
Silicon/Graphite–Tin Nano-structured Composites Synthesized by High Energy Mechanical Milling for Lithium-ion Rechargeable Batteries Anode Materials: *Jinbo Wu*[1]; Zhengwang Zhu[1]; Aimin Wang[1]; Haifeng Zhang[1]; [1]Shenyang National Laboratory for Materials Science Institute of Metal Research, Chinese Academy of Sciences

4:00 PM Break

4:20 PM
Research and Production of Heavy Pipeline Plate for Submarine Gas Transmission Lines at Shougang Steel: *Shaopo Li*[1]; Chunhe Zha[1]; Jiading Li[1]; Wenhua Ding[1]; [1]Shougang Research Institute of Technology

4:35 PM
Evaluation of Mechanical Property in Grain Boundary Character Distribution-Optimized Ni-based Alloy: *Shinichiro Yamashita*[1]; Yoshihiro Sekio[1]; Norihito Sakaguchi[2]; Tamaki Shibayama[2]; Seiichi Watanabe[2]; Hiroyuki Kokawa[3]; [1]Japan Atomic Energy Agency; [2]Hokkaido University; [3]Tohoku University

4:50 PM
Characterizations of Layered-Perovskite Oxide LaBa1-xCo_2O_5+das Cathode Material of Intermediate-Temperature Solid Oxide Fuel Cells: *Xuening Jiang*[1]; [1]Dalian University of Technology

5:05 PM
Catalytic Properties of Ni_3Al Foils for Methane Steam Reforming: *Ya Xu*[1]; Yan Ma[2]; Junya Sakurai[1]; Masahiko Demura[1]; Toshiyuki Hirano[1]; Yuden Teraoka[3]; Akitaka Yoshigoe[3]; [1]National Institute for Materials Science; [2]North China Electric Powder University; [3]Japan Atomic Energy Agency

5:20 PM
Microstructure Characterization in Domestically-made TP310HNbN Austenitic Stainless Steel After Creep Test: *Yan Guo*[1]; Lin Lin[1]; Shufang Hou[1]; Bohan Wang[1]; [1]Xi'an Thermal Power Research Institute Co Ltd

5:35 PM
High Strength Niobium Bearing Steel Materials for Energy Applications: *Steven Jansto*[1]; [1]CBMM-Reference Metals Company

B. Materials for the Environment: Removing Pollutants from Water, Solar Energy

Program Organizers: Fernand Marquis, Naval Postgraduate School; Chengjia Shang, University of Science and Technology Beijing; Shinji Fujimoto, Osaka University; Bong Sun Yoo, KIMS; Rachel Caruso, The University of Melbourne; William Tumas, Center for Chemical and Materials Science

Monday PM
August 5, 2013

Room: Kona 3
Location: Hilton Waikoloa Village

Session Chairs: Rachel Caruso, The University of Melbourne; Chengjia Shang, University of Science and Technology

2:00 PM Keynote
Structural Engineering of Semiconductor Layered Metal Oxides for Solar Energy Conversion: *Lianzhou Wang*[1]; [1]The University of Queensland

2:25 PM
Photocatalytic and Degradation Mechanisms of Anatase TiO^2: a HRTEM Study: *Chunxu Pan*[1]; Jun Zhang[1]; Yupeng Zhang[1]; [1]Wuhan University

2:40 PM Invited
Porous Rare-Earth Containing NbTiAl-Based High-entropy Materials Used for Purifying Water and Air: *Yong Zhang*[1]; [1]University of Science and Technology Beijing

3:00 PM
Chemical Modification of Turkish Natural Zeolite: Application as an Adsorbent: *Mehmet Burcin Piskin*[1]; Ozgul Dere Ozdemir[1]; [1]Yildiz Technical University

3:15 PM
Adsorption of Organic Micro-pollutants on an Organoclays Synthesized by a Nonionic Surfactant: *Regis Guegan*[1]; Sylvian Cadars[1]; Mohammed Boussafir[1]; Lydie Le Forestier[1]; Mikael Motelica[1]; [1]CNRS-University of Orleans

3:30 PM Invited
Carbon Nano Tubes (CNT) / Aragonite Precipitated Calcium Carbonate (PCC): A New Advanced Material, Applications in the Removal of Heavy Metals from Solid Waste Waters: Thriveni Thenepalli[1]; *Um Il*[1]; Seong Young Nam[1]; Hee Kim[2]; Chad Vecitis[3]; Ahn Whan[1]; [1]Korea Research Institute of Geoscience and Mineral Resources(KIGAM); [2]Advanced Institute of Science and Technology (KAIST); [3]Harvard School of Engineering and Applied Sciences

3:50 PM
Study of a Copper-bearing Type 200 Stainless Steel with Antibacterial Function: *Li Nan*[1]; Ke Yang[1]; [1]Institute of Metal Research, Chinese Academy of Sciences

4:05 PM Break

4:25 PM
Synthesis and Characterization of Metal-doped Hydroxyapatite Based Antimicrobial Agent: *Muhammad Aftab Akram*[1]; [1]National Uiversity of Sciences and Technology Pakistan

4:40 PM
Interaction of Tourmaline Mineral Powders with Sea Water and its Anti-microbial Properties: *Yuhong Qi*[1]; Zhanping Zhang[1]; Wenlong Li[1]; [1]Dalian Maritime University

4:55 PM Invited
Visible-Light-Induced Bactericidal Activity of Vanadium-Pentoxide (V_2O_5)-Loaded TiO_2 Nanoparticles: Yeon Seok Kim[1]; *Min Young Song*[1]; Eun Seuk Park[1]; Sungmin Chin[1]; Jongsoo Jurng[1]; [1]Korea Institute of Science and Technology

5:15 PM
Durable and Highly Efficient Energy-harvesting Electrochromic Window based on Organic Dye, Cobalt Couple, and PProDOT-Me2: *Eri Amasawa*[1]; Naoki Sasagawa[2]; SooYeun Kim[1]; Minoru Taya[1]; Susan Lim[1]; Mutsumi Kimura[2]; [1]University of Washington; [2]Shinshu University

5:30 PM Invited
Quantitative Evaluation for Effective Removal of Phosphorus for SoG-Si: Eun Jin Jung[1]; *Dong Joon Min*[1]; [1]Yonsei University

C. Advanced High-Temperature Structural Materials: TiAl Alloys

Program Organizers: Fernand Marquis, Naval Postgraduate School; Guoqing Zhang, Beijing Institute of Aeronautical Materials; Haruyuki Inui, Kyoto University; Kyung-Tae Park, Hanbat National University; Julie Cairney, The University of Sydney; Eugene Olevsky, San Diego State University

Monday PM
August 5, 2013

Room: King 1
Location: Hilton Waikoloa Village

Session Chairs: Julie Cairney, The University of Sydney; Eugene Olevsky, San Diego State University

2:00 PM Keynote
Gamma (TiAl) Alloy Materials Technology: Advances, Dilemma, New Approaches, and Breakthroughs: *Young-Won Kim*[1]; Sang-Lan Kim[2]; Dennis Dimiduk[3]; [1]Gamteck, Inc.; [2]UES, Inc.; [3]AFRL/RXLM

2:25 PM Invited
Microstructural Evolution in Powder Metallurgical TiAl Sheet Materials: *Yong Liu*[1]; Yuehui He[1]; Bin Liu[1]; Xiaopeng Liang[1]; Huizhong Li[1]; [1]Central South University

2:45 PM Invited
In-situ Studies of Microstructure and Phase Evolution upon Hot-working of Titanium Aluminium Based Intermetallics: *Klaus-Dieter Liss*[1]; Thomas Schmoelzer[2]; Svea Mayer[2]; Mark Reid[3]; Kun Yan[4]; Saurabh Kabra[4]; Rian Dippenaar[3]; Helmut Clemens[2]; [1]JAEA+ANSTO; [2]Montanuniversität Leoben; [3]University of Wollongong; [4]Australian Nuclear Science and Technology Organisation

3:05 PM
Reaction Synthesis Mechanism of TiAl Alloy Fabricated by Hot Pressed Sintering with Mixed Powders of TiH_2 and Al: *Dongli Sun*[1]; Jing Wang[2]; [1]Harbin Institute of Technology; [2]School of Reliability and System Engineering, Beihang University

3:20 PM
Titanium Aluminum Alloy Fabricated by Pressure Infiltration and Heat Treatment: *Aibin Li*[1]; Lin Geng[1]; Feng Li[1]; Rui Chen[1]; [1]Harbin Institute of Technology

3:35 PM
Hot Deformation Behavior and Microstructure Evolution of Powder Metallurgical TiAl Alloy: *Na Liu*[1]; [1]Beijing Institute of Aeronautical Materials

3:50 PM
Oxidation Behaviours of Modified Triboloy T-800 Alloy by the Additions of Rhenium Plus Aluminium: *Zhang Yuduo*[1]; Zhang Chi[1]; Yang Zhigang[1]; [1]Tsinghua University

4:05 PM Break

4:25 PM
Influence of Alloying Elements on Deformability of High Nb Containing TiAl Alloys: *Laiqi Zhang*[1]; Junzi Zheng[1]; Xiaoli Wang[1]; Yongming Hou[1]; Xiangjun Xu[2]; Junpin Lin[1]; [1]University of Science and Technology Beijing; [2]Zhongyuan University of Technology

4:40 PM
Hierarchical Microstructure Of Ferritic Alloys Strengthened By Two-phase $L2_1$-Ni_2TiAl / B2-NiAl Precipitates: *Christian Liebscher*[1]; Velimir Radmilovic[2]; Ulrich Dahmen[3]; Mark Asta[1]; Gautam Ghosh[4]; [1]UC Berkeley; [2]University of Belgrade; [3]Lawrence Berkeley National Laboratory; [4]Northwestern University

4:55 PM
Superplastic Behavior and Diffusion Bonding Properties of Ti_3Al-Nb Alloy: *Mingjie Fu*[1]; [1]AVIC Beijing Aeronautical Manufacturing Technology Research Institute

5:10 PM
Novel Ultra High Strength Intermetallic Eutectic Alloys Based on the Ni-Al System with Ternary Additions: *Dipankar Banerjee*[1]; Chandrashekhar Tiwari[1]; Kamanio Chattopadhyay[1]; [1]Indian Institute of Science

D. Advanced Steels and Processing: Advanced Characterization of Steels I

Program Organizers: Fernand Marquis, Naval Postgraduate School; Han Dong, Central Iron and Steel Research Institute; Kaneaki Tsuzaki, National Institute for Materials Science; Sung Joon Kim, POSTECH; Rian Dippenaar, University of Wollongong; Kip Findley, Colorado School of Mines

Monday PM
August 5, 2013

Room: Kohala 4
Location: Hilton Waikoloa Village

Session Chairs: Tadashi Furuhara, Tohoku University; Kip Findley, Colorado School of Mines

2:00 PM Introductory Comments

2:05 PM Keynote
Nano-size Cluster in Steel - Additional Way to Characterize No-size Heterogeneity: *Masato Ohnuma*[1]; [1]National Institute for Materials Science

2:30 PM Invited
Effect of Thermomechanical Processing Schedule on Interphase Precipitation and Nano Clusters Formation in Titanium-Molybdenum Steels: *Ilana Timokhina*[1]; [1]Deakin University

2:50 PM Invited
Deformation Mechanism of TWIP Steels: From Micron Pillars to Bulk Samples: *Mingxin Huang*[1]; [1]The University of Hong Kong

3:10 PM Invited
Scale-bridging Approach to Understand Deformation Mechanism of High-performance Austenitic Steels: *Tae-Ho Lee*[1]; Heon-Young Ha[1]; Jun-Yun Kang[1]; Byoungchul Hwang[1]; Sung-Joon Kim[2]; [1]Korea Institute of Materials Science; [2]Graduate Institute of Ferrous Technology

3:30 PM
In-Situ Observation of Deformation of TWIP Steels using TEM: Youngwoon Kim[1]; *Seung-Pyo Hong*[1]; Sung-Il Baik[1]; [1]Seoul National University

3:45 PM
Characteristics of Deformation Induced Martensite in SUS304 Austenitic Stainless Steel Deformed at RT and -60°C: *Meichuan Chen*[1]; Si Gao[1]; Daisuke Terada[1]; Akinobu Shibata[1]; Nobuhiro Tsuji[1]; [1]Kyoto University

4:00 PM Break

4:20 PM Invited
In-situ Neutron and Synchrotron X-ray Diffraction for Physical Thermo-mechanic Simulation: *Klaus-Dieter Liss*[1]; Lisa Thoennessen[2]; Kun Yan[2]; Saurabh Kabra[2]; Mark Reid[3]; Rian Dippenaar[3]; [1]JAEA+ANSTO; [2]Australian Nuclear Science and Technology Organisation; [3]University of Wollongong

4:40 PM
Influence of Stacking Fault Energy on Deformation Substructure Development and Austenite Stability During Low Cycle Fatigue: *Greg Lehnhoff*[1]; Kip Findley[1]; [1]Colorado School of Mines

4:55 PM
Dynamic Compressive Deformation Behavior of Austenitic High-Manganese Steels Used for Extremely-Low-Temperature Applications: *Hyunmin Kim*[1]; Yumi Ha[2]; Minju Kang[1]; Nack Joon Kim[2]; Sunghak Lee[1]; [1]POSTECH; [2]POSTECH GIFT

5:10 PM
The Precipitation and Strengthening Effect of Nano-Scale Phase Nb(C,N), NbCrN and Cu-Rich Phases in Nb-contained Advanced Cr/Ni Type Austenitic Heat-Resistant Steels: Xishan Xie[1]; Hongyao Yu[1]; Chengyu Chi[2]; Jianxin Dong[1]; [1]Department of Material Science and Engineering, University of Science and Technology Beijing; [2]Department of Metallurgical and Ecological Engineering, University of Science and Technology Beijing

5:25 PM
Grain Boundary Engineering for High Cr Ferritic Steels: *Sadahiro Tsurekawa*[1]; Yu Kinoshita[1]; Younoshuke Yoshii[1]; Yasuhiro Morizono[1]; Victoria Yardley[2]; Seiichi Watanabe[3]; [1]Kumamoto University; [2]Ruhr-Universiteat Bochum; [3]Hokkaido University

5:40 PM
Aging Precipitation and Recrystallization Behavior After Cold Compression by 10% in High-Nitrogen Austenitic Stainless Steel: *Feng Shi*[1]; Xiaowu Li[1]; Yang Qi[1]; Chunming Liu[1]; [1]Northeastern University

E. Light Metals and Alloys: Titanium I

Program Organizers: Fernand Marquis, Naval Postgraduate School; Yongqing Zhao, Northwest Institute for Nonferrous Metal Research; Yoshihito Kawamura, Kumamoto University; Kwang Seon Shin, Seoul National University; Jian-Feng Nie, Monash University; Suveen Mathaudhu, U.S. Army Research Office

Monday PM
August 5, 2013

Room: Kona 4
Location: Hilton Waikoloa Village

Session Chairs: Jian-Feng Nie, Monash University; Yunzhi Wang, Ohio State University

2:00 PM Introductory Comments

2:05 PM Keynote
Titanium Industires and R&D Status in Korea: *Yong-Tai Lee*[1]; Dong-Geun Lee[1]; [1]Korea Institute of Materials Science

2:30 PM Keynote
First Principles Modeling of Titanium: Oxygen, Dislocations, and Boundaries: *Dallas Trinkle*[1]; Henry Wu[1]; Maryam Ghazisaeidi[2]; [1]University of Illinois, Urbana-Champaign; [2]Brown University

2:55 PM Invited
Deformation Behavior of β-Ti Alloy Single Crystals: *Takayoshi Nakano*[1]; Koji Hagihara[1]; Mitsuharu Todai[1]; [1]Osaka University

3:15 PM Invited
Non-classical Pseudo-spinodal Mechanism of Alpha Precipitation in Titanium Alloys: Kami Pavani[1]; Amit Behera[1]; Soumya Nag[1]; Yufeng Zheng[2]; Hamish Fraser[2]; *Rajarshi Banerjee*[1]; [1]University of North Texas; [2]Ohio State University

3:35 PM Invited
Mechanical Properties of DPR-processed Ti and Its Alloy Sheets: *Nhokwang Park*[1]; [1]Korea Institute of Materials Science

3:55 PM
Investigation of Tool Wear during Laser Assisted Turning of Ti-6Al-4V Alloy: *Shoujin Sun*[1]; Milan Brandt[1]; [1]RMIT University

4:10 PM Break

4:30 PM Keynote
The R & D of Some New Titanium Alloys in China: *Yongqing Zhao*[1]; [1]Northwest Institute for Nonferrous Metal Research

4:55 PM Invited
Fabrication of Ultrafine-Grained Ti-6Al-4V Bulk Sheet/Rod for Related Industries and Their Mechanical Characteristics: *Chong Soo Lee*[1]; Taekyung Lee[1]; Jae Hyung Kim[1]; Chan Hee Park[2]; [1]Pohang University of Science and Technology (POSTECH); [2]Korea Institute of Materials Science (KIMS)

F. Composites and Hybrid Materials: Layered Composites at Nano and Micro Scale

Program Organizers: Fernand Marquis, Naval Postgraduate School; Di Zhang, Shanghai Jiao Tong University; Yutaka Kagawa, The University of Tokyo; Jae Chul Lee, Korea University; Yuri Estrin, Monash University; Nikhilesh Chawla, Arizona State University

Monday PM
August 5, 2013

Room: Queen 4
Location: Hilton Waikoloa Village

Session Chair: Nathan Mara, Los Alamos National Laboratory

2:00 PM Keynote
Laminated Composites at Multiple Length Scales: *Krishan Chawla*[1]; [1]University of Alabama at Birmingham

2:25 PM Invited
High Strength and Thermally Stable Bulk Nanolayered Composites: *Nathan Mara*[1]; Shijian Zheng[1]; John Carpenter[1]; Keonwook Kang[1]; Jian Wang[1]; Weizhong Han[1]; Irene Beyerlein[1]; [1]Los Alamos National Laboratory

2:45 PM
High Temperature Mechanical Characterization and Modeling of Al/SiC Nanolaminates: John Molina-Aldareguia[1]; Saeid Lotfian[1]; Kyle Yazzie[2]; Huxiao Xie[2]; Carl Mayer[2]; Javier LLorca[1]; John Baldwin[3]; Amit Misra[3]; *Nikhilesh Chawla*[2]; [1]IMDEA-Spain; [2]Arizona State University; [3]Los Alamos National Laboratory

3:00 PM
Multilayered Metal-Ceramic Composites Made by Coating Technologies: *Tim Slawik*[1]; Tassilo Moritz[1]; Roland Scholl[2]; Alexander Michaelis[1]; [1]Fraunhofer Institute for Ceramic Technologies and Systems;

[2]Dresden University of Technology

3:15 PM
Percussion Diagnostics for Evaluating Critically Weak Bonds Between Composite Laminates: *Scott Poveromo*[1]; James Earthman[1]; [1]University of California, Irvine

3:30 PM
Sandwich Panels with a Core Segmented into Topologically Interlocked Elements: *Andrey Molotnikov*[1]; Ralf Gerbrand[1]; Olivier Bouaziz[2]; Yuri Estrin[1]; [1]Monash University; [2]Ecole des Mines de Paris

3:45 PM
Model for Creep of Multidirectional Polymer Composite Laminate with Time-Independent and Time-Dependent Damage in Multiple Plies: Amir Asadi[1]; *Raghavan Jayaraman*[1]; [1]University of Manitoba

4:00 PM Break

4:20 PM
Study on Preparation of SiCp/Al Functionally Gradient Composites: *Jianjun Ma*[1]; Yuhong Chen[1]; Wenzhou Sun[1]; [1]Beiang University for Nationalities

4:35 PM
Effect of High Magnetic Fields on Annealing of Nanostructured Multilayers: *Lin Zhang*[1]; Ke Han[2]; Engang Wang[1]; Xiaowei Zuo[1]; Jicheng He[1]; [1]Northeastern University, China; [2]National High Magnetic Field Laboratory

4:50 PM
Influence of Heat Treatment on Corrosion and Wear Resistances of Mild Steel with Ni-P-Al_2O_3 Composite Film: *Rongguang Wang*[1]; Suketsuku Nakanishi[1]; Hiroki Sawada[1]; [1]Hiroshima Institute of Technology

5:05 PM
Local Texture of CVD SiC Fiber by the New Technology: Precession Electron Diffraction (PED): *Bin Huang*[1]; Yanqing Yang[1]; Zongqiang Feng[1]; Maoseng Fu[1]; Xian Luo[1]; Maohua Li[1]; Yanxia Chen[1]; [1]Northwestern Polytechnical University

G. Biomaterials, Smart Materials, and Structures: Session I

Program Organizers: Fernand Marquis, Naval Postgraduate School; Chengbao Jiang, Beihang University; Takayuki Narushima, Tohoku University; Byong Taek Lee, Soonchunhyang University; Anita Hill, CSIRO; R. Narayan, UNC/NCSU Joint Department of Biomedical Engineering

Monday PM
August 5, 2013

Room: Queen 6
Location: Hilton Waikoloa Village

Session Chairs: Sang Hoon Han, CSIRO; Chengbao Jiang, Beihang University

2:00 PM Introductory Comments

2:05 PM Keynote
Developments in Laser Processing of Micro-and Nanobiomaterials: *R. Narayan*[1]; [1]UNC/NCSU Joint Department of Biomedical Engineering

2:30 PM Keynote
Control of Biological-Metallic Biomaterial Interfaces by Electrochemical Means: *Jeremy Gilbert*[1]; [1]Syracuse University

2:55 PM Invited
Control of Formation of Metastable α" Phase in Ti Alloys: *Sengo Kobayashi*[1]; Kiyomichi Nakai[1]; Tatsuaki Sakamoto[1]; [1]Ehime University

3:15 PM Keynote
Metamagnetic Martensitic Transformation and Ductility of Ni-Cu-Mn-Ga Magnetic Shape Memory Alloy: *Chengbao Jiang*[1]; Panpan Li[1]; Huanfang Wang[1]; Jingmin Wang[1]; Huibin Xu[1]; [1]Beihang University

3:40 PM Invited
Mechanism of Low Young's Modulus in Ti-Nb-Ta-Zr and Ti-Nb-Ta-Zr-O Alloys: *Masakazu Tane*[1]; Takayoshi Nakano[2]; Mitsuo Niinomi[3]; Hideo Nakajima[1]; [1]The Institute of Scientific and Industrial Research, Osaka University; [2]Graduate School of Engineering, Osaka University; [3]Institute for Materials Research, Tohoku University

4:00 PM Break

4:20 PM Keynote
Laser-deposited Calcium Phosphate based Bio-Ceramic Coatings on Titanium Alloys for Prosthesis Implantation: Kami Pavani[1]; Sushanth Reddy[1]; Sanket Dahotre[1]; Soumya Nag[1]; Narendra Dahotre[1]; *Rajarshi Banerjee*[1]; [1]University of North Texas

4:45 PM Invited
Smart Nanocrystalline Coatings for Orthopeadic Implant Devices: *Fereydoon Namavar*[1]; Dennis Chakkalakal[2]; Renat Sabirianov[3]; Raheleh Miralami[1]; Geoffrey Thiele[1]; John Sharp[1]; Kevin Garvin[1]; [1]University of Nebraska Medical Center; [2]Research Service, VA Medical Center; [3]University of Nebraska - Omaha

5:05 PM Invited
Mechanical Properties of Meta-Stable Ti-Cr-Sn-Zr Alloys: *Yonosuke Murayama*[1]; Daichi Abe[1]; Akihiko Chiba[2]; [1]Niigata Institute of Technology; [2]Institute for Materials Research, Tohoku University

5:25 PM
Aesthetic and Mechanical Properties of Oxide Coated Ti-Nb-Ta-Zr Alloys as a Dental Material: *Eri Miura-Fujiwara*[1]; Keisuke Mizushima[1]; Soichiro Yamada[2]; Yoshimi Watanabe[2]; Toshihiro Kasuga[2]; Mitsuo Niinomi[3]; Tohru Yamasaki[1]; [1]University of Hyogo; [2]Nagoya Institute of Technology; [3]Institute for Materials Research, Tohoku University

5:40 PM
Thermomagnetic History Dependence of the First-order Magnetostructural Transition and the Associated Magnetocaloric Effect of $Ni_{53}Mn_{23.5}Ga_{23.5}$ Alloy: *Jingmin Wang*[1]; Huanfang Wang[1]; Chengbao Jiang[1]; Huibin Xu[1]; [1]Beihang University

H. Rare Earth, Electronic, and Magnetic Materials: Magnetic Materials and Properties

Program Organizers: Fernand Marquis, Naval Postgraduate School; Wei Li, Central Iron & Steel Research Institute; Koki Takanashi, Tohoku University; Woo Young Lee, Yonsei University; Mark Ridgway, Australian National University; Sungho Jin, UC San Diego

Monday PM
August 5, 2013

Room: Queen 5
Location: Hilton Waikoloa Village

Session Chairs: Koki Takanashi, Tohoku University; Sy-Hwang Liou, University of Nebraska

2:00 PM Keynote
Magnetic Rare Earth Intermetallics with Easy Plane Anisotropy: Study and Applications: *Fashen Li*[1]; Tao Wang[1]; Jianqiang Wei[1]; [1]Lanzhou university

2:25 PM Invited
Modulation of Magnetic Properties in Flexible Magnetic Films: *Run-Wei Li*[1]; [1]Ningbo Institute of Materials Technology and Engineering,CAS

2:45 PM Invited
Modulation of Unidirectional Anisotropy for Co-based Amorphous Ribbons: *Jun He*[1]; Dongliang Zhao[1]; [1]CISRI

3:05 PM Invited
Hybrid Magnetic-photonic Nanostructures for Biomedical Applications: *Young Keun Kim*[1]; [1]Korea University

3:25 PM Invited
Novel Magnetic Multilayer for High Sensitive Magnetoresistive Sensor: *Xiaolu Yin*[1]; Sy-Hwang Liou[1]; [1]University of Nebraska

3:45 PM Invited
Thick Film Magnets for MEMS Applications: *Masaki Nakano*[1]; Takeshi Yanai[1]; Hirotoshi Fukunaga[1]; [1]Nagasaki University

4:05 PM Break

4:25 PM Invited
The Interplay between the Electronic and Magnetic Structure of Magnetic Rare-earth Nitride Semiconductors: *James Downes*[1]; Joshua Brown[1]; David Cortie[2]; Christopher McMahon[1]; Bruce Cowie[3]; Jing-Hua Guo[4]; Per-Anders Glans[4]; Thomas Saerbeck[2]; Sebastian Brück[2]; Frank Klose[2]; [1]Macquarie University; [2]Australian Nuclear Science and Technology Organisation; [3]Australian Synchrotron; [4]Advanced Light Source

4:45 PM Invited
Advanced Magnetic Materials for Next Generation Data Storage Applications: *Dmitri Litvinov*[1]; Long Chang[1]; Zhen Zheng[1]; Yu-Chi Liang[1]; Ivan Nekrashevich[1]; Da-Hye Lee[1]; Paul Ruchhoeft[1]; [1]University of Houston

5:05 PM
Development of Permanent Magnets with Recycled Rare Earth Metals: *Ryan Ott*[1]; Larry Jones[1]; Kevin Dennis[1]; R McCallum[1]; [1]Ames Laboratory (USDOE)

5:20 PM
Large Room Temperature Magnetoresistance in FeCo-SiN Granular Films: *Y.P. Zeng*[1]; Z.W. Liu[1]; H.Y. Yu[1]; [1]South China University of Technology

5:35 PM
Investigation of Low Melting-point Boundary Phase in Sintered (Ce,Nd)-Fe-B Magnets: *Hai Bo Feng*[1]; Shu Lin Huang[1]; Ming Gang Zhu[1]; Wei Li[1]; [1]China Iron and Steel Research Institute Group

I. Thin Films and Surface Engineering: Thermal Barrier Coatings, Oxidation and Corrosion

Program Organizers: Fernand Marquis, Naval Postgraduate School; Chuang Dong, Dalian University of Technology; Takashi Goto, Tohoku University; Kyung-Ho Shin, Korea Institute of Science and Technology; Mingxing Zhang, The University of Queensland; Amit Misra, Los Alamos National Laboratory

Monday PM
August 5, 2013

Room: Kohala 1
Location: Hilton Waikoloa Village

Session Chair: Mingxing Zhang, The University of Queensland

2:00 PM Introductory Comments

2:05 PM Keynote
Advanced Thermal Barrier Coatings for Single Crystal Superalloys: *Huibin Xu*[1]; Hongbo Guo[1]; Shengkai Gong[1]; [1]Beihang University

2:30 PM
Challenges in Multilayered EBCs for Improved CMAS Resistance: *David Poerschke*[1]; Steffen Burk[1]; Carlos Levi[1]; [1]University of California Santa Barbara

2:45 PM
Effects of Tungsten and Laser Re-melting on the Properties of Hastelloy C22 Coating: *Qin-Ying Wang*[1]; Shu-Lin Bai[1]; Zong-De Liu[2]; [1]Peking University; [2]North China Electric Power University

3:00 PM
The Role of Reactive Elements in Affecting Cyclic Oxidation of NiAl-based Coatings at Elevated Temperatures: *Hongbo Guo*[1]; Dongqing Li[1]; Tian Zhang[1]; Huibin Xu[1]; Shengkai Gong[1]; [1]Beihang University

3:15 PM
A Methodology, based on Sintering-Induced Stiffening, for Prediction of the Spallation Lifetime of Plasma Sprayed Thermal Barrier Coatings: *Maya Shinozaki*[1]; T.W. Clyne[1]; [1]University of Cambridge

3:30 PM
Influence of Yttrium on Microstructure and Properties of Ni-Al Alloy Coatings Prepared by Laser Cladding: *Cunshan Wang*[1]; Hong Li[2]; [1]Dalian University Of Technology; [2]Dalian Maritime Unversity

3:45 PM Invited
STM and ARPES Study of Ordered Ce Film and its Initial Oxidation: Qiuyun Chen[1]; *Xinchun Lai*[1]; Wei Feng[1]; Xiegang Zhu[1]; Shiyong Tan[1]; Lizhu Luo[1]; [1]China Academy of Engineering Physics

4:05 PM Break

4:25 PM Invited
Oxidation-induced-strain Enhanced Oxide Growth at SiO_2/Si(001) Studied by Real-time Photoelectron Spectroscopy Using Synchrotron Radiation: *Yuji Takakuwa*[1]; [1]Tohoku University

4:45 PM
Corrosion Response and Thermal Stability of Cold Sprayed NiCr and IN625 Coatings: *Dheepa Srinivasan*[1]; Vighnesh Chandrasekhar[1]; Priyanka Saxena[1]; Eklavya Calla[1]; Y.C Lau[2]; [1]GE Power and Water; [2]GE Power and Water

5:00 PM
Corrosion Behavior of 21%Cr Ferritic Stainless Steel at Atmospheric Environment: *Tomohiro Ishii*[1]; Hiroki Ota[1]; Hiroyuki Ogata[1]; [1]JFE Steel Corporation

5:15 PM
Thermal Oxidation of Amorphous $Zr_{40}Cu_{35}Al_{15}Ni_{10}$ Thin Films: *Gregory Herman*[1]; Eric Hostetler[1]; Richard Oleksak[1]; Liney Arnadottir[1]; John McGlone[1]; Nick Landau[1]; John Wager[1]; [1]Oregon State University

5:30 PM
The Corrosion Behaviors of Uncoated and TiAlSiN Coated TA11 in the Presence of Solid NaCl Deposit and Water Vapor: *Li Xin*[1]; Qian Wang[1]; Geng Shujiang[1]; Wang Wen[1]; Zhu Shenglong[1]; Wang Fuhui[1]; [1]Institute of Metal Research, CAS

5:45 PM
Influence of the Ion Beam Current on Microstructures and Optical Properties of Al_2O_3 Thin Films by Oxygen Ion Beam Assisted Pulse Reactive Magnetron Sputtering: *Jinxiao Wang*[1]; Yudong Feng[1]; Zhimin Wang[1]; [1]Lanzhou Institute of Physics, Lanzhou

J. Materials and Processes for Enhanced Performance: Processing Technology

Program Organizers: Fernand Marquis, Naval Postgraduate School; Jishan Zhang, USTB; Yoshimi Watanabe, Nagoya Institute of Technology; Young-Kook Lee, Yonsei University; Robert O'Donnell, CSIRO; Jie Liu, Duke University

Monday PM
August 5, 2013

Room: King 3
Location: Hilton Waikoloa Village

Session Chair: Yoshimi Watanabe, Nagoya Institute of Technology

2:00 PM Keynote
Emulsion-Based Resonant Infrared Matrix-Assisted Pulsed Laser Evaporation: An Enabling Technology for Organic Thin Films: *Adrienne Stiff-Roberts*[1]; [1]Duke University

2:25 PM
Fabrication of Multi-material Metallic Structures using Electron Beam Melting: Cesar Terrazas[1]; Sara Gaytan[1]; *Francisco Medina*[1]; Ryan Wicker[1]; [1]University of Texas at El Paso

2:40 PM
GMAW Shielding Gas Flow Optimisation by Refinement of Nozzle Geometry: *Stuart Campbell*[1]; Alexander Galloway[1]; Norman McPherson[2]; [1]University of Strathclyde; [2]BAE Systems Surface Ships Limited

2:55 PM Invited
Hollow Shaft Forming with Different Wall Thickness by Using Uniaxial Pressing: *Masahiro Dohi*[1]; Shin-ichi Nishida[2]; Hisaki Watari[2]; Daisuke Kawabata[2]; Hirotaka Kamiyama[2]; [1]Kubota Iron Works Co., Ltd.; [2]Gunma University

3:15 PM
Modification of an Electron Beam Melting System for Rapid Material Parameter Development: *Francisco Medina*[1]; Ryan Wicker[1]; [1]University of Texas at El Paso

3:30 PM
Recent Developments in Flat Rolling Technologies: *Hailiang Yu*[1]; [1]University of Wollongong

3:45 PM Keynote
Development of Environmentally Friendly Separation and Recovery Process of Rare Metals from Oil Desulfurization Spent Catalyst: *Junji Shibata*[1]; Norihiro Murayama[1]; [1]Kansai University

4:10 PM Break

4:30 PM
Relation between Plating Current Density and Microwave Properties of Thin Magnetic Film: *BaoYu Zong*[1]; YuPing Wu[1]; W. B. Ng[1]; N. N. Phuoc[1]; Z. W. Li[1]; G. C. Han[2]; J. J. Qiu[2]; Y. Yang[2]; P. Ho[2]; P. Luo[2]; S. K. Wong[2]; [1]Temasek Lab @ NUS; [2]Agency of Science, Technology and Research (A*STAR)

4:45 PM
Surface Modification of Titanium by Novel Carbon and Nitrogen Diffusion Treatment: *Yasuhiro Morizono*[1]; Yuka Kawano[1]; Sadahiro Tsurekawa[1]; [1]Kumamoto University

5:00 PM
Surface Structure and Particle Analysis of Combined SnO_2 and ZnO Nanoparticles Prepared for Gas Sensing: *Enobong Bassey*[1]; Krishnamachar Prasad[1]; Philip Sallis[1]; [1]Auckland University of Technology

5:15 PM
The Role Porous Aromatic Frameworks for Gas Separations: *Cher Hon (Sam) Lau*[1]; Kristina Konstas[1]; Matthew Hill[1]; Anita Hill[1]; [1]CSIRO

5:30 PM Keynote
Thick Film Deposition Processes: The Advantage of Thermal Spray Technologies .. As Well as their Limitations: *Christopher Berndt*[1]; [1]Swinburne University of Technology

K. Solidification, Deformation and Related Processing: Deformation

Program Organizers: Fernand Marquis, Naval Postgraduate School; Wanqi Jie, Northwestern Polytechnical University; Hiroyuki Yasuda, Osaka University; Hyoung Seop Kim, POSTECH; Yinong Liu, The University of Western Australia; Zak Fang, University of Utah

Monday PM
August 5, 2013

Room: Kona 2
Location: Hilton Waikoloa Village

Session Chairs: Kee-Ahn Lee, Andong National University; Dipankar Banerjee, Indian Institute of Science

2:00 PM Introductory Comments

2:05 PM Keynote
Processing and the Evolution of Alpha/Beta Microtexture in Titanium Alloys: *Dipankar Banerjee*[1]; Shanoob Balachandran[1]; Satyam Suwas[1]; Sudipto Mandal[2]; Anthony Rollet[2]; [1]Indian Institute of Science; [2]Carnegie Mellon Unversity

2:30 PM
Investigation of Unusual "Sharkskin" Corrosion in Drawn Copper Pipes: *David Hay*[1]; Roger O'Halloran[2]; Natasha Wright[1]; [1]CSIRO Materials Science & Engineering; [2]CSIRO Land and Water

2:45 PM
A Macroscopic Model for the Band Segregation Induced by Shear Deformation: *Shugo Morita*[1]; Tomoya Nagira[1]; Hideyuki Yasuda[1]; Christopher Gourlay[2]; Masato Yoshiya[1]; [1]Osaka University; [2]Imperial College London

3:00 PM
Analysis of Hot Rolling with Simplified Weighted Velocity Field and MY Criterion: *DeWen Zhao*[1]; JianZhao Cao[1]; ShunHu Zhang[1]; HongShuang Di[1]; [1]State Key Laboratory of Rolling and Automation, Northeastern University

3:15 PM Invited
Influence of Low Temperature Annealing on Mechanical Behavior of Cu and Cu-Ge Alloy Processed by Cold Rolling: *Xinkun Zhu*[1]; [1]Kunming University of Science and Technology

3:35 PM
Effect of Alloying Elements on Microstructure Evolution and Hot Workability of Ti-6Al-4Fe Alloy: *Yong-Taek Hyun*[1]; Jong-Taek Yeom[1]; Chan-Hee Park[1]; Joo-Hee Kang[1]; Seong-Woong Kim[1]; [1]Korea Institute of Materials Science

3:50 PM Invited
High Temperature Compressive Behavior of Ni-Fe-Cr-Al Powder Porous Metal: Jae-Sung Oh[1]; Jung-Yeul Yun[2]; *Kee-Ahn Lee*[1]; [1]Andong National University; [2]Korea Institute of Materials Science

4:10 PM Break

4:30 PM
Manufacture of AZ31 Magnesium Alloy Circular Tubes by Cold Roll Forming: *Shunsuke Kanai*[1]; Shinichi Nishida[1]; Hisaki Watari[1]; [1]Gunma University

4:45 PM
In-situ Observation of Shear Deformation in Semi-solid Carbon Steel: *Tomoya Nagira*[1]; Shugo Shugo[1]; Hiroyoshi Yokota[1]; Hideyuki Yasuda[1]; Christopher Gourlay[2]; Masato Yoshiya[1]; Akira Sugiyama[3]; Kentarou Uesugi[4]; Keiji Umetani[4]; [1]Osaka University; [2]Imperial College; [3]Osaka Sangyo University; [4]JASRI

5:00 PM
Deformation Mechanism of the Quasicrystal Strengthening Phase in Al-Cu-Mn-Be Alloys: *Jim Ciston*[1]; Colin Ophus[1]; Bostjan Markoli[2]; [1]Lawrence Berkeley National Laboratory; [2]University of Ljubljana

5:15 PM
FEM Analysis of Pipe Reduction Forming Process for Increasing of Wall Thickness: *Daisuke Kawabata*[1]; Hirotaka Kamiyama[1]; Shinichi Nishida[1]; Hisaki Watari[1]; [1]Gunma University

5:30 PM Invited
R-value Changes of AA1050 Al Alloy Sheets by Two-steps Asymmetric Rolling and Subsequent Annealing: *Insoo Kim*[1]; Jin Hyuk Lee[1]; Kwang Hee Kim[1]; Dong Nyung Lee[2]; [1]Kum Oh National Institute of Technology; [2]Seoul National University

L. Modeling and Simulation of Processes, Microstructures, and Behavior: Modeling and Simulation of Materials Behavior I

Program Organizers: Fernand Marquis, Naval Postgraduate School; Dianzhong Li, Institute of Metal Research, Chinese Academy of Sciences; Tetsuo Mohri, Hokkaido University; Won Tae Kim, Cheongju University; Graeme Murch, The University of Newcastle; Alfredo Caro, LANL

Monday PM
August 5, 2013

Room: Kona 5
Location: Hilton Waikoloa Village

Session Chairs: Alfredo Caro, LANL; Wei Cai, Stanford University

2:00 PM Introductory Comments

2:05 PM Keynote
Science and Technology of Multifunctional Ultrananocrystalline Diamond (UNCD) Films and Applications to a New Generation of Multifunctional Devices/Systems: *Orlando Auciello*[1]; [1]University of Texas at Dallas

2:30 PM Invited
Thermally Activated Dislocation Processes in FCC Metals: *Wei Cai*[1]; [1]Stanford University

2:50 PM
Dislocation Slip and Habit Plane of Martensite Phase in Low-carbon Steels: An Approach by the Phase-field Method: *Yuhki Tsukada*[1]; Toshiyuki Koyama[1]; Yoshinori Murata[2]; [1]Nagoya Institute of Technology; [2]Nagoya University

3:05 PM
Cluster Variation Method Applied to Stability Analysis: *Tetsuo Mohri*[1]; [1]Hokkaido University

3:20 PM
Computer Simulation and Optimization of Chemical Compositions of Heat-Resistant Nickel Superalloys: Yuriy Shmotin[1]; Alexander Logunov[1]; Igor Egorov[1]; *Igor Leshchenko*[1]; [1]JSC "SATURN"

3:35 PM
Modelling Heat Transfer in Nanofluids Based on Coupled MD-Stochastic Simulation: *M. M. Ghosh*[1]; R. K. Rai[1]; [1]National Institute of Technology, Durgapur

3:50 PM Keynote
Atomic Structure of Metallic Glasses and its Evolution with Temperature Studied by Computer Simulations: Xiong-Jun Liu[1]; Xidong Hui[1]; Yuan Wu[1]; Hui Wang[1]; *Zhaoping Lu*[1]; [1]University of Science and Technology Beijing

4:15 PM Break

4:35 PM Invited
Atomistic Monte Carlo Modeling of Concentrated Mg-TM-RE Alloys Based on First-principles Calculations: *Hajime Kimizuka*[1]; Marco Fronzi[1]; Shigenobu Ogata[1]; [1]Osaka University

4:55 PM
Atomistic Investigation of Defect Behavior under Single Slip: *Hao Wang*[1]; Dongsheng Xu[1]; David Rodney[2]; Patrick Veyssière[3]; Rui Yang[1]; [1]Institute of Metal Research, Chinese Academy of Sciences; [2]SIMAP, INPG; [3]LEM, CNRS/ONERA

5:10 PM
First-Principles Simulations of the Initial Corrosion Process of Iron Surface: *Norio Nunomura*[1]; Satoshi Sunada[1]; [1]University of Toyama

5:25 PM
Electronic, Mechanical and Dynamical Prorperties of AB2 Compounds Predicited by Data Driven Discovery & First Principle Calculations: *Wei Luo*[1]; Yonggui Xu[2]; Krishna Rajan[3]; Rajeev Ahuja[1]; [1]Uppsala University; [2]Royal Institute of Technology; [3]Iowa State University

5:40 PM
Effect of Fe Doping on the Mechanical Properties of TiNi Alloys: *Martin Zeleny*[1]; Xiangqian Yin[1]; Xujun Mi[1]; [1]General Research Institute for Nonferrous Metals

M. Bulk Metallic Glasses, Nanocrystalline Materials, and Ultrafine-Grain Materials: Nanostructured Materials

Program Organizers: Fernand Marquis, Naval Postgraduate School; Yue Zhang, University of Science and Technology Beijing; Nobuhiro Tsuji, Kyoto University; Eun Soo Park, Seoul National University; Michael Ferry, University of New South Wales; Yuntian Zhu, North Carolina State University

Monday PM
August 5, 2013

Room: Kohala 3
Location: Hilton Waikoloa Village

Session Chairs: Tohru Yamasaki, University of Hyogo; Qiuming Wei, University of North Carolina at Charlotte; Peter Felfer, University of Sydney; Kei Ameyama, Ritsumeikan University

2:00 PM Keynote
A Quantized Crystal Plasticity Approach to Understand X-Ray Diffraction Footprints in Nanocrystalline Metals: *Peter Anderson*[1]; Lin Li[2]; Stephen Van Petegem[3]; Helena Van Swygenhoven[3]; [1]The Ohio State University; [2]MIT; [3]Paul Scherrer Institute

2:25 PM Keynote
Plastic Deformation of High Strength Nanocrystalline Ni-W Alloys: *Tohru Yamasaki*[1]; Kazutaka Fujita[2]; [1]University of Hyogo; [2]Ube National College of Technology

2:50 PM
Mechanical Properties of a Bulk Nanocrystalline Al-Mg Alloy Stabilized with Diamantane: M. Colin Arnold[1]; Farghalli Mohamed[1]; *James Earthman*[1]; Ali Yousefiani[2]; [1]University of California, Irvine; [2]Boeing Research & Technology

3:05 PM Invited
A New Tailored Harmonic Structure Designed Materials for Outstanding Mechanical Properties: *Kei Ameyama*[1]; [1]Ritsumeikan University

3:25 PM Invited
Plastic Deformation Mode Transition of Nanocrystalline Tantalum under Quasi-static and High Rate Loading: Jonathan Ligda[1]; Zhiliang Pan[2]; Brian Schuster[1]; *Qiuming Wei*[3]; [1]US ARL; [2]Cornell University; [3]University of North Carolina at Charlotte

3:45 PM Keynote
Design of Interfaces in Nanocomposites for Radiation Damage Tolerance: *Amit Misra*[1]; [1]Los Alamos National Laboratory

4:10 PM Break

4:30 PM Invited
Structure-Chemistry-Property Relationships in Nanocrystalline Alloys Revealed by Atom Probe Tomography: *Peter Felfer*[1]; Katia Eder[1]; Julie Cairney[1]; [1]University of Sydney

4:50 PM
Statistical Analysis of Equi-Atomic Quinary Alloys for Mixing Enthalpy and Delta Parameter: *Akira Takeuchi*[1]; Junqiang Wang[1]; Na Chen[1]; Kunio Yubuta[1]; Wei Zhang[2]; [1]Tohoku University; [2]Dalian University of Technology

5:05 PM
Nanocrystallization and its Thermal Stability of a Reduced Activation Ferrite-Martensitic Steel: *Zhang Chi*[1]; Liu Wenbo[1]; Yang Zhigang[1]; Zhang Yuduo[1]; [1]Tsinghua University

5:20 PM Keynote
High Bs-FeSiBPCu Nanocrystalline Soft Magnetic Alloys Contributable to Energy-saving: *Akihiro Makino*[1]; [1]Tohoku University

N. Advanced Materials Characterization and Evaluation: Nanomaterials Characterization and Evaluation

Program Organizers: Fernand Marquis, Naval Postgraduate School; Xiaodong Han, Beijing University of Technology; Sho Matsumura, Kyushu University; Dong Il Kwon, Seoul National University; Jin Zou, The University of Queensland; Alexis Lewis, Naval Research Laboratory

Monday PM
August 5, 2013

Room: King 2
Location: Hilton Waikoloa Village

Session Chairs: Ze Zhang, Zhejiang University; Sho Matsumura, Kyushu University

2:00 PM Keynote
Deformation Mechanisms in Nanocrystalline Metals: New Insights from Nanomechanical In Situ Testing: *Oliver Kraft*[1]; Jochen Lohmiller[1]; Patric Gruber[1]; Thomas Neithardt[1]; Ruth Schwaiger[1]; [1]Karlsruhe Institute of Technology

2:25 PM Invited
Nanoscale Precipitation-Strengthened Al-Sc-(V,Nb,Ta) Alloys: *Keith Knipling*[1]; Nhon Vo[2]; David Dunand[2]; David Seidman[2]; Amanda Levinson[1]; [1]Naval Research Laboratory; [2]Northwestern University

2:45 PM
In-situ Observation of Morphological Changes of Gold Nanorods under Pulsed Laser Irradiation in HVEM: *Nao Sumimoto*[1]; Kohichiro Nakao[1]; Tomokazu Yamamoto[1]; Takeshi Daio[2]; Kazuhiro Yasuda[1]; Yasuro Niidome[1]; Sho Matsumura[1]; [1]Kyushu University; [2]Research Laboratory for High Voltage Electron Microscopy

3:00 PM
Defect-free InAs Nanowires Catalyzed by Palladium: Hongyi Xu[1]; Yanan Guo[1]; Qiang Gao[2]; H. Hoe Tan[2]; Chennupati Jagadish[2]; *Jin Zou*[1]; [1]The University of Queensland; [2]The Australian National University

3:15 PM
Assorted Morphologies of Precipitates in Mg Alloys: *Wenzheng Zhang*[1]; Xue-Fei Huang[1]; [1]Tsinghua University

3:30 PM
Size Effects in Micropillars of Metallic and Ceramic Nuclear Materials: Strengthening, Weakening, and Size-independency.: *Chansun Shin*[1]; Sangyeob Lim[2]; Hyung-ha Jin[2]; Junhyun Kwon[2]; [1]Myongji University; [2]KAERI

3:45 PM
Evaluation of Thin-film Interfacial Properties Using Indentation Test: *Jongheon Kim*[1]; Jun-Yeong Kim[1]; Jinwoo Lee[1]; Dong Il Kwon[1]; [1]Seoul National University

4:00 PM Break

4:20 PM Invited
Ultrafine and Smooth Full Metal Nanostructures for Plasmonics: *Dapeng Yu*[1]; Xinli Zhu[1]; Jaseng Zhang[1]; Zhimin Liao[1]; [1]Peking University

4:40 PM
Physical and Chemical Heterogeneity of Carbon Fibre: *Mickey Huson*[1]; Jeffrey Church[1]; Abdullah Kafi[2]; Jiyi Khoo[3]; Kiran Mangalampalli[4]; Jodie Bradby[4]; Bronwyn Fox[2]; [1]CSIRO Materials Science and Engineering; [2]Deakin University; [3]Surface Measurement Systems; [4]The Australian National University

O. Advanced Neutron and Synchrotron Studies of Materials: Thin Films and Intergranular Phenomena

Program Organizers: Fernand Marquis, Naval Postgraduate School; Chengjia Shang, University of Sicence and Technology Beijing; Masato Ohnuma, National Institute for Materials Science; Baek Seok Seong, KAERI; Klaus-Dieter Liss, ANSTO; Rozaliya Barabash, Oak Ridge National Laboratory

Monday PM
August 5, 2013

Room: Kona 1
Location: Hilton Waikoloa Village

Session Chairs: Robert Suter, Carnegie Mellon University; Rozaliya Barabash, Oak Ridge National Laboratory

2:00 PM Introductory Comments

2:05 PM Keynote
Reflectivity and Off-Specular Grazing Incidence Scattering from Surfaces and Interfaces: Theory and Applications: *Sunil Sinha*[1]; [1]University of California San Diego

2:30 PM Keynote
Combining (Polarised) Neutron and Synchrotron Scattering Methods for Investigations on Magnetic Thin Film Nanostructures: *Frank Klose*[1]; David Cortie[1]; Thomas Saerbeck[1]; Joel Bertinshaw[1]; Clemens Ulrich[1]; [1]Australian Nuclear Science and Technology Organisation

2:55 PM Invited
Application of Small Angle Neutron Scattering to Analyze Nano-sized Structure of Thin Films Formed by Electroforming: *Yong Choi*[1]; Eun J. Shin[2]; Baik S. Seong[2]; Joo-Yul Lee[3]; Man Kim[3]; [1]Dankook University; [2]KAERI; [3]KIMS

3:15 PM Invited
Local Strain and Orientation Measurements of LEO Grown M-plane GaN Film Using 3D X-ray Microdiffraction: *Jin-Seok Chung*[1]; R. Barabash[2]; [1]Soongsil University; [2]Oak Ridge National Laboratory

3:35 PM Keynote
High Energy X-ray Diffraction Microscopy: Recent Results and Developments at the Advanced Photon Source: *Robert Suter*[1]; [1]Carnegie Mellon University

4:00 PM Break

4:20 PM Invited
Fatigue Crack Growth Mechanics Subjected to Variable-Amplitude Loading: *Soo Yeol Lee*[1]; E-Wen Huang[2]; Wanchuck Woo[3]; Kuan-Wei Lee[2]; [1]Chungnam National University; [2]National Central University; [3]Korea Atomic Energy Research Institute

4:40 PM
Measurement of Distributions of Local Internal Stress near Grain Boundary in SUS316 by EXDM Using White X-ray Micro Beam: *Tomotaka Miyazawa*[1]; Kentaro Kajiwara[1]; Masugu Sato[1]; Tamotsu Hashimoto[1]; Takuyo Yamada[2]; Takumi Terachi[3]; Takuya Fukumura[2]; Koji Arioka[2]; [1]Japan Synchrotron Radiation Research Institute (JASRI); [2]Institute of Nuclear Safety System (INSS); [3]The Kansai Electric Power Company (KEPCO)

4:55 PM Invited
Microyielding Mechanisms of Polycrystalline Dendrites Embedded in an Amorphous-metallic Matrix within Bulk Elastic Limit: *E-Wen Huang*[1]; Junwei Qiao[2]; Yu-Chieh Lo[3]; Wen-Jay Lee[4]; Philip Withers[5]; [1]National Central University; [2]Taiyuan University of Technology; [3]Massachusetts Institute of Technology; [4]National Center for High-Performance Computing; [5] University of Manchester

5:15 PM
X-ray Imaging of Gold Loaded Alginate Microcapsules in Ex-vivo Rodents for Cellular Based Therapeutic Treatments: *Xiaojuan Hao*[1]; Fengxiang Qie[1]; Astrid Kibleur[2]; Alberto Astolfo[2]; Timothy Hughes[1]; [1]CSIRO; [2]Australian Synchrotron

A. Materials for Energy: Session II

Program Organizers: Fernand Marquis, Naval Postgraduate School; Shaoxiong Zhou, Central Iron and Steel Research, China; Akihiko Kimura, Kyoto University; Young Hwan Cho, KIST; Shixue Dou, Wollongong University; Renkun Chen, University of California

Tuesday AM
August 6, 2013

Room: Kohala 2
Location: Hilton Waikoloa Village

Session Chairs: Shixue Dou, Wollongong University; Jing-Feng Li, Tsinghua University

8:00 AM Keynote
High-Performance Thermoelectric Materials for Energy Harvesting and Conversion: *Jing-Feng Li*[1]; [1]Tsinghua University

8:25 AM Keynote
Recent Progress on the Development of High Performance Thermoelectric Materials and Devices: *Lidong Chen*[1]; [1]Shanghai Institute of Ceramics, Chinese Academy of Sciences

8:50 AM Invited
Thermoelectric Material Design of Half-Heusler (Zr,Ti)NiSn-based Alloys Focusing on Reduction of Lattice Thermal Conductivity: *Yoshisato Kimura*[1]; [1]Tokyo Institute of Technology

9:10 AM
Thermoelectric Properties of Iron Aluminum Alloys: *Susil Putatunda*[1]; Gavin Lawes[1]; [1]Wayne State University

9:25 AM
Development of High Temperature Thermoelectric Materials: *Takao Mori*[1]; [1]National Institute for Materials Science (NIMS)

9:40 AM
Studies of Nanostructured Thermoelectric Materials and Devices for Power Generation and Coolers: *Yuan Deng*[1]; Ming Tan[1]; Yongming Shi[1]; Wei Zhu[1]; Yao Wang[1]; Lili Cao[1]; [1]Beihang University

9:55 AM
Evaluation of the Electrical Resistance and Capacitance of a Dielectric Electro-Active Polymer: *Boon-Chai Ng*[1]; Gunnar Lovhoiden[1]; [1]Andrews University

10:10 AM Break

10:30 AM
All-solid-state Hybrid Batteries with High Capacity: *Seung Hyun Jee*[1]; Seok Hee Lee[2]; Kang Soo Lee[2]; Sung Pil Woo[2]; Young Soo Yoon[1]; [1]Gachon University; [2]Yonsei University

10:45 AM
Electrochemical Performance of $LiMn_{0.5}$-$xNi_{0.5}$-xAl_2xO_2 by Hydrothermal Method: *Sung Pil Woo*[1]; Seok Hee Lee[1]; Kang Soo Lee[1]; Young Soo Yoon[2]; [1]Yonsei University; [2]Gachon University

11:00 AM
Electrochemical Deposition of High Purity Silicon in Molten Salts: *Geir Martin Haarberg*[1]; [1]Norwegian University of Science and Technology

11:15 AM
Synthesis of Nano-structured Titanium Dioxide (TiO_2) – Effects of Annealing Temperature on Properties: *Muhammad Abid*[1]; [1]Government College University Lahore

11:30 AM
Nano Scale Energetic Materials: Theoretical and Experimental Updates: *Karen Martirosyan*[1]; Maxim Zyskin[2]; Zamarta Ramazanova[1]; [1]University of Texas at Brownsville; [2]Rutgers University

11:45 AM
The Effect of Refractory Boundary Conditions on Heat Transfer: *Robert Pattillo*[1]; [1]Reno Refractories, Inc.

C. Advanced High-Temperature Structural Materials: Processing of Superalloys I

Program Organizers: Fernand Marquis, Naval Postgraduate School; Guoqing Zhang, Beijing Institute of Aeronautical Materials; Haruyuki Inui, Kyoto University; Kyung-Tae Park, Hanbat National University; Julie Cairney, The University of Sydney; Eugene Olevsky, San Diego State University

Tuesday AM
August 6, 2013

Room: King 1
Location: Hilton Waikoloa Village

Session Chairs: Kyung-Tae Park, Hanbat National University; Guoqing Zhang, Beijing Institute of Aeronautical Materials

8:00 AM Keynote
Investigation of the Ni_3Al-based Single Crystal Alloy: High Temperature Creep Performance and Microstructure Stability: *Shengkai Gong*[1]; Heng Zhang[1]; Zhigang Zhang[1]; Shusuo Li[1]; Yanling Pei[1]; Lei Liu[1]; [1]Beihang University

8:25 AM Invited
Effect of Rhenium and Ruthenium on the Solidification Characteristics and Microstructure of Nickel-Based Single Crystal Superalloys: *Lin Liu*[1]; Gang Liu[2]; Jun Zhang[1]; Hengzhi Fu[1]; [1]Northwestern Polytechnical University; [2]Xi'an University of Technology

8:45 AM
Development of Economically Doped Heat-Resistant Nickel Single-Crystal Superalloys for Blades of Perspective Gas Turbine Engines: Yuriy Shmotin[1]; Alexander Logunov[1]; Denis Danilov[1]; *Igor Leshchenko*[1]; [1]JSC "SATURN"

9:00 AM
Creep Deformation of a Low Cost Single Crystal Ni-base Superalloy at 800 - 1000 °C: *Yong Yuan*[1]; Tadaharu Yokokawa[1]; Yutaka Koizumi[1]; Toshiharu Kobayashi[1]; Kyoko Kawagishi[1]; Hiroshi Harada[1]; [1]National Institute for Materials Science

9:15 AM
Tensile Anisotropy of a Single Crystal Nickel-based Superalloy: *LongFei Zhang*[1]; Ping Yan[1]; MingHan Zhao[1]; JunTao Li[1]; JingChen Zhao[1]; Qiang Zeng[1]; FengKui Han[1]; [1]Central Iron and Steel Research Institute

9:30 AM
Effects of Platinum on the Microsegregation Behavior and Phases Stability in Nickel-base Single Crystal Superalloys: *Yizhou Zhou*[1]; Huiwen Lin[1]; Tao Jin[1]; Chuanyong Cui[1]; [1]Institute of Metal Research

9:45 AM Keynote
Effects of Perturbation in Front of the S/L Interface by Electric Field on Orientation of Ni-based Single Crystal Superalloy: *Yuansheng Yang*[1]; Xiaohui Feng[1]; [1]Institute of Metal Research, Chinese Academy of Sciences

10:10 AM Break

10:30 AM
Microstructure Evolution and Creep Behaviors of A [111] Oriented Single Crystal Nickel-Based Superalloy: *Tian Sugui*[1]; Yong Su[1]; Yongchao Xue[1]; Huichen Yu[1]; Shu Zhang[1]; [1]Shenyang University of Technology

10:45 AM
Precipitation of Second Phases in Superalloy In718C Solidified with Pulsed Magnetic Field: *Yingju Li*[1]; Yuefei Teng[1]; Tianjiao Luo[1]; Bo Li[2]; Yuansheng Yang[1]; [1]Institute of Metal Research, Chinese Academy of Sciences; [2]Shenyang Liming Aero-Engine (Group) Co. Ltd

11:00 AM
Effect of Temperature on Deformation Behavior of Fe-Al-Ni Single Crystals Containing NiAl Precipitates: *Hiroyuki Yasuda*[1]; Taisuke Edahiro[1]; [1]Osaka University

11:15 AM
Hot Corrosion Behavior of a Ni_3Al-based IC21 Alloy in a Molten Salt Environment: *Zhao Wenyue*[1]; [1]Beihang University

11:30 AM
The Development and Validation of a New Thermodynamic Database for Ni Based Alloys: *Paul Mason*[1]; A Markström[2]; J. Bratberg[2]; L. Kjellqvist[2]; H. Mao[2]; Q. Chen[2]; A. Engstrom[2]; [1]Thermo-Calc Software Inc.; [2]Thermo-Calc Software AB

11:45 AM
Application of Spark Plasma Sintering for the Synthesis of Nano-Hafnium Diboride Powder and its Densification: *Sea-Hoon Lee*[1]; Fung Lun[1]; Hai-Doo Kim[1]; [1]KIMS

D. Advanced Steels and Processing: Advanced Characterization of Steels II

Program Organizers: Fernand Marquis, Naval Postgraduate School; Han Dong, Central Iron and Steel Research Institute; Kaneaki Tsuzaki, National Institute for Materials Science; Sung Joon Kim, POSTECH; Rian Dippenaar, University of Wollongong; Kip Findley, Colorado School of Mines

Tuesday AM
August 6, 2013

Room: Kohala 4
Location: Hilton Waikoloa Village

Session Chairs: Ilana Timokhina, Deakin University; Akinobu Shibata, Kyoto University

8:00 AM Introductory Comments

8:05 AM Invited
Multi-scale and In-situ Characterization of Phase Transformations in Metals: *Amy Clarke*[1]; Michael Miller[2]; Robert Field[1]; David Alexander[1]; Kester Clarke[1]; Paul Gibbs[1]; Seth Imhoff[1]; Jason Cooley[1]; Brian Patterson[1]; Christopher Morris[1]; Frank Merrill[1]; Brian Hollander[1]; Wah-Keat Lee[3]; Kamel Fezzaa[4]; Alex Deriy[4]; Dan Thoma[1]; David Teter[1]; [1]Los Alamos National Laboratory; [2] Oak Ridge National Laboratory; [3]Brookhaven National Laboratory; [4]Argonne National Laboratory

8:25 AM Invited
In-situ Phase Transformation Study in Fine Grained Heat Affected Zone of Grade 91 Steels: Xinghua Yu; *Sudarsanam Babu*[1]; Michael Santella; Yukinori Yamamoto; Hidenori Terasaki; Yu-ichi Komizo; [1]The Ohio State University

8:45 AM Invited
3D Structure of Crack Tip Dislocations Elucidated with Electron Tomography and their Effects on Toughness: *Masaki Tanaka*[1]; Kenji Higashida[1]; [1]Kyushu University

9:05 AM
Atomic Scale Understanding of 6.8 GPa Ultra-high Strength Pearlite: *Yujiao Li*[1]; P Choi[1]; M. Herbig[1]; C. Borchers[2]; S. Goto[3]; D. Raabe[1]; R. Kirchheim[2]; [1]Max-Planck Institute for Iron Research; [2]Institut für Materialphysik, Georg-August-Universität Göttingen; [3]Department of Materials Science and Engineering, Faculty of Engineering and Resource Science, Akita University

9:20 AM
The Effects of Processing on Precipitate Distribution and Mechanical Properties of a Nanostructured Ferritic Alloy (NFA): *Richard DiDomizio*[1]; Sharon Huang[1]; Laura Dial[1]; Ernie Hall[1]; Michael Larsen[1]; Jan Ilavsky[2]; Brian Wirth[3]; [1]GE Global Research; [2]Argonne National Laboratory; [3]The University of Tennessee Knoxville

9:35 AM
Effects of Carbon Content on Variant Selection in Ausformed Lath Martensite in Fe-18Ni Alloys: *Tadachika Chiba*[1]; Goro Miyamoto[1]; Tadashi Furuhara[1]; [1]Tohoku University

9:50 AM
Microstructures and Textures Comparison of Conventional and High Niobium API 5L X80 Line Pipe Steel Using EBSD: *Marwan Almojil*[1]; Milind Patil[1]; [1]SABIC

10:05 AM Break

10:25 AM
Automated FIB Induced SE Imaging for 3D Characterization and Enhanced Channeling Contrast of High Performance Steels: Brandon Van Leer[1]; *Siqun Xiao*[1]; [1]FEI Company

10:40 AM
Pearlite Growth Rate in Multi-component Steels: *Seung-Woo Seo*[1]; Dong Woo Suh[1]; Harry K. D. Bhadeshia[1]; [1]POSTECH

10:55 AM
Effects of a/γ Orientation Relationship on VC Interphase Precipitation in Low Carbon Steels: *Yongjie Zhang*[1]; Goro Miyamoto[1]; Tadashi Furuhara[1]; [1]Tohoku University

11:10 AM
Determination of γ/a Phase Boundaries in the Fe-Cr-Ni-Mn Quaternary System with a Diffusion-Multiple Method: *Innocent Shuro*[1]; Satoru Kobayashi[1]; Kaneaki Tsuzaki[1]; Terumi Nakamura[1]; [1]NIMS

11:25 AM
Quenching and Partitioning (Q&P) Processing of AISI 420 Stainless Steel: *EunJung Seo*[1]; Bruno C. Decooman[1]; [1]GIFT, POSTECH

E. Light Metals and Alloys: Aluminum I

Program Organizers: Fernand Marquis, Naval Postgraduate School; Yongqing Zhao, Northwest Institute for Nonferrous Metal Research; Yoshihito Kawamura, Kumamoto University; Kwang Seon Shin, Seoul National University; Jian-Feng Nie, Monash University; Suveen Mathaudhu, U.S. Army Research Office

Tuesday AM
August 6, 2013

Room: Kona 4
Location: Hilton Waikoloa Village

Session Chairs: Kwang Seon Shin, Seoul National University; Paul Mason, Thermo-Calc Software, Inc.

8:00 AM Introductory Comments

8:05 AM Keynote
Effects of Microstructure on the Dynamic Tensile Spall Behavior of Al 5083: Ricky Whelchel[1]; Tom Sanders[1]; *Naresh Thadhani*[1]; [1]Georgia Institute of Technology

8:30 AM Keynote
Development of Advanced Aluminum Alloys with Nano-hetero Structures and their Mechanical Properties: *Tatsuo Sato*[1]; [1]Tokyo Institute of Technology

8:55 AM Invited
Processing and Brazing Behavior of Three Layer Al-Si/Al-Mn/Al-Si Based Clad Sheets: *Mok-Soon Kim*[1]; [1]INHA University

9:15 AM
Composition of Solute Clusters in Al-Mg-Si-Cu Alloys: *Malcolm Couper*[1]; Lingfei Cao[1]; Xiang Xiong[1]; Paul Rometsch[1]; [1]Monash University

9:30 AM Invited
Strength and Ductility of Nanostructured Light Metals and Alloys: *Yuntian Zhu*[1]; [1]North Carolina State University

9:50 AM
Developing a Thermodynamic Database for Industrial Applications to Aluminum Alloys: *Paul Mason*[1]; Hai-Lin Chen[2]; Lina Kjellqvist[2]; Shu-Hong Liu[3]; Yong Du[3]; Johan Bratberg[2]; Qing Chen[2]; Anders Engstrom[2]; [1]Thermo-Calc Software Inc.; [2]Thermo-Calc Software AB; [3]Central South University

10:05 AM Break

10:25 AM Invited
Microstructural Evaluation of EBF3 Deposited Aluminum Alloys: *Milo Kral*[1]; Karl Buchanan[1]; Craig Brice[2]; [1]University of Canterbury; [2]NASA Langley Research Center

10:45 AM Invited
Fundamentals and Applications of Aluminum Alloy Strips Produced by Vertical-Type High-Speed Twin-Roll Caster: *Shinji Kumai*[1]; Min-Seok Kim[1]; Daisuke Shimosaka[1]; Yohei Harada[1]; [1]Tokyo Institute of Technology

11:05 AM
Fabrication of Ultrafine Grained Al/Mg Multilayered Composite by High Pressure Torsion: *Xiaoguang Qiao*[1]; Xingyu Zhang[1]; Ying Chen[2]; Mingyi Zheng[1]; Kun Wu[1]; Nong Gao[2]; Marco Starink[2]; [1]Harbin Institute of Technology; [2]Univerisity of Southampton

11:20 AM
Development of Aluminum Matrix Composites by Conventional Sintering Process: *Yong-Jin Kim*[1]; Haris Rudianto[1]; Sang-Sun Yang[1]; [1]Korea Institute of Materials Science

E. Light Metals and Alloys: Titanium II

Program Organizers: Fernand Marquis, Naval Postgraduate School; Yongqing Zhao, Northwest Institute for Nonferrous Metal Research; Yoshihito Kawamura, Kumamoto University; Kwang Seon Shin, Seoul National University; Jian-Feng Nie, Monash University; Suveen Mathaudhu, U.S. Army Research Office

Tuesday AM
August 6, 2013

Room: Kona 3
Location: Hilton Waikoloa Village

Session Chairs: Yongqing Zhao, Northwest Institute for Nonferrous Metal Research; Ryan Cottam, Swinburne University of Technology

8:00 AM Introductory Comments

8:05 AM Keynote
Microstructural Control and Mechanical Properties of Low Cost Titanium Alloy for Next Generation Aircraft: *Mitsuo Niinomi*[1]; Masaaki Nakai[1]; Junko Hieda[1]; Ken Cho[1]; Yoshio Itsumi[2]; Shogo Murakami[2]; Hideto Oyama[2]; Wataru Abe[3]; [1]Tohoku University; [2]Kobe Steel, Ltd.; [3]Aerosoace Company, Kawasaki Heavy Industries, Ltd.

8:30 AM Keynote
Some Materials' Issues in Near Net-Shape Manufacturing of Ti Alloys: *Xinhua Wu*[1]; [1]ARC Centre of Excellence for Design in Light Metals

8:55 AM
The Precipitation Behavior of a Phase in a New Near ß Titanium Alloy Ti-7333 during Aging Process: *Hongchao Kou*[1]; Xue Zhang[1]; Jiangkun Fan[1]; Minjie Lai[1]; Jinshan Li[1]; [1]Northwestern Polytechnical University

9:10 AM Invited
Surface Treatment of Titanium Using Thermal Oxidation: *Takayuki Narushima*[1]; Kyosuke Ueda[1]; Shota Sado[1]; [1]Tohoku University

9:30 AM
The Role of Microstructure in the Tempering of Laser Clad Ti-6Al-4V: *Ryan Cottam*[1]; Qianchu Liu[2]; Milan Brandt[3]; [1]Swinburne University; [2]DSTO; [3]RMIT

9:45 AM
The Effect of HIPping Pressure on Phase Transformations in Ti-5Al-5Mo-5V-3Cr Powder: *Lingfei Cao*[1]; Suming Zhu[1]; Colleen Bettles[1]; Junfa Mei[1]; Xinhua Wu[1]; [1]Monash University

10:00 AM Break

10:25 AM
Reducing Titanium Powder Costs for Powder Bed Additive Manufacturing: *Francisco Medina*[1]; Ryan Wicker[1]; [1]University of Texas at El Paso

10:40 AM
Quantitative Analysis of Twinning-induced Plasticity (TWIP) in Beta Titanium Alloy: *Xiaohua Min*[1]; Xuejiao Chen[1]; Satoshi Emura[1]; Kaneaki Tsuzaki[1]; Koichi Tsuchiya[1]; [1]National Institute for Materials Science

10:55 AM
Fatigue Crack Tip plastic Zone of Ti-6Al-4V Alloy with Lamellar Microstructure: *Ma Yingjie*[1]; Lei Jiafeng[1]; Qiu Jianke[1]; Liu Yuyin[1]; Yang Rui[1]; [1]Institute of Metal Research, Chinese Academy of Sciences

11:10 AM
Mechanical Properties of Low-cost Beta-type Ti-Mn Alloys Fabricated by Metal Injection Molding: *Ken Cho*[1]; Mitsuo Niinomi[1]; Masaaki Nakai[1]; Junko Hieda[1]; Pedro Santos[1]; Yoshinori Itoh[2]; Masahiko Ikeda[3]; [1]Tohoku University; [2]Industrial Research Institute of Shizuoka Prefecture; [3]Kansai University

F. Composites and Hybrid Materials: Metal Matrix Composites I

Program Organizers: Fernand Marquis, Naval Postgraduate School; Di Zhang, Shanghai Jiao Tong University; Yutaka Kagawa, The University of Tokyo; Jae Chul Lee, Korea University; Yuri Estrin, Monash University; Nikhilesh Chawla, Arizona State University

Tuesday AM
August 6, 2013

Room: Queen 4
Location: Hilton Waikoloa Village

Session Chair: Krishan Chawla, University of Alabama at Birmingham

8:00 AM Invited
In Situ X-ray Characterization of SiC Particle-reinforced Al Alloy Composites by X-ray Synchrotron Tomography: *XIanghui Xiao*[1]; Jason Williams[2]; Francesco De Carlo[1]; Nikhilesh Chawla[2]; [1]Argonne National Laboratory; [2]Arizona State University

8:20 AM
Interfacial Properties of Ti-6Al-4V / SCS-6 Continuous Fibre Reinforced Composite: *Matthew Dear*[1]; Timothy Doel[1]; Paul Bowen[1]; Phillip Doorbar[2]; [1]University of Birmingham; [2]Rolls Royce plc

8:35 AM
Fabrication of Aluminum/Copper Composite Using Multiple Hydrostatic Extrusion Process and its Material Properties: *Taehyuk Lee*[1]; YoungJune Lee[1]; YiHa Kim[2]; HaGuk Jeong[3]; JongHyeon Lee[1]; [1]Chungnnam National University; [2]InHa University; [3]Korea Institute of Industrial Technology

8:50 AM
Fabrication of Multilaminated Structure Al Matrix Composite Sheets Reinforced with SiCp by Rolling-Sintering-Rolling (RSR) Process: *Hui-Yuan Wang*[1]; Qian Li[1]; Xian Zhu[1]; Qi-Chuan Jiang[1]; [1]Jilin University

9:05 AM
Influence of Deformation Degrees on the Texture of (TiB+La_2O_3)/Ti Composites: *Weijie Lu*[1]; Xianglong Guo[1]; Liqiang Wang[1]; Minmin Wang[1]; Jining Qin[1]; Di Zhang[1]; [1]State Key Laboratory of Metal Matrix Composites, Shanghai Jiao Tong University

9:20 AM
Interfacial Morphology on Mechanical Behavior of Particle Reinforced Metal Matrix Composites: *Yishi Su*[1]; Di Zhang[1]; Zhiqiang Li[1]; Genlian Fan[1]; Qiang Guo[1]; Dingbang Xiong[1]; [1]Shanghai Jiaotong University

9:35 AM Invited
Synthesis and Properties of Metal-Matrix Nano Composites (MMNCs), Syntactic Foams, and Self-Healing Metals: Chang-Soo Kim; J. Ferguson[1]; Benjamin Schultz[1]; Afsaneh Dorri Moghadam; *Pradeep Rohatgi*[1]; [1]University of Wisconsin-Milwaukee

9:55 AM
A Novel Technique to Develop a Hybrid Al-Al_2O_3-intermetallic Fibers in MMC or FGM Structure: *Bakr Rabeeh*[1]; [1]German University in Cairo, GUC

10:10 AM Break

10:30 AM
Bulk NiTip/Al Composites Prepared by Friction Stir Processing: *Dingrui Ni*[1]; Jijie Wang[2]; Zongyi Ma[1]; [1]Shenyang National Laboratory for Materials Science, Institute of Metal Research, Chinese Academy of Sciences; [2]School of Materials Science and Engineering, Shenyang Aerospace University

10:45 AM
Localized Melting Phase Induce Nontraditional Interphase in Al/Mg Metal Matrix Composite: *Yasser Fouad*[1]; Bakr Rabeeh[1]; [1]German University in Cairo, GUC

11:00 AM
Manufacturing Process of Celmet Reinforced Aluminum Alloy Composite by Low-Pressure Casting: *Yongbum Choi*[1]; Gen Sasaki[1]; Kazuhiro Matsugi[1]; Moonhee Lee[2]; Wonjo Park[3]; [1]Hiroshima University; [2]Kyoto University; [3]Gyeongsang University

G. Biomaterials, Smart Materials, and Structures: Session II

Program Organizers: Fernand Marquis, Naval Postgraduate School; Chengbao Jiang, Beihang University; Takayuki Narushima, Tohoku University; Byong Taek Lee, Soonchunhyang University; Anita Hill, CSIRO; R. Narayan, UNC/NCSU Joint Department of Biomedical Engineering

Tuesday AM
August 6, 2013

Room: Queen 6
Location: Hilton Waikoloa Village

Session Chairs: Kristina Konstas, CSIRO; Masaaki Nakai, Tohoku University

8:00 AM Introductory Comments

8:05 AM Keynote
Adaptive Porous Materials for Storage and Release Applications: *Kristina Konstas*[1]; Richelle Lyndon[1]; Andreas Schulte[1]; Melanie Kitchin[1]; Matthew Hill[1]; Anita Hill[1]; [1]CSIRO

8:30 AM Keynote
Torsional Properties of Aligned Ceramic Scaffolds: *Joanna McKittrick*[1]; Michael Porter[1]; Marc Meyers[1]; [1]University of California, San Diego

8:55 AM Invited
Analysis and Control of Biological Apatite Orientation in Various Bones and the Related Biomaterials: *Takayoshi Nakano*[1]; Takuya Ishimoto[1]; Aira Matsugaki[1]; [1]Osaka University

9:15 AM Invited
Modeling of Osseointegration and Cracking with Engineered Implant Surface: *Wei Li*[1]; Zhongpu Zhang[1]; Junning Chen[1]; Michael Swain[1]; Qing Li[1]; [1]The University of Sydney

9:35 AM Keynote
Strategies for Controlled Assembly at the Nanoscale: *Federico Rosei*[1]; [1]INRS

10:00 AM Break

10:20 AM
Biochemically Active Bioplotted Elastic Hydroxyapatite-Based Tissue Engineering Scaffolds: Structural, Mechanical, and in vitro Evaluation: *Adam Jakus*[1]; Alexandra Rutz[1]; Ramille Shah[1]; [1]Northwestern University

10:35 AM Keynote
Control of Biomaterials Nanostructures for Enhanced Performance: *Sungho Jin*[1]; [1]UC San Diego

11:00 AM Invited
Metals vs. Metals: Magnetic MOFs (Metal Organic Frameworks) as Heavy Metals Scavengers in Aqueous Environment: *Raffaele Ricco*[1]; Paolo Falcaro[1]; Paolo Scopece[2]; Cara Doherty[1]; Anita Hill[1]; [1]CSIRO; [2]CIVEN Association

11:20 AM Invited
Mechanical Properties of Ti-12Cr Alloy with Self-tunable Young's Modulus for Use in Spinal Fixation Devices: *Masaaki Nakai*[1]; Mitsuo Niinomi[1]; Junko Hieda[1]; Ken Cho[1]; [1]Tohoku University

11:40 AM
Evaluation of Long-term Corrosion Behavior of ß-type Ti Alloy in Simulated Body Fluid: *Yusuke Tsutsumi*[1]; Sonia Bartakova[2]; Patrik Prachar[2]; Suyalatu[3]; Satoshi Migita[4]; Hisashi Doi[1]; Naoyuki Nomura[3]; Takao Hanawa[1]; [1]Tokyo Medical and Dental University; [2]Masaryk University; [3]Tohoku University; [4]Yamagata University

11:55 AM
Highly Stretchable and Highly Conductive Metal Electrode by Very Long Metal Nanowire Percolation Network for Artificial Skin Application: *Seung Hwan Ko*[1]; Seung Sub Lee[1]; Jinhwan Lee[1]; Phillip Lee[1]; [1]KAIST

H. Rare Earth, Electronic, and Magnetic Materials: Rare Earth and Magnetic Materials

Program Organizers: Fernand Marquis, Naval Postgraduate School; Wei Li, Central Iron & Steel Research Institute; Koki Takanashi, Tohoku University; Woo Young Lee, Yonsei University; Mark Ridgway, Australian National University; Sungho Jin, UC San Diego

Tuesday AM
August 6, 2013

Room: Queen 5
Location: Hilton Waikoloa Village

Session Chairs: Patrick Kluth, The Australian National University; Nobuki Tezuka, Tohoku University

8:00 AM Keynote
Spin Textures in Magnetic Nanodisks with Competing Energies: Yingying Dai[1]; Han Wang[1]; Peng Tao[1]; Teng Yang[1]; Weijun Ren[1]; *Zhidong Zhang*[2]; [1]Institute of Metal Research, Chinese Academy of Sciences,; [2]Institute of Metal Research, Chinese Academy of Sciences

8:25 AM Invited
Technology Progress in Extraction and Separation of Rare Earths: *Xiaowei Huang*[1]; [1]General Research Institute for Nonferrous Metals(Grinm)

8:45 AM Invited
Unique Exchange Bias Induced by Antiferromagnetic Cr-oxide: *Yu Shiratsuchi*[1]; Ryoichi Nakatani[1]; [1]Osaka University

9:05 AM Invited
Magnetic Coupling and Transport Properties of Rare Earth Implanted Zinc Oxide: *John Kennedy*[1]; Peter Murmu[1]; Ben Ruck[2]; Grant Williams[2]; Andreas Markwitz[1]; [1]GNS Science; [2]Victoria University of Wellington

9:25 AM Invited
Magnetoresistance Effect Using Co Based Full Heusler Electrodes: *Nobuki Tezuka*[1]; Tatsuya Saito[1]; Masahiro Yoshida[1]; Takashi Onodera[1]; Masashi Matsuura[1]; Satoshi Sugimoto[1]; Yoshiaki Saito[1]; [1]Tohoku University

9:45 AM
Status and Preparation Technology of Rare Earth Materials: *Joon-Soo Kim*[1]; Jyothi Kumar[1]; Jin-Young Lee[1]; [1]KIGAM

10:00 AM Break

10:20 AM
Magnetostriction Measurements of Electrical Steel Sheets by Means of Fiber Optic Sensor: *Derac Son*[1]; [1]Hannam University

10:35 AM
Mechanical Processing as Materials Preparation Tool. Rare Earth-based Hybrid Materials: Niraj Singh[1]; Meenakshi Hardi[1]; *Viktor Balema*[1]; [1]Sigma-Aldrich Corporation

10:50 AM Invited
Magnetic Nanoclusters from Low Energy Ion Implantation: *James Metson*[1]; J. Leveneur[1]; John Kennedy[2]; [1]The University of Auckland; [2]GNS Science

11:10 AM
Heredity Characters of Non-metallic Inclusions of Non-oriented Electrical Steel Treated by Rare Earth Alloy: *Feng Zhang*[1]; [1]Baoshan Iron & Steel Co. , Ltd

11:25 AM
Synthesis and Characterization of Yttrium Titanate and Er Doped Yttrium Titanate Nanofibers: *Kanchan Mondal*[1]; Kaleb Hartman[1]; George Trifon[1]; Debalina Dasgupta[2]; Matthew Bolin[1]; [1]Southern Illinois University; [2]Illinois Clean Coal Institute

11:40 AM
All Solid State 2-Dimensional Li Battery: *Young Soo Yoon*[1]; Seung Hyun Jee[1]; Jong Dae Kim[2]; [1]Gachon University; [2]Hallym University

I. Thin Films and Surface Engineering: Thin Films and Multilayers

Program Organizers: Fernand Marquis, Naval Postgraduate School; Chuang Dong, Dalian University of Technology; Takashi Goto, Tohoku University; Kyung-Ho Shin, Korea Institute of Science and Technology; Mingxing Zhang, The University of Queensland; Amit Misra, Los Alamos National Laboratory

Tuesday AM
August 6, 2013

Room: Kohala 1
Location: Hilton Waikoloa Village

Session Chairs: Amit Misra, Los Alamos National Lab; Hanchen Huang, University of Connecticut

8:00 AM Introductory Comments

8:05 AM Keynote
Measuring Intrinsic Plastic Properties in Multilayer Thin Films: *Peter Anderson*[1]; Michael Gram[1]; Andrew Payzant[2]; [1]The Ohio State University; [2]Oak Ridge National Laboratory

8:30 AM
Intrinsic Stress Evolution and Grain Growth in Polycrystalline Films: *Hang Yu*[1]; Carl Thompson[1]; [1]Massachusetts Institute of Technology

8:45 AM
In-Situ Neutron Reflectometry during Thin Film Growth by Sputter Deposition: *Wolfgang Kreuzpaintner*[1]; Birgit Wiedemann[1]; Thomas Mairoser[2]; Andreas Schmehl[2]; Alexander Herrnberger[2]; Jean-Francois Moulin[3]; Martin Haese-Seiller[3]; Matthias Pomm[3]; Peter Böni[1]; Jochen

Mannhart[4]; [1]Technische Universität München; [2]Zentrum für elektronische Korrelation und Magnetismus, Universität Augsburg; [3]Helmholtz-Zentrum Geesthacht Zentrum für Material- und Küstenforschung GmbH; [4]Max-Planck-Institut für Festkörperforschung

9:00 AM
Microhardness and Deformation Storage Energy Density of NiTi Thin Films: *Yonghua Li*[1]; Mengkai Li[2]; Weitao Zheng[2]; Ligui Hua[3]; Jun Dou[2]; Fanling Meng[2]; [1]Harbin Engineering University; [2]Jilin University; [3]Jilin Province Product Quality Supervision Test Institute

9:15 AM
The Structure of Al Layer in Al/AlN Multilayer Films: *Abdulloh Rifai*[1]; Ji Shi[1]; Yoshio Nakamura[1]; [1]Tokyo Institute of Technology

9:30 AM
Effect of Nitrogen Content on the Microstructure and Mechanical Properties of Cr-B-N/Ti-B-N Nanolaminated Coatings: *Jyh-Wei Lee*[1]; Wang-Ting Tsai[1]; [1]Ming Chi University of Technology

9:45 AM
A Study on Contact Resistance Failure between Al-Ti-TiN Multi-layer and W-via Caused by Hillock Formation: *Sungjun Kim*[1]; Younghun Kim[1]; Junguk Han[1]; Ilsub Chung[2]; [1]Samsung Electronics Co.; [2]Sungkyunkwan University

10:00 AM Break

10:20 AM Invited
Nanoscale Ductility Mechanisms in Cu/Ag Nanolayered Metals: *Huck Beng Chew*[1]; Ruizhi Li[1]; [1]University of Illinois at Urbana-Champaign

10:40 AM Invited
Process Design for Control of Texture Evolution and Interface Boundary Character in Bulk Cu-Nb Multilayer Nanocomposites: *John Carpenter*[1]; Rodney McCabe[1]; Nathan Mara[1]; Irene Beyerlein[1]; [1]Los Alamos National Laboratory

11:00 AM
Stability and Microstructure Characterization of Barrierless Cu-Ni-Nb Films: *Xiaona Li*[1]; Lirong Zhao[1]; Lijun Liu[1]; J. P. Chu[1]; Cuimin Bao[1]; Chuang Dong[1]; [1]Dalian University of Technology

11:15 AM
Processing and Properties of Nanocrystalline Diamond Films for Advanced Technology Applications: *Nirmal Govindaraju*[1]; Raj Singh[1]; [1]Oklahoma State University

11:30 AM
Comparison in Abrasion Resistance between Hardened 8620 Steel and Coated by Ti/TiN: *Isaias Hilerio*[1]; [1]UAM Azcapotzalco

11:45 AM
Surface Hardening of AISI D2 Steel by Multilayer Formation during Nitriding Process: *KyunTaek Cho*[1]; Kyung Song[2]; Sang Ho Oh[2]; Young-Kook Lee[3]; Won Beom Lee[1]; [1]Korea Institute of Industrial Technology; [2]Pohang University of Science and Technology; [3]Yonsei University

J. Materials and Processes for Enhanced Performance: Ferrous Alloys: Steel

Program Organizers: Fernand Marquis, Naval Postgraduate School; Jishan Zhang, USTB; Yoshimi Watanabe, Nagoya Institute of Technology; Young-Kook Lee, Yonsei University; Robert O'Donnell, CSIRO; Jie Liu, Duke University

Tuesday AM
August 6, 2013

Room: King 3
Location: Hilton Waikoloa Village

Session Chair: Young-Kook Lee, Yonsei University

8:00 AM
A Study of Austenite Grain Coarsening Behavior of V-microalloyed Steel during High-frequency Induction Hardening: *Joong-Keun Park*[1]; Tae-Hyung Kim[1]; [1]Korea Advanced Institute of Science and Technology

8:15 AM
Analysis to the Application of Hydrogen Bell-type Annealing Furnace in Baosteel Stainless Steel: *Guo Fang*[1]; Wang Jin[1]; Gong Pei[1]; Tian Yong[1]; Yang Yan Bin[1]; [1]Baosteel Stainless Steel Company Hot Rolling Plant

8:30 AM
Corrosion Analysis of Zinc Rich Epoxy Coatings on Steel in NaCl Solution: *Azizul Sofian*[1]; Kazuhiko Noda[1]; [1]Shibaura Institute of Technology

8:45 AM
Improvement on Strength Performance of Hot Dip Galvanized 340BH Automotive Steel Sheet: *Yu Tian*[1]; Guo ping Cheng[1]; [1]Baosteel & NSC Automotive Steel Sheets Co., Ltd

9:00 AM
Microstructure and Properties of Low Manganese API X70 Pipeline Steel for Sour Service Application: *Qingyun Sha*[1]; [1]Anshan Iron and Steel Group Company

9:15 AM
Microstructural Influence on Very High-cycle Fatigue Properties of Bearing Steel: *Jae Hyung Kim*[1]; Jeong Hun Lee[1]; Chong Soo Lee[1]; [1]POSTECH

9:30 AM
Study on Dimensional Stability of $1Cr1_8Ni_9Ti$ Stainless Steel and Its Mechanism: *Qing Wang*[1]; [1]School of Materials Science and Engineering, Harbin Institute of Technology

9:45 AM
Grain Boundary Engineering of SUS304 by Laser Shocking and Annealing: Zhenyu Gu[1]; Xiao Xu[1]; Wen Feng[1]; *Sen Yang*[1]; [1]Nanjing University of Science and Technology

10:00 AM Break

10:20 AM
Analysis on Inclusion Defects for Titanium Containing Austenitic Steel and Related Manufacturing Way: *Shangtan Liu*[1]; [1]Baosteel Special Material Co. Ltd

10:35 AM
Improvement of Mechanical Property in Weld Metal Formed with F-MAG Welding Method in Steels: *Tadahisa Tsuyama*[1]; Kiyomichi Nakai[2]; Mei Akiyama[3]; Bunpei Takahashi[4]; Tatsuaki Sakamoto[2]; Sengo Kobayashi[2]; [1]Kawada Industries Incorporation; [2]Department of Materials Science and Biotechnology, Ehime University; [3]Graduate Student, Ehime University; [4]Ehime University

10:50 AM
Mechanical Properties and Microstructure of Co-sintered Steel/Steel Bonded Carbides: *Yimin Li*[1]; Hao He[1]; [1]Central South University

11:05 AM
Research on Super-thick Anti-HIC Q345R-Z35 Steel Plates Produced by Water-cooling Copper Ingot Mould: *Guanjun Cui*[1]; Jingshe Li[1]; Shucheng Zhu[2]; Shaopu Xu[2]; [1]University of Science and Technology Beijing; [2]Nanyang Hanye Special Iron and Steel Co., Ltd

11:20 AM
Study on Optimizing the Sintering Proportioning by Experiment: Yawei Gao[1]; Jingshe Li[1]; *Chengsong Liu*[1]; Haiyan Tang[1]; [1]University of Science and Technology Beijing

11:35 AM
Study on Ore Matching Optimization Based on Ore Dressing Process: *Chengsong Liu*[1]; Jingshe Li[1]; Yawei Gao[1]; Haiyan Tang[1]; [1]University of Science and Technology Beijing

11:50 AM
Study on the Mold Slag with High Al_2O_3 Content for High Aluminum Steel: *Qiang Wang*[1]; [1]National Engineering Research Center of Continuous Casting Technology

K. Solidification, Deformation and Related Processing: Deformation and Advanced Casting

Program Organizers: Fernand Marquis, Naval Postgraduate School; Wanqi Jie, Northwestern Polytechnical University; Hiroyuki Yasuda, Osaka University; Hyoung Seop Kim, POSTECH; Yinong Liu, The University of Western Australia; Zak Fang, University of Utah

Tuesday AM
August 6, 2013

Room: Kona 2
Location: Hilton Waikoloa Village

Session Chairs: Ren-Guo Guan, Northeastern University; Yong-Nam Kwon, Korea Institute of Materials Science

8:00 AM Introductory Comments

8:05 AM Keynote
Optimization of Flow Forming for Hollow Cylinder Shape with High Strength Steel: *Yong-Nam Kwon*[1]; E. S. Park[2]; B. J. Kim[2]; [1]Korea Institute of Materials Science; [2]Kyung Chang Industrial Co. Ltd

8:30 AM
Secondary a Phase Evolution in the Isothermal Compression and Heat Treatment of TC8 Titanium Alloy: *Ke Wang*[1]; Miaoquan Li[1]; [1]Northwestern Polytechnical University

8:45 AM
Shaping Amorphous Alloys Using Residual Stress Modification: *Jay Hanan*[1]; [1]OSU

9:00 AM
Recrystallisation of Cold Rolled CuMgSn Alloys Produced from Thin Cast Slabs: *David Martínez*[1]; Agustín Bravo[1]; Victor Jacobo[1]; Armando Ortiz[1]; Rafael Schouwenaars[1]; [1]Universidad Nacional Autonoma de Mexico

9:15 AM
Phase Stability and Mechanical Properties of Ti-Nb-Ge Alloys: *Han-Sol Kim*[1]; Byoung-Soo Lee[1]; Won-Yong Kim[1]; Hiroaki Matsumoto[2]; Akihiko Chiba[2]; [1]Korea Institute of Industrial Technology; [2]Tohoku University

9:30 AM
Real Time Observation of Interface Evolution in Al/Cu Bimetal by Synchrotron Radiation Imaging: *Fei Cao*[1]; Tongmin Wang[2]; Jing Zhu[2]; Yanan Fu[3]; Zongning Chen[2]; Tiqiao Xiao[3]; Zhiqiang Cao[2]; [1]Dalian University of Technology ; [2]Dalian University of Technology; [3]Shanghai Synchrotron Radiation Facility

9:45 AM
On the Annealing of Rapidly Solidified High Chromium-High Carbon Tool Steel: *Pooya Delshad Khatibi*[1]; Hani Henein[1]; [1]University of Alberta

10:00 AM Break

10:20 AM
A Novel Process for Grain Refining and Semisolid Processing: Wang Xiang[1]; Zhao Tong[1]; Chao Run-Ze[1]; *Guan Ren-Guo*[1]; [1]Northeastern University

10:35 AM
Stress Behavior of Incoloy 800 Superalloy in Slab Continuous Casting Process: *Anyuan Deng*[1]; Zhou Zhong[1]; Engang Wang[1]; En Jiang[1]; Jicheng He[1]; [1]Northeastern University, China

10:50 AM
Alloy Parts Heat Treatment Temperature Monitoring System: *Tian Weiwei*[1]; Cao Wenzhong[1]; Wang Lei[1]; [1]Environmental & Chemical Engineering College of Nanchang University

11:05 AM
Production of Copper Alloy Sheet by Twin-roll Casting: *Tatsuhiro Kano*[1]; Hideto Harada[1]; Shinichi Nishida[1]; Hisaki Watari[1]; [1]Gunma University

11:20 AM
Solidification Heat Transfer Analysis of AZ91D Cast Strip by Using a Horizontal Twin Roll Caster: *Hideto Harada*[1]; Takayuki Nagumo[2]; Masaki Endo[1]; Shinichi Nishida[1]; Hisaki Watari[1]; Toshio Haga[3]; [1]Gunma university; [2]SHOWA DENKO; [3]Osaka Institute of technology

11:35 AM
Interfacial Properties of Honeycomb Sandwich Panel Produced by Melt Drag Process: *Shinichi Nishida*[1]; Tatsuhiro Kano[1]; Hideto Harada[1]; Hisaki Watari[1]; [1]Gunma University

11:50 AM Invited
Competitions Correlated with Nucleation and Growth in Non-equilibrium Solidification and Solid-state Transformation: *Feng Liu*[1]; [1]Northwestern Polytechnical University

L. Modeling and Simulation of Processes, Microstructures, and Behavior: Modeling and Simulation of Materials Behavior II

Program Organizers: Fernand Marquis, Naval Postgraduate School; Dianzhong Li, Institute of Metal Research, Chinese Academy of Sciences; Tetsuo Mohri, Hokkaido University; Won Tae Kim, Cheongju University; Graeme Murch, The University of Newcastle; Alfredo Caro, LANL

Tuesday AM
August 6, 2013

Room: Kona 5
Location: Hilton Waikoloa Village

Session Chairs: Munekazu Ohno, Hokkaido University; Tetsuo Mohri, Tohoku University

8:00 AM Keynote
Multiscale Simulation of Surface and Interface Phenomena of Materials: *Kwang-Ryeol Lee*[1]; [1]KIST

8:25 AM Invited
Modeling on Storage Properties in Potential Hydrogen Storage Media: *Hiroshi Mizuseki*[1]; [1]IMR, Tohoku University and KIST

8:45 AM
First-principles Study of Surfaces and Interfaces for Lithium Titanate: *Shingo Tanaka*[1]; Mitsunori Kitta[1]; Tomoyuki Tamura[2]; Tomoki Akita[1]; Yasushi Maeda[1]; Masanori Kohyama[1]; [1]UBIQEN, AIST; [2]Nagoya Institute of Technology

9:00 AM
Full-potential KKR Calculations for Lattice Distortion in Fe-based Dilute Alloys, Based on the Generalized Gradient Approximation: *Chang Liu*[1]; Mitsuhiro Asato[2]; Nobuhisa Fujima[1]; Toshiharu Hoshino[1]; [1]Shizuoka University; [2]Niihama National College of Technology

9:15 AM
Hydrogen Embrittlement in Vanadium-based Hydrogen Separation Membranes: An Atomistic Simulation: *Won-Seok Ko*[1]; Jong Bae Jeon[1]; Jae-Hyeok Shim[2]; Byeong-Joo Lee[1]; [1]Pohang University of Science and Technology(POSTECH); [2]Korea Institute of Science and Technology

9:30 AM
Influence of Re on Lattice Trapping of Crack in Ni: *Zhengguang Liu*[1]; Chongyu Wang[2]; Tao Yu[1]; [1]Central Iron and Steel Research Institute; [2]Department of Physics, Tsinghua University

9:45 AM Keynote
Microstructural Effect in the Mechanical Behavior of Nanowires: *David Srolovitz*[1]; Zhaoxuan Wu[2]; YongWei Zhang[2]; Mark Jhon[2]; Julia Greer[3]; [1]University of Pennsylvania; [2]Institute of High Performance Computing; [3]California Institute of Technology

10:10 AM Break

10:30 AM Invited
Role of the Interface between Brittle and Ductile Phases in Mechanical Properties of Multilayered Composites: *Tomotsugu Shimokawa*[1]; [1]Kanazawa University

10:50 AM Invited
Quantitative Phase-field Modeling and Simulations of Solidification Microstructures in Carbon Steels: *Munekazu Ohno*[1]; [1]Hokkaido University

11:10 AM
Reactive Force Field for Molecular Dynamics Study of the ZnO Film Growth with Different Oxygen Environment: *Liu Yongli*[1]; Sun Benzhe[1]; Qi Yang[1]; [1]Northeastern University

11:25 AM
Size Effect on Curie and Ordering Temperatures of Magnetic Nanoalloys: *C. C. Yang*[1]; Y.-W. Mai[1]; [1]The University of Sydney

11:40 AM
Solid-Liquid Interfacial Premelting: *Brian Laird*[1]; Yang Yang[1]; Mark Asta[2]; [1]University of Kansas; [2]University of California-Berkeley

L. Modeling and Simulation of Processes, Microstructures, and Behavior: Modeling and Simulations of Materials Processing I

Program Organizers: Fernand Marquis, Naval Postgraduate School; Dianzhong Li, Institute of Metal Research, Chinese Academy of Sciences; Tetsuo Mohri, Hokkaido University; Won Tae Kim, Cheongju University; Graeme Murch, The University of Newcastle; Alfredo Caro, LANL

Tuesday AM
August 6, 2013

Room: Waikoloa 1
Location: Hilton Waikoloa Village

Session Chairs: Dianzhong Li, Institute of Metal Research, Chinese Academy of Sciences; Zhenshan Cui, Shanghai Jiao Tong University

8:00 AM Keynote
An Overall Simulation of Austenite Grain Evolution for Heavy Forgings during Heating and Hot Deformation: *Zhenshan Cui*[1]; Fei Chen[1]; Cuidong Li[1]; Dashan Sui[1]; [1]Shanghai Jiao Tong University

8:25 AM Invited
Comparative Factorial Analysis on the Machining Process of Sheetmetals: a Decision Model Based Approach: *Wonkyu Bang*[1]; [1]RIST

8:45 AM
Ideal Stopper Rod Lifts for Various Casting Conditions: *Pavan Kumar Shivaram*[1]; [1]United States Steel Corporation

9:00 AM
Computational Fluid Dynamics and Experimental Results for the Horizontal Single Belt Casting (HSBC) of Aluminum Alloy Strips.: *Roderick Guthrie*[1]; Mihaiela Isac[1]; [1]McGill Metals Processing Centre

9:15 AM
Development of a Full PLIC-VOF Method for Mold Filling Simulation of High Pressure Die Casting Process: Cheng Bi[1]; *Shou-Mei Xiong*[1]; [1]Tsinghua University

9:30 AM Keynote
Computational Materials and Process Design – A Success Story: *Byeong-Joo Lee*[1]; [1]Pohang University of Science and Technology

9:55 AM Invited
Prediction of the Shape of Molten Flux Film in Continuous Casting Process: *Kyung-woo Yi*[1]; Eun-yi Ko[2]; Yong-tae Kim[1]; [1]Seoul National University; [2]POSCO

10:15 AM Break

10:35 AM
Finite Element Modelling of Copper by Equal Channel Angular Extrusion: *Arkanti Krishnaiah*[1]; [1]Osmania University

10:50 AM
Study on Prevention of Wide-thick Slab Transverse Cracks by Optimizing the Secondary Cooling Nozzles: *Cheng Ji*[1]; Zhaozhen Cai[1]; Miaoyong Zhu[1]; Yogeshwar Sahai[2]; [1]Northeastern University of China; [2]The Ohio State University

11:05 AM
Prediction of Casting Defects and Optimization of Casting Process during Gravity Casting of Al Turbo Charger Valve Housing: *Park Tae Gyu*[1]; Young Cheol Lee[1]; Shin Ho Lee[2]; [1]Korea Institute of Industrial Technology; [2]CTR Corporation

11:20 AM
Hot Extrusion Process Design for Spray-formed FGH95 Superalloy Based on Numerical Simulation: *Chang-Chun Ge*[1]; Biao Guo[2]; Sui-Cai Zhang[1]; Jie Wang[2]; [1]University of Science & Technology Beijing; [2]Southwest Jiaotong University

11:35 AM
On the Constitutive Modeling of the Hot Deformation Behavior of a High-Mn Twinning-induced Plasticity Steel: Hongshuang Di[1]; Jingqi Zhang[1]; Xiaoyu Wang[1]; [1]State Key Laboratory of Rolling and Automation, Northeastern University

M. Bulk Metallic Glasses, Nanocrystalline Materials, and Ultrafine-Grain Materials: Metallic Glass I

Program Organizers: Fernand Marquis, Naval Postgraduate School; Yue Zhang, University of Science and Technology Beijing; Nobuhiro Tsuji, Kyoto University; Eun Soo Park, Seoul National University; Michael Ferry, University of New South Wales; Yuntian Zhu, North Carolina State University

Tuesday AM
August 6, 2013

Room: Waikoloa 2
Location: Hilton Waikoloa Village

Session Chairs: Wei Wang, Inst. of Physcs, CAS; Koichi Tsuchiya, NIMS; Kevin Laws, University of New South Wales; Jian Xu, Institute of Metal Research, Chinese Academy of Sciences

8:00 AM Keynote
Characterization of Flow Units in Metallic Glasses: *Wei Hua Wang*[1]; [1]Inst. of Physcs, CAS

8:25 AM Invited
Effect of Structural Rejuvenation and Relaxation on Mechanical Response in Zr-based Metallic Glass: *Koichi Tsuchiya*[1]; Fanqiang Meng[1]; Seiichiro Ii[1]; Yoshihiko Yokayama[2]; Osami Haruyama[3]; Kei Ozaki[3]; [1]NIMS; [2]Tohoku University; [3]Tokyo University of Science

8:45 AM
Correlation between Internal States and Strength in Bulk Metallic Glass: *Jun Tan*[1]; C.J. Li[1]; Y.H. Jiang[1]; R. Zhou[1]; J. Eckert[2]; [1]Kunming University of Science and Technology; [2]IFW Dresden, Institute for Complex Materials

9:00 AM Invited
Crack-resistance Curve of a Zr-Ti-Cu-Al Bulk Metallic Glass with Extraordinary Fracture Toughness: *Jian Xu*[1]; Qiang He[1]; Evan Ma[2]; [1]Institute of Metal Research, Chinese Academy of Sciences; [2]The Johns Hopkins University

9:20 AM Invited
Distribution of Activation Energy and Elastic Modulus in a Pd-Ni-Cu-P Glass: *Hidemi Kato*[1]; Hao Wang[1]; Tetsu Ichitsubo[2]; Takeshi Wada[1]; [1]Tohoku University; [2]Kyoto University

9:40 AM
Fabrication and Mechanical Properties of Cu-Based Bulk Metallic Glass and Composites: Jili Wu[1]; *Ye Pan*[1]; Jinhong Pi[1]; Lin Wang[1]; [1]Southeast University

9:55 AM
Investigation of Torsion Fracture on Zr-based Bulk Metallic Glass: *Kazutaka Fujita*[1]; Yoshiaki Kihara[2]; Yoshihiko Yokoyama[3]; [1]Dep. of Mechanical Engineering, Ube National College of Technology; [2]Advanced Production System Engineering Course (Student), Ube National College of Technology; [3]Institute for Materials Research, Tohoku University

10:10 AM Break

10:30 AM Keynote
A Topological Approach to the Discovery of New High Glass-forming Alloy Compositions - The Effective Radius Ratio Method: *Kevin Laws*[1]; Daniel Miracle[2]; Bulent Gun[1]; Karl Shamlaye[1]; Jake Cao[1]; John Scicluna[1]; Michael Ferry[1]; [1]University of New South Wales; [2]United States Air Force Research Laboratory

10:55 AM Invited
Atomic Structure and its Change during Glass Transition of Metallic Glasses: Xiong-Jun Liu[1]; Xidong Hui[1]; Chain-Tsuan Liu[2]; *Zhaoping Lu*[1]; [1]University of Science and Technology Beijing; [2] City University of Hong Kong

11:15 AM
Varied Linear Phason Strain and Its Induced Domain Structure in Quasicrystalline Precipitates of Zr-Al-Ni-Cu-Nb Bulk Metallic Glass Matrix Composites: *Jianbo Wang*[1]; [1]Wuhan University

11:30 AM
Fabrication of Cu-Zr-based Bulk Metallic Glasses by Vertical Twin Roll Strip Casting: *Kwang Seok Lee*[1]; Yu Mi Jo[1]; Young-Seon Lee[1]; [1]Korea Institute of Materials Science

11:45 AM Invited
Fabrication of Bulk Metallic Glass Foams via Severe Plastic Deformation: *Suveen Mathaudhu*[1]; Marie Cox[2]; K. Ted Hartwig[3]; David Dunand[4]; [1]U.S. Army Research Office; [2]Naval Research Laboratory; [3]Texas A&M University; [4]Northwestern University

M. Bulk Metallic Glasses, Nanocrystalline Materials, and Ultrafine-Grain Materials: Nanofunctional Materials

Program Organizers: Fernand Marquis, Naval Postgraduate School; Yue Zhang, University of Science and Technology Beijing; Nobuhiro Tsuji, Kyoto Univ; Eun Soo Park, Seoul National University; Michael Ferry, University of New South Wales; Yuntian Zhu, North Carolina State University

Tuesday AM
August 6, 2013

Room: Kohala 3
Location: Hilton Waikoloa Village

Session Chairs: Yue Zhang, University of Science and Technology Beijing; Lianmao Peng, Peking University; Peter Anderson, The Ohio State University; Jin Lee, Kongju National University

8:00 AM Introductory Comments

8:05 AM Invited
Carbon Nanotube Based Light Emitting Diodes and Detectors: *Lian Mao Peng*[1]; [1]Peking University

8:25 AM
A New Mechanism of Nanowire Growth Mechanism Proposed by Electron Microscopy Studies of TiO_2 Nanowires: *Jin-Ping Zhang*[1]; [1]Suzhou Institute of Nano-Tech & Nano-Bionics, CAS

8:40 AM Invited
Electrical, Optical and Ionic Properties of Nanomaterials Studied by In-situ TEM: *Xuedong Bai*[1]; [1]Institute of Physics, Chinese Academy of Sciences

9:00 AM Invited
The $Ge_2Sb_2Te_5$ Target Produced by Spark Plasma Sintering and its Crystallization Behaviors for Phase Change Memory Application: *Jin Kyu Lee*[1]; [1]Kongju National University

9:20 AM Invited
Stability and Reliability of ZnO Nanomaterials and Devices: Yue Zhang[1]; *Xiaoqin Yan*[1]; [1]University of Science and Technology Beijing

9:40 AM
Production of Nanograined Silicon Using High-pressure Torsion: *Yoshifumi Ikoma*[1]; Kazunori Hayano[1]; Kaveh Edalati[1]; Katsuhiko Saito[2]; Qixin Guo[2]; Zenji Horita[1]; [1]Kyushu University; [2]Saga University

9:55 AM
Microstructure, Electrical and Magnetic Properties of $Al_{1.25}CrCoFeNiSix$ High Entropy Alloys: *Zhigang Sun*[1]; [1]Wuhan University of Technology

10:10 AM Break

10:30 AM Invited
Microstructural Change during Rolling in the Super-cooled Liquid Region of $Mg_{60}Cu_{29}Gd_{11}$ Sheet: *Daniel East*[1]; Mark Gibson[2]; Zohair Hussain[2]; Laure Bourgeois[3]; Bernt Johannessen[4]; Jian-Feng Nie[5]; [1]Monash University Department of Materials Engineering / CSIRO Process Science and Engineering; [2]CSIRO, Process Science and Engineering; [3]Monash University Department of Materials Engineering / Monash Centre for Electron Microscopy; [4]Australian Synchrotron; [5]Monash Universtiy Department of Materials Engineering

10:50 AM
Shape Memory and Superelasticity in Amorphous/Nanocrystalline Cu-Sn Wires by Glass Coated Technique: *Yong Zhang*[1]; Yang Yong Zhao[1]; Hai Ying Hao[1]; [1]University of Science and Technology Beijing

11:05 AM
Synthesis and Characterization of Bulk Nano Crystalline Pb Free Solders: *Babu Rao Jinugu*[1]; I. Narasimha Murthy[1]; Dil Kush[1]; [1]Andhra University

11:20 AM
Martensitic Transformation Behaviors of Fe-Ni Nanoparticles Under External Field: *Jin Mingjiang*[1]; Jin Xuejun[1]; [1]Shanghai Jiao Tong University

N. Advanced Materials Characterization and Evaluation: Novel Scanning Electron and Scanning Probe Microscopy Techniques

Program Organizers: Fernand Marquis, Naval Postgraduate School; Xiaodong Han, Beijing University of Technology; Sho Matsumura, Kyushu University; Dong Il Kwon, Seoul National University; Jin Zou, The University of Queensland; Alexis Lewis, Naval Research Laboratory

Tuesday AM
August 6, 2013

Room: King 2
Location: Hilton Waikoloa Village

Session Chairs: Xiaodong Han, Beijing University of Technology; Milo Kral, University of Canterbury

8:00 AM Keynote
Low-voltage SEM and its Application to Steel: *Kaoru Sato*[1]; Masayasu Nagoshi[1]; Tomohiro Aoyama[1]; Hisato Noro[1]; [1]JFE Steel

8:25 AM Invited
Cathodoluminescence Microanalysis of Suspended GaN Nano-membranes: *Marion Stevens-Kalceff*[1]; I.M. Tiginyanu[2]; V. Popa[3]; P. Brenner[4]; D. Gerthsen[4]; [1]University Of NSW; [2]Academy of Sciences of Moldova; [3]Technical University of Moldova,; [4]University of Karlsruhe

8:45 AM Invited
Comparing the Reactivity of Anatase TiO_2(001) and Rutile TiO_2(110) Surfaces at an Atomic Scale: *Bing Wang*[1]; [1]University of Science and Technology of China

9:05 AM
Multi-scale Characterization of Advanced Structural Steels: From the Micro to the Atomic-scale: *Ivan Gutierrez-Urrutia*[1]; Jae-Bok Seol[1]; Ross Marceau[1]; Pyuck-Pa Choi[1]; Dierk Raabe[1]; [1]Max-Planck-Institut for Iron Research

9:20 AM
Probing the Structural, Electrical and Mechanical Behaviors of Nano-materials by Advanced TEM Techniques: *Jianbo Wang*[1]; [1]Wuhan University

9:35 AM
Electron Diffraction Study on Structural Changes in Disordered Materials: *Manabu Ishimaru*[1]; [1]Osaka University

9:50 AM
Observation of Lithium Ions at Atomic Resolution Using an Aberration-corrected Annular-Bright-Field Electron Microscopy: *Lin Gu*[1]; [1]Institute of Physics, Chinese Academy of Sciences

10:05 AM Break

10:25 AM
TEM Studies on $RMnO_3$ Multiferroic Materials: *Richeng Yu*[1]; Q. H. Zhang[1]; L. J. Wang[1]; L. Gu[1]; A. Hirata[2]; M. W. Chen[2]; C. Q. Jin[1]; B. H. Ge[1]; Y. Yao[1]; Y. G. Wang[1]; X. F. Duan[1]; [1]The Institute of Physics, Chinese Academy of Sciences; [2]WPI Advanced Institute for Materials Research

10:40 AM
A Novel Oxide Characterization Method of Nickel Base Alloy 600 Used in Nuclear Plant Reactors: *Esteban Broitman*[1]; Richard Becker[2]; Koji Dozaki[3]; Lars Hultman[1]; [1]Linköping University; [2]Studsvik Nuclear AB; [3]The Japan Atomic Power Company

10:55 AM
Characterization of Contamination Free Single-Crystal Sapphire and SiC Substrates with Well-Defined Step-Terrace Structures: *Yang Gan*[1]; [1]Harbin Institute of Technology

11:10 AM
Conventional And Analytical Electron Microscopy Study Of Phase Transformation In Implanted Diamond Layers: *Sergey Rubanov*[1]; B. A. Fairchild[2]; A. Suvorova[3]; P. Olivero[2]; S. Prawer[2]; [1] University of Melbourne; [2]University of Melbourne; [3]University of Western Australia

11:25 AM
Microstructural Fingerprints of Several Martensitic Phase Transitions under Extreme Conditions: *Manling Sui*[1]; Shujuan Wang[2]; Wei Zhang[2]; Peifei Yan[2]; [1]Beijing University of Technology; [2]Shenyang National Laboratory for Materials Science, Institute of Metal Research, Chinese Academy of Sciences

O. Advanced Neutron and Synchrotron Studies of Materials:Diffraction: Stresses and Structures

Program Organizers: Fernand Marquis, Naval Postgraduate School; Chengjia Shang, University of Sicence and Technology Beijing; Masato Ohnuma, National Institute for Materials Science; Baek Seok Seong, KAERI; Klaus-Dieter Liss, ANSTO; Rozaliya Barabash, Oak Ridge National Laboratory

Tuesday AM
August 6, 2013

Room: Kona 1
Location: Hilton Waikoloa Village

Session Chairs: Paolo Scardi, University of Trento; Erich Kisi, The University of Newcastle

8:00 AM Introductory Comments

8:05 AM Keynote
Neutron Diffraction Studies of the Tri-axial Stress Distribution in Granular Materials: *Erich Kisi*[1]; Christopher Wensrich[1]; Vladimir Luzin[2]; Oliver Kirstein[3]; [1]The University of Newcastle; [2]ANSTO; [3]European Spallation Source (ESS)

8:30 AM Keynote
A High Intensity Neutron Scattering Techniques for Hydrogen Materials Studies: *Toshiya Otomo*[1]; Kentaro Suzuya[2]; Hidetoshi Ohshita[1]; Kazutaka Ikeda[1]; Naokatsu Kaneko[1]; Tomohiro Seya[1]; [1]High Energy Accelerator Research Organization; [2]Japan Atomic Energy Agency

8:55 AM Invited
Influence of the Low Temperature Phase Transformation of Welding Consumable on Residual Stresses in a Thick Weld: *Wanchuck Woo*[1]; Baek Seok Seong[1]; Mi-Hyun Kang[1]; Jeong-Ung Park[2]; Gyu-Baek An[3]; [1]KAERI (Korea Atomic Energy Research Institute); [2]Chosun University; [3]POSCO Steel

9:15 AM Invited
Atomistic Interpretation of Diffraction Patterns from Nanomaterials: *Paolo Scardi*[1]; Luca Gelisio[1]; [1]University of Trento

9:35 AM
Evaluation of Residual Stresses in Additive Manufactured Structures via Neutron Diffraction: *Craig Brice*[1]; Terryl Wallace[1]; Christapher Lang[1]; [1]NASA Langley Research Center

9:50 AM Invited
Imaging and Diffraction Tomography Studies Under High Pressure Extreme Conditions: *Haozhe Liu*[1]; Luhong Wang[1]; [1]Harbin Institute of Technology

10:10 AM Break

10:30 AM Keynote
Applications of Residual Stress Diffractometer for Strain and Residual Stress Measurement in CIAE: *Junhong Li*[1]; Dongfeng Chen[1]; Yuntao Liu[1]; Meijuan Li[1]; Shuo Sun[1]; [1]China Institute of Atomic Energy

10:55 AM Keynote
Neutron Diffraction Studies of the Perovskite Oxides: *Jinbo Yang*[1]; Chao Yun[1]; Xuegang Chen[1]; [1]Peking University

11:20 AM Invited
High Pressure Research Using Advanced Synchrotron Radiation Techniques: *Wenge Yang*[1]; [1]Carnegie Institution-HPSynC

11:40 AM Invited
Studies of Disorder and Strain by Synchrotron and Neutron Diffraction: *Davor Balzar*[1]; [1]University of Denver

A. Materials for Energy: Session III

Program Organizers: Fernand Marquis, Naval Postgraduate School; Shaoxiong Zhou, Central Iron and Steel Research, China; Akihiko Kimura, Kyoto University; Young Hwan Cho, KIST; Shixue Dou, Wollongong University; Renkun Chen, University of California

Tuesday PM
August 6, 2013

Room: Kohala 2
Location: Hilton Waikoloa Village

Session Chairs: Jian Luo, UCSD; Li Lu, National University of Singapore

2:00 PM Keynote
Power and Energy at DARPA: *Brian Holloway*[1]; [1]Defense Advanced Research Projects Agency (DARPA)

2:25 PM Keynote
Nanostructured MnO_2 and its Composites for Supercapacitors: Hui Xia[1]; *Li Lu*[1]; [1]National University of Singapore

2:50 PM Invited
Advanced Materials and Processes for Solid Oxide Fuel Cells: *Fanglin (Frank) Chen*[1]; [1]University of South Carolina

3:10 PM Invited
Nanoscale Interfacial Films in Battery and Ionic Materials: *Jian Luo*[1]; Jiajia Huang[1]; Mojtaba Samiee[1]; [1]UCSD

3:30 PM Invited
Synthesis of Nano-sized Sn-Cu Dendrite Structures by Electrochemical Deposition and their Electrochemical Properties: Jeong-Hoon Jeun[1]; Kyu-Young Park[1]; Won-Sik Kim[1]; KiSuk Kang[1]; *Seong-Hyeon Hong*[1]; [1]Seoul National Univ.

3:50 PM
Effect of Pore Structure on the Mechanical, Electrical and Electrochemical Properties of a NiO-YSZ Anode Support for SOFCs: *Seungbok Lee*[1]; Wandi Wahyudi[1]; Rak-Hyun Song[1]; Jong-Won Lee[1]; Tak-Hyoung Lim[1]; Seok-Joo Park[1]; [1]KIER

4:05 PM Break

4:25 PM
Synthesis, Characterization and Pseudo-Capacitive Performance of MnO_x/CNT Heteronanostructures: *Kanchan Mondal*[1]; Chung-Ying Tsai[1]; [1]Southern Illinois University

4:40 PM
Degradation of Solid Oxide Fuel Cell Air Electrode: *Prabhakar Singh*[1]; Manoj Mahapatra[1]; Boxun Hu[1]; Na Li[1]; Michael Keane[1]; [1]University of Connecticut

4:55 PM
First-Principles Computational Design and Synthesis of Intermetallic Clathrates for Energy Storage and Recovery: *Kwai Chan*[1]; Carol Ellis-Terrell[1]; Michael Miller[1]; [1]Southwest Research Institute

5:10 PM
In-Operando X-ray Diffraction of LSM/YSZ Cathodes on Anode-Supported Solid Oxide Fuel Cells: *John Hardy*[1]; Jared Templeton[1]; Jeffry Stevenson[1]; [1]Pacific Northwest National Laboratory

5:25 PM
Preparation and Properties of a Cathode Material Fabricated from Conductive Polymers and Wool Fabric: *Yen Truong*[1]; Pon Kao[1]; Narelle Chew[1]; Ilias Kyratzis[1]; Adam Best[1]; Anand Bhatt[1]; [1]CSIRO

5:40 PM
Effects of Alloy Microstructure and Manganese Cobaltite Coatings on Oxidation Kinetics for the SOFC Interconnect Alloy Crofer 22 APU: Neal Magdefrau[1]; Louis Gambino[2]; Lei Chen[1]; Ellen Sun[1]; *Mark Aindow*[2]; [1]United Technologies Research Center; [2]University of Connecticut

B. Materials for the Environment: Formation, Degradation, Recycling and Recovery of Materials

Program Organizers: Fernand Marquis, Naval Postgraduate School; Chengjia Shang, University of Science and Technology Beijing; Shinji Fujimoto, Osaka University; Bong Sun Yoo, KIMS; Rachel Caruso, The University of Melbourne; William Tumas, Center for Chemical and Materials Science

Tuesday PM
August 6, 2013

Room: Kona 3
Location: Hilton Waikoloa Village

Session Chairs: Takumi Haruna, Kansai University; Shinji Fujimoto, Osaka University

2:00 PM Keynote
Effect of pH on Susceptibility to Environment-assisted Cracking of AZ31 Mg Alloy: *Takumi Haruna*[1]; Ryota Kishimoto[1]; [1]Kansai University

2:25 PM
Electrochemical Impedance Characteristics of Sintered 7075 Aluminum Alloy under SSRT Test: *Satoshi Sunada*[1]; Norio Nunomura[1]; [1]University of Toyama

2:40 PM
Environmental Degradation of Nuclear Waste Storage Canister Materials: John Grant[1]; *Dev Chidambaram*[1]; [1]University of Nevada Reno

2:55 PM
EBSD Study of Electromigration Damage in Idealized SnAgCu 305 Interconnects: *Xioranny Linares*[1]; Kyu-oh Lee[2]; John Morris[1]; [1]UC Berkeley; [2]Intel

3:10 PM
Degradation for Leaching and Freezing of Red Ceramics Pieces with Addition Ornamental Rock Waste: *Gustavo Xavier*[1]; Daniella Rodrigues[1]; Fernando Albuquerque[1]; Paulo Cesar Maia[1]; Jonas Alexandre[1]; [1]UENF

3:25 PM
The Rate and Mechanisms of Chemical Elements from Atmosphere, Pedosphere, Hydrosphere and Biosphere on Human and Ecosystem Health: *Alphonse Djorgbenoo*[1]; [1]Mining

3:40 PM Keynote
Fabrication of Metal Foam and its Applications: *Jung Yeul Yun*[1]; Sangsun Yang[1]; Dong Won Lee[1]; Man Ho Park[2]; Soo Ho Kim[2]; [1]Korea Institute of Materials Science/Powder Technology Department; [2]Alantum Cooperation

4:05 PM Break

4:25 PM
Novel Self-foaming Cellular Composites Produced from Recycled Water Potabilisation Sludge: *Fabricio Espejel Ayala*[1]; Oscar Gonzales Barcelo[1]; Rosa Ramirez Zamora[1]; Rafael Schouwenaars[1]; [1]Universidad Nacional Autonoma de Mexico

4:40 PM
Improvement of Descalability of High Carbon Steel Wire Rods: *Dayong Guo*[1]; YuHui Ren[1]; [1]Ansteel

4:55 PM Invited
Electrochemical Formation of Tb Alloys in LiCl-KCl Eutectic Melts: *Hirokazu Konishi*[1]; Kenta Mizuma[1]; Hideki Ono[1]; Eiichi Takeuchi[1]; Toshiyuki Nohira[2]; Tetsuo Oishi[3]; [1]Osaka University; [2]Kyoto University; [3]National Institute of Advanced Industrial Science and Technology

5:15 PM
Recovery of Gold from Electronic Waste and Determination of Kinetics of this Process: *Navid Zandi*[1]; Seyed Khatiboleslam Sadrnezhaad[1]; [1]Sharif University

5:30 PM
Research on the Recycling of China's Typical End-of-Life Automotive Plastic Components: Hongshen Zhang[1]; Ming Chen[1]; [1]Shanghai Jiao Tong University

5:45 PM
Investigation on the Correlation of Sulfur, Chlorine, Silicon and the Occurrence of Mercury in Anthracites: Guofang Wu[1]; *Wei Gao*[1]; Qingcai Liu[1]; Jian Yang[1]; Lang Liu[1]; [1]University of Chongqing

C. Advanced High-Temperature Structural Materials: Processing of Superalloys II

Program Organizers: Fernand Marquis, Naval Postgraduate School; Guoqing Zhang, Beijing Institute of Aeronautical Materials; Haruyuki Inui, Kyoto University; Kyung-Tae Park, Hanbat National University; Julie Cairney, The University of Sydney; Eugene Olevsky, San Diego State University

Tuesday PM
August 6, 2013

Room: King 1
Location: Hilton Waikoloa Village

Session Chairs: Arvind Agarwal, Florida International University; Masao Takeyama, Tokyo Institute of Technology

2:00 PM Keynote
Gas Atomisation and Spray Deposition of High-Temperature Structural Materials: *Guoqing Zhang*[1]; Zhou Li[1]; [1]Beijing Institute of Aeronautical Materials

2:25 PM Invited
Study on the Strain Rate Sensitivity of a Ni-based Superalloy: *Lei Wang*[1]; Yang Liu[1]; Jun-chao Jin[1]; Jin-hui Du[2]; Bei-jiang Zhang[2]; [1]Northeastern University; [2]Central Iron and Steel Research Institute

2:45 PM
Precipitation of the Gamma Prime Phase in a Ni-Co-based Superalloy during Different Stages of Cooling: *Chuanyong Cui*[1]; Ling Xu[1]; XF Sun[1]; Yizhou Zhou[1]; [1]Institute of Metal Research

3:00 PM
Coarsening Kinetics of Grain Boundaries in a Cast Nickel Base Superalloy during Long Term Aging: *Qiang Zeng*[1]; Minghan Zhao[1]; Ping Yan[1]; Juntao Li[1]; Jingchen Zhao[1]; Longfei Zhang[1]; [1]Department of High Temperature Materials Research, Central Iron and Steel Research Institute

3:15 PM
The Effect of Silicon Additions on the Thermal Stability and Morphology of Carbides in a Ni-Mo-Cr Superalloy: *Li Jiang*[1]; Zhou Feng Xu[1]; Zhijun Li[1]; Yanling Lu[1]; Guanyuan WU[1]; Xingtai Zhou[1]; [1]Shanghai Institute of Applied Physics, Chinese Academy of Sciences

3:30 PM
Grain Growth Behavior of a Ni-Cr Based Superalloy GH4033 in Reheating Process Prior to Hot Rolling: *Liqing Chen*[1]; Qing Cheng[1]; Fuxian Zhu[1]; Yang Zhao[1]; [1]Northeastern University

3:45 PM
Heat Treatment Effects on the High Temperature Mechanical Behavior of Directionally Solidified MAR-M247 Superalloy: Hui-Yun Bor[1]; Chao-Nan Wei[1]; An-Chou Yeh[2]; Wei-Bin He[3]; Huei-Sen Wang[3]; *Chen-Ming Kuo*[3]; [1]Chung-Shan Institute of Science and Technology; [2]National Tsing Hua University; [3]I-Shou University

4:00 PM Break

4:20 PM Keynote
A Feasibility Study on Ni-base ODS Alloy Development for Nuclear Applications: *Jinsung Jang*[1]; Young-Bum Chun[1]; Chang Hee Han[1]; Seok Hoan Jeong[1]; Young-Soo Han[1]; Tae Kyu Kim[1]; [1]KAERI

4:45 PM
Effect of Long Time Thermal Exposure on Microstructure and Mechanical Properties of C276 Superalloy: *Yanling Lu*[1]; Jinxi Liu[1]; Xiaoke Li[2]; Zhijun Li[1]; Guanyuan Wu[2]; Anping Dong[3]; Xingtai Zhou[2]; [1]Shanghai Institute of Applied Physics,Chinese Academy of Sciences; [2]Shanghai Institute of Applied Physics, Chinese Academy of Sciences; [3]Shanghai Jiao Tong University

5:00 PM Invited
High Temperature Deformation and Diffusion Bonding Characteristics of INCONEL 718 Sheet: *Yong-Nam Kwon*[1]; S. S. Hong[2]; H.S. Kim[2]; [1]Korea Institute of Materials Science; [2]Agency for Defense Development

5:20 PM
Effect of Strain Rates on Fatigue Behavior of IC10 Superalloy at High Temperature: *Cheng Li*[1]; Xinyue Huang[1]; Zhaohui Huang[1]; [1]Beijing Institute of Aeronautical Materials

5:35 PM
Dynamics of Recrystallization Behavior and Grain Growth Behavior of Nb-Ti-Al Superalloy: *Lairong Xiao*[1]; Chenxu Yu[1]; [1]Central South University

5:50 PM
Cleanliness of Spray Formed Superalloy: *Wenyong Xu*[1]; Guoqing Zhang[1]; Zhou Li[1]; Hua Yuan[1]; Yue Wang[1]; [1]Beijing Institute of Aeronautical Materials

D. Advanced Steels and Processing: Performance of Steels in Experiments, Simulation, and Theory I

Program Organizers: Fernand Marquis, Naval Postgraduate School; Han Dong, Central Iron and Steel Research Institute; Kaneaki Tsuzaki, National Institute for Materials Science; Sung Joon Kim, POSTECH; Rian Dippenaar, University of Wollongong; Kip Findley, Colorado School of Mines

Tuesday PM
August 6, 2013

Room: Kohala 4
Location: Hilton Waikoloa Village

Session Chairs: Kaneaki Tsuzaki, National Institute for Materials Science; Klaus-Dieter Liss, ANSTO; Masatake Yamaguchi, Japan Atomic Energy Agency

2:00 PM Introductory Comments

2:05 PM Keynote
Atomistic Modeling of Solute Atom Effect on Mechanical Properties of Steel: *Shigenobu Ogata*[1]; [1]Osaka University

2:30 PM Invited
The Evolution of Integrated Computational Materials Engineering (ICME) in Steels from Three Perspectives: A US Government Researcher, Principal Investigator of an ICME Implementation Study, and the Technical Director of a Professional Society: *George Spanos*[1]; [1]TMS

2:50 PM Invited
Temper and Hydrogen-induced Intergranular Embrittlement of Alloy Steel: First-principles Calculations and Fracture Mechanics Experiments: *Masatake Yamaguchi*[1]; Jun Kameda[2]; [1]Japan Atomic Energy Agency; [2]Tohoku University

3:10 PM
Recent Progress of Advanced Steels in China: *Yuqing Weng*[1]; Han Dong[2]; [1]Chinese Society for Metals; [2] Central Iron & Steel Research Institute

3:25 PM
Composition Interpretation of Superhigh Strength Maraging Stainless Steels Using Cluster-Plus-Glue-Atom Model: Qing Wang[1]; Qianfeng Zha[1]; Wen Lu[1]; Chunjun Ji[1]; Chuang Dong[1]; [1]Dalian University of Technology

3:40 PM
Effect of Prior Austenite Grain Size on Hydrogen Embrittlement Behaviors in 8Ni-0.1C Steel: *Akinobu Shibata*[1]; Takahiro Matsuoka[1]; Nobuhiro Tsuji[1]; [1]Kyoto University

3:55 PM
Solute-Solute Interaction in Alpha Iron - Theory and Experiment: *Hiroshi Numakura*[1]; [1]Osaka Prefecture University

4:10 PM Break

4:30 PM
Toughening by Adding Embrittler Phosphorus to a High Strength Steel with Ultrafine Elongated Grain Structure: *Meysam Jafari*[1]; Kaneaki Tsuzaki[2]; [1]Carnegie Mellon University; [2]National Institute for Materials Science (NIMS)

4:45 PM
Factors Affecting Competition in Fatigue Crack Nucleation Mechanisms in Steels: *Kip Findley*[1]; [1]Colorado School of Mines

5:00 PM
Effect of Al Content on Tensile Deformation and Fracture Behavior Transition Due to Strain-rate Change in Fe–SI–AL Alloys: *Takashi Mizuguchi*[1]; Ryutaro Yamamoto[1]; Tomoaki Higuchi[1]; Hayato Miyagawa[1]; Yasuhiro Tanaka[1]; [1]Kagawa University

5:15 PM
Influence of Silicon Addition on the Low Temperature Toughness of Pressure Vessel Steels: Jinao Qiu[1]; *Kai-Ming Wu*[1]; Jianhua Li[1]; P.D. Hodgson[2]; [1]Wuhan University of Science and Technology; [2]Deakin University

5:30 PM
Effects of High Angle Boundaries on the Strength and Toughness of Lath Martensite: *Zhaodong Li*[1]; [1]Central Iron and Steel Research Institute

5:45 PM
The Study on the Interphase Precipitation of Copper-rich Precipitates and Its Strengthening Effect for Low Carbon Steels: *Xuemin Wang*[1]; Chengjia Shang[1]; Xinlai He[1]; Yu He[1]; [1]University of Science and Technology Beijing

E. Light Metals and Alloys: Aluminum II

Program Organizers: Fernand Marquis, Naval Postgraduate School; Yongqing Zhao, Northwest Institute for Nonferrous Metal Research; Yoshihito Kawamura, Kumamoto University; Kwang Seon Shin, Seoul National University; Jian-Feng Nie, Monash University; Suveen Mathaudhu, U.S. Army Research Office

Tuesday PM
August 6, 2013

Room: Kona 4
Location: Hilton Waikoloa Village

Session Chairs: Yassar Ahmed, German University of Cairo; James Earthman, University of California - Irvine

2:00 PM Introductory Comments

2:05 PM Keynote
Elimination of Iron in Molten Aluminum Scrap by Electromagnetic Stirring Technique: *Gyu Chang Lee*[1]; Joopyo Park[1]; Myoung Gyun Kim[1]; [1]RIST

2:30 PM
Challenges in Light Alloy Phase Characterisation Suited to Nuclear Magnetic Resonance: *Anita Hill*[1]; Timothy Bastow[1]; [1]CSIRO

2:45 PM Invited
Control of Textures in Aluminum Solid Solution Alloys by High-temperature Deformation: *Hiroshi Fukutomi*[1]; [1]Yokohama National University

3:05 PM
Atom Probe Study of AA2198 Microstructural Evolution: *Vicente Araullo-Peters*[1]; Baptiste Gault[1]; Frederic de Geuserc[2]; Alexis Deschamps[2]; Julie Cairney[1]; [1]University of Sydney; [2]Grenoble INP-UJF-CNRS

3:20 PM
Effect of Heat Treatment on Fatigue Behavior and Mechanical Properties of Al 7021-T6: *Yasser Ahmed*[1]; [1]German University in Cairo

3:35 PM
Mechanical Behavior of Bulk Diamantane Stabilized Nanocrystalline Aluminum: Khinlay Maung[1]; M. Colin Arnold[1]; Farghalli Mohamed[1]; *James Earthman*[1]; [1]University of California, Irvine

3:50 PM
Preparation of Al Alloy Composites by MicroSHS: *Tokujiro Yamamoto*[1]; [1]Utsunomiya University

4:05 PM Break

4:25 PM
Textural Stability during Annealing in Aluminum Subjected to Shear Deformation: *Yoshimasa Takayama*[1]; Yasuhiro Hoshina[1]; Ryuichi Hamano[1]; Tokujiro Yamamoto[1]; [1]Utsunomiya University

4:40 PM
Theoretical and Experimental Study of Al-Nb Alloys Oxidation: *Alena Upolovnikova*[1]; [1]Institute of Metallurgy, Ural Division of Russian Academy of Sciences

4:55 PM
Corrosion Protection of Light Metals and Alloys Using Rare Earth Oxide Based Coatings: *Matt OKeefe*[1]; Bill Fahrenholtz[1]; [1]Missouri S&T

5:10 PM
Preventing Molten Aluminium Water Explosions With Thin Filmed Organic Coatings: *Alex Lowery*[1]; [1]WISE CHEM LLC

5:25 PM
Deformation Behavior of Mg-Y and Mg-Al-Zn Alloy Single Crystals in Compression: *Shinji Ando*[1]; Masayuki Tsushida[1]; Hiromoto Kitahara[1]; [1]Kumamoto University

F. Composites and Hybrid Materials: Metal Matrix Composites II

Program Organizers: Fernand Marquis, Naval Postgraduate School; Di Zhang, Shanghai Jiao Tong University; Yutaka Kagawa, The University of Tokyo; Jae Chul Lee, Korea University; Yuri Estrin, Monash University; Nikhilesh Chawla, Arizona State University

Tuesday PM
August 6, 2013

Room: Queen 4
Location: Hilton Waikoloa Village

Session Chair: Nikhilesh Chawla, Arizona State University

2:00 PM Keynote
Biomimetic CNT/Al Composites Fabricated by a Technique Route of Flake Powder Metallurgy: *Zhiqiang Li*[1]; Genlian Fan[1]; Huanhuan Pan[1]; Zhen Qin[1]; Yishi Su[1]; Qiang Guo[1]; Dingbang Xiong[1]; Di Zhang[1]; [1]Shanghai Jiao Tong Univeristy

2:25 PM
An Approach to Improve the Tensile Ductility of Particle Reinforced Ultrafine-grained Metallic Composite by Nano-dispersion Toughening: *Genlian Fan*[1]; Xi Zhou Kai[1]; Zhiqiang Li[1]; Qiang Guo[1]; Yishi Su[1]; dingbang xiong[1]; Di Zhang[1]; [1]Shanghai Jiao Tong University

2:40 PM
CNT Reinforced Copper Composite for High Contact Pressure Electrodes by Powder Extrusion Process: *Jinyoung Park*[1]; Eoksoo Kim[1]; Pilhwan Yoon[1]; Jihwan Choi[1]; Sungsil Jung[2]; Daeyeol Lee[2]; [1]Korea Institute of Industrial Technology; [2]Applied Carbon Nano Technology Co., Ltd.

2:55 PM
Microstructures and Mechanical Properties of Carbon Nanotubes Reinforced AZ91D Composites Prepared by Squeeze Casting: Congyang Zhang[1]; *Wenzhen Li*[1]; Weidong Xue[1]; [1]Tsinghua University

3:10 PM Invited
Superplasitic Tensile Behavior of In Situ TiBw/Ti_6Al_4V Composite with Novel Network Microstructure: *Lin Geng*[1]; Lu Jun Huang[1]; Bao Xi Liu[1]; [1]Harbin Institute of Technology

3:30 PM
Relationship between Microstructure and Electrical Conductivity of TiB_2 Particle Dispersed Al Composites by Spark Sintering Process: *Gen Sasaki*[1]; Kota Ishikawa[1]; Kenjiro Sugio[1]; Yongbum Choi[1]; Kazuhiro Matsugi[1]; [1]Hiroshima University

3:45 PM
Aluminum/TPG Metal Matrix Composite with Improved Thermal Conductivity: *Alexander Katz-Demyanetz*[1]; Daniel Safranchik[1]; Denis Zolotaryov[1]; Eyal Eshed[1]; Menachem Bamberger[1]; [1]Technion - Israel Institute of Technology

4:00 PM Break

4:20 PM
Preparation and Characterization of Diamond/Cu Composites: *Guisong Wang*[1]; Lin Geng[1]; L Z Zhao[1]; [1]Harbin Institute of Technology

4:35 PM
Synthesis, Properties and Applications of Nanodiamond /Si and Nanodiamond/ WC Composites: N. Wiora[1]; K. Bruehne[1]; *Hans Fecht*[1]; [1]Ulm University

4:50 PM
The Role of Compositionally Graded Interface in Enhancing Thermal Conductivity of Cu/Diamond Composites: *Hailong Zhang*[1]; Juan Luo[1]; Xitao Wang[1]; [1]University of Science and Technology Beijing

5:05 PM
Role of Si in the Wetting of α–SiC by Al: *Xiaoshuang Cong*[1]; Ping Shen[1]; Yi Wang[1]; Zhihao Bai[1]; Qichuan Jiang[1]; [1]Jilin University

5:20 PM
Microstructure Formation in Ti_3SiC_2-Cu Composites Produced by Mechanical Milling and Spark Plasma Sintering: *Dina Dudina*[1]; Vyacheslav Mali[2]; Alexander Anisimov[2]; Michail Korchagin[1]; Oleg Lomovsky[1]; [1]Institute of Solid State Chemistry and Mechanochemistry SB RAS; [2]Lavrentiev Institute of Hydrodynamics SB RAS

5:35 PM
Micromechanics-based Examination of Thermo-Mechanical Response of ZrO_2/Ti Functionally Graded Materials Fabricated by Spark Plasma Sintering: *Hideaki Tsukamoto*[1]; Yoshiki Komiya[1]; Hisashi Sato[1]; Yoshimi Watanabe[1]; [1]Nagoya Institute of Technology

G. Biomaterials, Smart Materials, and Structures: Session III

Program Organizers: Fernand Marquis, Naval Postgraduate School; Chengbao Jiang, Beihang University; Takayuki Narushima, Tohoku University; Byong Taek Lee, Soonchunhyang University; Anita Hill, CSIRO; R. Narayan, UNC/NCSU Joint Department of Biomedical Engineering

Tuesday PM
August 6, 2013

Room: Queen 6
Location: Hilton Waikoloa Village

Session Chairs: Matthew Hill, CSIRO; Takashi Fukuda, Osaka University

2:00 PM Introductory Comments

2:05 PM Keynote
Biofunctionalization of Metallic Materials: *Takao Hanawa*[1]; [1]Tokyo Medical and Dental University

2:30 PM Keynote
Engineered Nanomaterials for Biomedical Applications: Potential and Toxicity Issues: *Sanjay Mathur*[1]; Thomas Fischer; [1]University of Cologne

2:55 PM Invited
Large Elastic-like Strain in an Fe-31.2 Pd (at.%) Alloy Exhibiting a Second-order-like FCC-FCT Martensitic Transformation: *Takashi Fukuda*[1]; Fei Xiao[1]; Tomoyuki Kakeshita[1]; [1]Osaka University

3:15 PM Invited
Processing and Characterisation of Titanium Based Alloy Scaffolds by Adaptive Foam Reticulation: *James Winnett*[1]; Kajal Mallick[1]; [1]Warwick Manufacturing Group

3:35 PM Invited
In Vitro Study of Role of Trace Amount of Cu Release from Cu-bearing Stainless Steel Targeting for Reduction of In-stent Restenosis: *Ling Ren*[1]; Jingwen Feng[1]; Yang Zhang[1]; Ke Yang[1]; [1]Institute of Metal Research CAS

3:55 PM
Some Merits of Coil Orientation Change for Shape Memory Alloys: *Kwang Jee*[1]; Jun Han[2]; Woo Jang[3]; [1]Korea Institute of Science and Technology; [2]Chungnam National University; [3]Chosun University

4:10 PM Break

4:30 PM Keynote
Capture, Separation and Triggered Release of CO_2 with Metal Organic Frameworks: *Matthew Hill*[1]; [1]CSIRO

4:55 PM
Investigation of Mechanical Properties and Bio-Corrosion Properties of Extruded Mg-2Zn-1Mn-xCaO (x=0.5, 1.0, 1.5) Alloys for Biodegradable Materials: *Hyun Kyu Lim*[1]; Wonseok Yang[1]; Young-Ok Yoon[1]; Shae K. Kim[1]; [1]KITECH

5:10 PM Invited
Production and Characterization of ß Titanium Alloys of Ti-Nb-Fe-Sn System for Biomaterial Applications: *Conrado Afonso*[1]; Rubens Caram[2]; [1]Federal University of São Carlos (UFSCar); [2]State University of Campinas (Unicamp)

5:30 PM
Formation and Regeneration of Preferential Alignment of Extra Cellular Matrix in Calvaria Analysed by Microbeam X-Ray Diffractometer: *Takuya Ishimoto*[1]; Daisei Taguchi[1]; Takayoshi Nakano[1]; [1]Osaka University

5:45 PM
Role of Crystal Orientation on the Strain-induced Martensitic Transformation of Biomedical Co-Cr-Mo-N Alloy: *Byoung-Soo Lee*[1]; Hiroaki Matsumoto[2]; Yuichiro Koizumi[2]; Akihiko Chiba[2]; [1]Korea Insitute of Industrial Technology, South Korea; [2]Tohoku University

6:00 PM Demonstration

H. Rare Earth, Electronic, and Magnetic Materials: Magnetic Refrigeration

Program Organizers: Fernand Marquis, Naval Postgraduate School; Wei Li, Central Iron & Steel Research Institute; Koki Takanashi, Tohoku University; Woo Young Lee, Yonsei University; Mark Ridgway, Australian National University; Sungho Jin, UC San Diego

Tuesday PM
August 6, 2013

Room: Waikoloa 1
Location: Hilton Waikoloa Village

Session Chairs: Chong Seung Yoon, Hanyang University; Karl Gschneidner, Iowa State University

2:00 PM Keynote
Magnetic Refrigeration a 21st Century Highly Efficient and Green Cooling Technology: *Karl Gschneidner*[1]; Yaroslav Mudryk[1]; Vitalij Pecharsky[1]; [1]Iowa State University

2:25 PM
Influence of Thermal Treatment on Magnetocaloric Properties of Gd Cold Rolled Ribbons: *Sergey Taskaev*[1]; Konstantin Skokov[2]; Vsiliy Buchelnikov[1]; Anatoliy Pellenen[3]; Dmitry Kerpenkov[4]; Dmitry Bataev[1]; Oliver Gutfleisch[2]; [1]Chelyabinsk State University; [2]TU Darmshtadt; [3]South Ural State University; [4]Tver State University

2:40 PM
Giant Low-Field Magnetocaloric Effect with Small Hysteresis Near Room Temperature in MnFePGe Compounds: *Danmin Liu*[1]; Qingzhen Huang[2]; Meng Zhang[1]; Ming Yue[1]; Cuixiu Liu[1]; Zhenlu Zhang[1]; Jeffray Lynn[2]; Jiuxing Zhang[1]; [1]Beijing University of Technology; [2]National Institute of Standards and Technology

2:55 PM
Magnetic, Magnetocaloric and Electrical Properties in Bulk Nanocrystalline Gd Metals: *Hong Zeng*[1]; Ying Wu[1]; Jiuxing Zhang[2]; Chunjiang Kuang[1]; Ming Yue[2]; Ying Chen[3]; Shaoxiong Zhou[1]; [1]Advance Technology & Materials Co., Ltd, China Iron & steel Research Institute Group; [2]Beijing University of Technology; [3]Deakin University

3:10 PM Invited
Formation of 1:13 Phase in La(Fe,Si)13 -Based Alloys: *Long Yi*[1]; Fu Song[1]; Wang Chaolun[1]; Ye Rongchan[1]; [1]University of Science and Technology Beijing

3:30 PM
Enhancement of the Refrigerant Capacity in Partially Crystallized Gd-Fe-Al-B Melt-spun Alloys: *Ivan Skorvanek*[1]; Jozef Marcin[1]; Bogdan Idzikowski[2]; [1]Institute of Experimental Physics; [2]Institute of Molecular Physics

3:45 PM
Ferromagnetic Strain Glass in Co Doped Ni-Mn-Ga Alloy: *Yu Wang*[1]; Chonghui Huang[1]; Xiaoping Song[1]; Xiaobing Ren[2]; [1]MOE Key Laboratory for Nonequilibrium Synthesis and Modulation of Condensed Matter, Xi'an Jiaotong University, China; [2]National Institute for Materials Science

4:00 PM Break

4:20 PM
Exploring La(Fe,Si)13-based Magnetic Refrigerants Towards Application: *Jian Liu*[1]; Oliver Gutfleisch[2]; [1]Ningbo Institute of Materials Technology and Engineering, CAS; [2]Technical University Darmstadt

4:50 PM
Study of Ultrathin AlN Properties as a Function of Bottom Electrode Material: *Liliana Stan*[1]; Dean Miller[1]; Seungbum Hong[1]; Sheng Tong[1]; David Czaplewski[1]; Jung-Hyun Park[1]; Orlando Auciello[2]; [1]Argonne National Laboratory; [2]University of Texas-Dallas

4:35 PM
Magnetocaloric Effect in Ni-Mn-Ga Heusler Alloys: *Mikhail Drobosyuk*[1]; Vasiliy Buchelnikov[1]; Sergey Taskaev[1]; Vladimir Sokolovskiy[2]; [1]Chelyabinsk State University; [2]National University of Science and Technology "MISIS"

H. Rare Earth, Electronic, and Magnetic Materials: Rare Earth Free Magnets

Program Organizers: Fernand Marquis, Naval Postgraduate School; Wei Li, Central Iron & Steel Research Institute; Koki Takanashi, Tohoku University; Woo Young Lee, Yonsei University; Mark Ridgway, Australian National University; Sungho Jin, UC San Diego

Tuesday PM
August 6, 2013

Room: Queen 5
Location: Hilton Waikoloa Village

Session Chairs: Sungho Jin, UC San Diego; R McCallum, Ames Laboratory

2:00 PM Keynote
Advances in Rare-Earth-Free Permanent Magnets: *David Sellmyer*[1]; [1]University of Nebraska

2:25 PM Keynote
First Principles Calculation for Magnetic Properties of Mn Alloys: *Akimasa Sakuma*[1]; [1]Tohoku University

2:50 PM Invited
Magnetic and Structural Studies of Mn-based Permanent Magnetic Materials MnX (X=Bi, Sb, Al, Ga): *Jinbo Yang*[1]; Jingzhi Han[1]; Yunbo Yang[1]; Jianzhong Wei[1]; Guijun Lian[1]; Yingchang Yang[1]; [1]Peking University

3:10 PM Invited
MnBi Permanent Magnets via Spark Erosion: *Ami Berkowitz*[1]; Sungho Jin[1]; Phi-Khanh Nguyen[1]; [1]University of California, San Diego

3:30 PM Invited
Replacing Critical Rare Earth Materials in High Energy Density Magnets: *R McCallum*[1]; [1]Ames Laboratory

3:50 PM Invited
Synthesis and Characterization of $L1_0$-ordered FeNi Films with Large Magnetic Anisotropy: *Masaki Mizuguchi*[1]; Takayuki Kojima[1]; Misako Ogiwara[1]; Takayuki Tashiro[1]; Masato Kotsugi[2]; Koki Takanashi[1]; [1]Tohoku University; [2]SPring-8

4:10 PM Break

4:30 PM Invited
Magnetic Domain Structure and Morphology of Alternate Monoatomic (Fe/Ni)x Multilayer Deposited on Step-bunched Cu(001) Investigated by Photoemission Electron Microscope: *Masato Kotsugi*[1]; Takumi Ohtsuki[1]; Takuo Ohkochi[1]; Takayuki Kojima[2]; Misako Ogiwara[2]; Masaki Mizuguchi[2]; Koki Takanashi[2]; [1]SPring-8/JASRI; [2]Tohoku Univ. IMR

4:50 PM
Alloy Design and Powder Processing of Mn-Al Based Materials for Rare Earth Free Magnets: *Chul-Jin Choi*[1]; [1]Korea Institute of Materials Science

5:05 PM
Microstructure and Coercivity of Nitrided Mn-Sn Based Alloy: *Masashi Matsuura*[1]; Keita Isogai[2]; Keita Shinaji[1]; Tsuyoshi Mase[1]; Nobuki Tezuka[1]; Satoshi Sugimoto[1]; [1]Tohoku University; [2]JST-CREST

5:20 PM Invited
Control of the Composition Gradient in FeSi Alloys and its Correlation with Magnetic Properties: *Haiyuan Yu*[1]; Xiaofang Bi[1]; [1]Beihang University (BUAA)

I. Thin Films and Surface Engineering: Thin Films and Nanomaterials: Synthesis and Characterization

Program Organizers: Fernand Marquis, Naval Postgraduate School; Chuang Dong, Dalian University of Technology; Takashi Goto, Tohoku University; Kyung-Ho Shin, Korea Institute of Science and Technology; Mingxing Zhang, The University of Queensland; Amit Misra, Los Alamos National Laboratory

Tuesday PM
August 6, 2013

Room: Kohala 1
Location: Hilton Waikoloa Village

Session Chair: John Carpenter, Los Alamos National Laboratory

2:00 PM Introductory Comments

2:05 PM Keynote
PVD Growth of Metallic Nanorods - Science Instead of Art: *Hanchen Huang*[1]; [1]University of Connecticut

2:30 PM Invited
Low Defect Preparation Methods of Graphene: *Seokwoo Jeon*[1]; [1]KAIST

2:50 PM Invited
DC Arc Plasma Jet Growth of Large Area High Quality Freestanding Diamond Films and Applications to the Industry: *Fanxiu Lu*[1]; Chengming Li[1]; Yumei Tong[1]; Weizhong Tang[1]; Lifu Hei[1]; Jianhua Song[1]; [1]University of Sicence and Technology Beijing

3:10 PM
Boron-doped Diamond Synthesis Using Mode-conversion Type Microwave Plasma CVD: *Yukihiro Sakamoto*[1]; Hikaru Shimomura[1]; Kaori Fujimaki[1]; [1]Chiba Institute of Technology

3:25 PM
B-C-Mg Hard Amorphous Thin Films Designed Using Cluster-Plus-Glue-Atom Model: *Yanping Ma*[1]; Xueyang Zhou[2]; Aimin Wu[2]; Chuang Dong[2]; [1]Hainan University; [2]Dalian University of Technology

3:40 PM
Structural and Mechanical Properties of TiON Nanocomposite Films Deposited on Silicon by Pulsed Bias Arc Ion Plating: *Zhang Min*[1]; Pan Yuli[1]; Hu Xiaogang[1]; Huang Ye[1]; Lin Guoqiang[2]; Dong Chuang[2]; [1]Liaoning Normal University; [2]Dalian Unversity of Technology

3:55 PM Invited
Advantage of Aerosol Deposition Method in Comparison with Cold Spray Method: *Jun Akedo*[1]; [1]AIST

4:15 PM Break

4:35 PM Invited
Constructive Structural Modification of Superlattices Through Phase Transformation by Low-Energy Ion Irradiation: Sanghoon Kim[1]; Soogil Lee[1]; Jungho Ko[1]; Jangyup Son[1]; *Jongill Hong*[1]; [1]Yonsei University

4:55 PM
Molten Salt Multi-anode Reactive Alloy Coating(MARC) of Ta-W Alloy on SUS316L: *Young Jun Lee*[1]; Dong Jae Park[1]; Keang Soo Kang[2]; Gi Gwang Bae[2]; Moon Hee Han[1]; Jong Hyeon Lee[3]; [1]Graduate School of Green Energy Technology in Chungnam National University; [2]Korea Institute of Energy Research; [3]Graduate School of Department of Metallurgical Engineering in Chungnam National University

5:10 PM
Structural and Morphological Properties of Niobium Nitride Thin Films on Niobium Deposited by Pulsed Laser Deposition: Ashraf Farah[1]; Yüksel Ufuktepe[2]; *Hani Elsayed-Ali*[1]; [1]Old Dominion University; [2]Cukurova University

5:25 PM
Adhesion Strength of the Interface Between TiN Film and White Layer: *Yusuke Ushiro*[1]; Daisuke Okai[1]; Atushi Yamamoto[1]; Eiji Yamanaka[2]; Kiyoshi Matsunaga[2]; Yoshikazu Taniguchi[2]; Yoshitaka Tanaka[2]; Yutaka Fukushima[2]; [1]University of Hyogo; [2]Umetoku Co. Ltd.

5:40 PM
Electrical Properties of Atomic-layer-deposited ZnO/Au Schottky Contact: *Chandreswar Mahata*[1]; Ji Hoon Lee[1]; Hyoungsub Kim[1]; Hyoung Jin Cho[2]; [1]Sungkyunkwan University; [2]University of Central Florida

J. Materials and Processes for Enhanced Performance: Ferrous Alloys: Co & Ni Alloys; Ceramics, and Nanomaterials

Program Organizers: Fernand Marquis, Naval Postgraduate School; Jishan Zhang, USTB; Yoshimi Watanabe, Nagoya Institute of Technology; Young-Kook Lee, Yonsei University; Robert O'Donnell, CSIRO; Jie Liu, Duke University

Tuesday PM
August 6, 2013

Room: King 3
Location: Hilton Waikoloa Village

Session Chair: Daniel East, CSIRO Process Science and Engineering

2:00 PM
Aspects of Heat Treatment Influence in the Pyromet 31V Turning: *Marcos Ribeiro*[1]; Andre Bahia[2]; [1]UNESP; [2]DCTA-IFI

2:15 PM
Enhanced Mechanical Properties of Surface Modified Inconel 718 Alloy by Friction Stir Process: *Kuk Hyun Song*[1]; Won Yong Kim[1]; [1]Korea Institute of Industrial Technology

2:30 PM
Formation of Cube Texture in Ni-Cu-W Alloys: *Jun-an Wang*[1]; Erwei Liu[1]; Jichang Chen[1]; Ying He[1]; Bangxin Zhou[1]; [1]Shanghai University

2:45 PM
Microstructures and Mechanical Properties of B-microalloying Ferromagnetic Shape Memory Alloys: *Gang Wang*[1]; [1]Northeastern University

3:00 PM
On the Microstructural Optimization of a New Polycrystalline Superalloy for Industrial Gas Turbines: *Paraskevas Kontis*[1]; Fredrik Karlsson[2]; Roger Reed[1]; [1]University of Oxford; [2]Siemens Industrial Turbomachinery AB

3:15 PM
Redox Investigation of $NiFe_2O_4$ Supported on Al_2O_3 and Yttria-Stabilized Zirconia for Chemical Looping Combustion: *Yu-Lin Kuo*[1]; Wei-Mau Hsu[2]; Yao-Hsuan Tseng[2]; Young Ku[2]; Ru-Chien Kuo[3]; [1]National Taiwan University of Science and Technology; [2]National Taiwan University of Science and TEchnology; [3]Yun-Lin Branch, Taiwan Textile Research Institute

3:30 PM Invited
Functionally Graded Ceramics Formed by Electron Beam Irradiation: *Wataru Nakao*[1]; [1]Yokohama National University

3:50 PM Break

4:10 PM
Nickel Nanoparticle with Excellent Thermal Stability in Pores of Zeolite: *Hitoshi Inokawa*[1]; Makoto Maeda[1]; Shunsuke Nishimoto[2]; Yoshikazu Kameshima[2]; Michihiro Miyake[2]; Takayuki Ichikawa[3]; Yoshitsugu Kojima[3]; Hiroki Miyaoka[3]; [1]Hiroshima University; [2]Okayama University; [3]Hiroshima University

4:25 PM
Recycling Automotive Waste Glass and Plastic - An Innovative Approach: *Rifat Farzana*[1]; Veena Sahajwalla[1]; [1]The University of New South Wales

K. Solidification, Deformation and Related Processing: Solidification I

Program Organizers: Fernand Marquis, Naval Postgraduate School; Wanqi Jie, Northwestern Polytechnical University; Hiroyuki Yasuda, Osaka University; Hyoung Seop Kim, POSTECH; Yinong Liu, The University of Western Australia; Zak Fang, University of Utah

Tuesday PM
August 6, 2013

Room: Kona 2
Location: Hilton Waikoloa Village

Session Chairs: Wanqi Jie, Northwestern Polytechnical University; Hisao Esaka, National Defence Academy

2:00 PM Introductory Comments

2:05 PM Keynote
Model Experiment for Horizontal Centrifugal Casting Process: *Hisao Esaka*[1]; Hiroshi Kaneko[1]; Daiki Watanabe[1]; Kei Shinozuka[1]; [1]National Defense Academy

2:30 PM
In Situ Visualization on Crystal Growth of Sn Based Alloy with Applied Electric Currents: *Tongmin Wang*[1]; Jing Zhu[1]; Fei Cao[1]; Yanan Fu[2]; Zhiqiang Cao[1]; Tiqiao Xiao[2]; Tingju Li[1]; [1]Dalian University of Technology; [2]Shanghai Synchrotron Radiation Facility

2:45 PM
Numerical Multiscale Modeling of Fluid Flow Characteristics of Ultrasonically Processed A356 Alloys: *Laurentiu Nastac*[1]; [1]The University of Alabama

3:00 PM
Prediction of Microporosity in Complex Thin-wall Castings with Dimensionless Niyama Criterion: *Jun Wang*[1]; [1]Shanghai Jiaotong University

3:15 PM Invited
Solidification of Containerless Undercooled Melts: *Dieter Herlach*[1]; [1]Deutsches Zentrum für Luft- und Raumfahrt

3:35 PM
Directional Solidification of Nano-Sized SiC Particles Reinforced AZ91D Composites: *Qiaobo Zhu*[1]; Wenzhen Li[1]; Weiming Gao[1]; [1]Tsinghua University

3:50 PM
Key Technologies for Square/Round Billet Continuous Castin: *Yong Chen*[1]; Dade Zhang[2]; Guorong WU[3]; Hong Pan[3]; [1]PANsteel Group Research Institute Co., Ltd. ; [2]Pangang Group Steel Vanadium & Titanium Co. ltd. ; [3]PANsteel Group Research Institute Co., Ltd.

4:05 PM Break

4:25 PM
Research on the Crack Mechanism of Electroslag Electrodes for a High-alloyed Martensitic Valve Steel: *Candong Zhou*[1]; Jingxian Fang[1]; Xin Zhao[1]; [1]Baosteel Group Corporation

4:40 PM
Solidification of Alloys in a Strong Magnetic Field: *Ren Zhongming*[1]; Li Xi[1]; Deng Kang[1]; [1]Shanghai University

4:55 PM
Real-time Imaging of the Grain Refinement Process of Aluminum Alloys Inoculated by Al-5Ti-B under Synchrotron Radiation X-ray: *Zongning Chen*[1]; Fei Cao[1]; Tongmin Wang; [1]Dalian University of Technology

5:10 PM
Microstructural Analysis of Rapidly Solidified Droplets of Al-Cu-Sc: *Abdoul-Aziz Bogno*[1]; Hani Henein[1]; [1]University of Alberta

5:25 PM Invited
The Solute Partition and Segregations of Multi-component Alloys in Solidification Process: *Wanqi Jie*[1]; Xiaoyan Sun[1]; Guangyu Yang[1]; [1]Northwestern Polytechnical University

L. Modeling and Simulation of Processes, Microstructures, and Behavior: Modeling and Simulation of Materials Behavior III

Program Organizers: Fernand Marquis, Naval Postgraduate School; Dianzhong Li, Institute of Metal Research, Chinese Academy of Sciences; Tetsuo Mohri, Hokkaido University; Won Tae Kim, Cheongju University; Graeme Murch, The University of Newcastle; Alfredo Caro, LANL

Tuesday PM
August 6, 2013

Room: Kona 5
Location: Hilton Waikoloa Village

Session Chairs: Toshiyuki Koyama, Nagoya Institute of Technology; Tetsuo Mohri, Tohoku University

2:00 PM Keynote
Ab Initio Local Energy and Local Stress Calculations: Applications to Materials Interfaces: *Masanori Kohyama*[1]; Shingo Tanaka[1]; Somesh Bhattacharya[1]; Vikas Sharma[1]; Hao Wang[1]; Yoshinori Shiihara[2]; [1]National Institute of Advanced Industrial Science and Technology; [2]The University of Tokyo

2:25 PM Invited
Ab Initio Thermodynamics: Fundamentals and Applications: *Wenqing Zhang*[1]; [1]Nanjing University

2:45 PM
Mechanical Properties of Dilute Si in bcc-Fe: A First-principles Study: *Ying Chen*[1]; Arkapol Saengdeejing[1]; Ken Suzuki[1]; Hideo Miura[1]; Tetsuo Mohri[2]; [1]Tohoku University; [2]Hokkaido University

3:00 PM
The First Principle Study on the Mechanical and Electronic Properties about Hard Phases and Rim Phases of Ti(C,N) Based Cermets: *Haiqing Yin*[1]; Shanjie Yi[1]; Qingjun Zheng[2]; Dil Khan[3]; Xuanhui Qu[1]; [1]University of Science and Technology Beijing; [2]Kennametal Inc; [3]University of Science and Technology Bannu

3:15 PM
Universal Cluster Formulas for Metallic Glasses and Solid Solution Engineering Alloys: *Chuang Dong*[1]; Qing Wang[1]; Jianbing Qiang[1]; Yingmin Wang[1]; [1]Dalian University of Technology

3:30 PM
Two-dimensional Numerical Study on the Growth of Sea Ice Crystals with Flotation of Crystal Nuclei and its C-axes Distribution: *Yoshiki Kawano*[1]; Tetsuya Ohashi[2]; [1]Asahikawa National College of Technology; [2]Kitami Institute of Technology

3:45 PM Keynote
Image-Based Calculations of Materials Properties Coupled with Phase-Field Microstructure Modeling: *Toshiyuki Koyama*[1]; [1]Nagoya Institute of Technology

4:10 PM Break

4:30 PM Invited
Computational Design of Al Based Compound for Application of Fe-Mn-Al Alloy: *Seung-Cheol Lee*[1]; Jungho Shin[1]; Na-Young Park[1]; Jae-Kon Lee[2]; Jin-Mo Koo[2]; Je-Wook Jang[2]; [1]Korea Institute of Science and Technology; [2]POSCO Technical Research Laboratories

4:50 PM
Surface Termination and Shape of Silicon Nanoparticles from Ab Initio Thermodynamics: *Hugh Wilson*[1]; [1]CSIRO

5:05 PM
Virtual Screening of Materials for Gaseous Fuel Storage: Aaron Thornton[1]; Wei Xian Lim[2]; *Afsana Ahmed*[1]; [1]CSIRO; [2]University of Adelaide

5:20 PM
Isothermal Across Boundary Phase Transition and Multiferroic Super-Response of Single Phase Systems.: *Armen Khachaturyan*[1]; Shashank Priya[2]; [1]Rutgers University; [2]Virginia Tech

5:35 PM
Phase Field Modeling of Oxidation Kinetics: Transport of Charge Carriers, Reaction-Diffusion and Multi-Scale-Relay Simulation: Tianle Cheng[1]; Jeff Hawk[1]; *Youhai Wen*[1]; [1]National Energy Technology Laboratory

5:50 PM Invited
Pattern Formation of Crystal Growth from Near-equilibrium to Far-equilibrium: A Phase Field Crystal Study: Sai Tang[1]; *Jincheng Wang*[1]; Yanmei Yu[2]; Yaohe Zhou[1]; [1]State Key Laboratory of Solidification Processing, Northwestern Polytechnical University,; [2]Institute of Physics, Chinese Academy of Science

L. Modeling and Simulation of Processes, Microstructures, and Behavior: Modeling and Simulations of Materials Processing II

Program Organizers: Fernand Marquis, Naval Postgraduate School; Dianzhong Li, Institute of Metal Research, Chinese Academy of Sciences; Tetsuo Mohri, Hokkaido University; Won Tae Kim, Cheongju University; Graeme Murch, The University of Newcastle; Alfredo Caro, LANL

Tuesday PM
August 6, 2013

Room: Waikoloa 2
Location: Hilton Waikoloa Village

Session Chairs: Alfredo Caro, LANL; Sergio Felicelli, Mississippi State University

2:00 PM Keynote
Fluid Flow Transport Phenomena in Steel Continuous Casting FC-Mold Strands: *Lifeng Zhang*[1]; [1]University of Science and Technology Beijing

2:25 PM Invited
Large-Scale Simulation of Dendritic Solidification: *Sergio Felicelli*[1]; Mohsen Eshraghi[1]; Bohumir Jelinek[1]; [1]Mississippi State University

2:45 PM
Mathematical Modeling of Electromagnetic Stirring of Molten Steel in DC Arc Furnaces: *Vladimir Kalaev*[1]; Sergey Smirnov[1]; [1]STR Group, Inc.

3:00 PM
Modeling of the Argon Stirring Process during Desulfurization in a Steel Ladle: *Pavan Kumar Shivaram*[1]; [1]United States Steel Corporation

3:15 PM
Multi-resolution Modeling of the Dynamic Loading of Metal Matrix Composites: *Remi Dingreville*[1]; Joshua Robbins[1]; Thomas Voth[1]; [1]Sandia National Laboratories

3:30 PM Keynote
Material-Behavior Models for the Thermomechanical Processing of Aerospace Alloys: Lee Semiatin[1]; *Chong Soo Lee*[2]; [1]US Air Force Research Laboratory; [2]POSTECH

3:55 PM Invited
Modeling and Simulation of High Efficiency Welding Processes: *ChuanSong Wu*[1]; [1]Shandong University

4:15 PM Break

4:35 PM
Multi-phase Modeling of Macrosegregation Formation in Steel Ingot: Wutao Tu[1]; *Houfa Shen*[1]; Baicheng Liu[1]; [1]Tsinghua University

4:50 PM
Mathematical Modeling of Bottom Gas Injection in Industrial Metallurgical Ladles in the Presence of a Top Layer of Slag: *Alberto Conejo*[1]; Diego Nuñez[1]; Marco Ramirez-Argaez[1]; [1]ITM

5:05 PM
Numerical Analysis for Flexible Roll Forming: *Dongun Kim*[1]; MyungHwan Cha[1]; Jae-Bok Nam[1]; [1]POSCO

5:20 PM
Finite Element Analysis of Erosion for Offshore Structure: *Zhigang Liu*[1]; [1]Institute of High Performance Computing

5:35 PM
Simulation on the Melting Process of Iron Oxide Pellet in Slags: *Yibo He*[1]; Guo Wei[1]; Biao Tang[1]; Wei Zhang[1]; Mingming Li[1]; Zongshu Zou[1]; [1]Northeastern University

5:50 PM
Numerical Simulation of the Erosion in the Hearth of COREX Melter Gasifier under the Condition of Different Drainage Type: *Kaiping Du*[1]; Shengli Wu[1]; Mingyin Kou[1]; Zhekai Zhang[1]; Wei Shen[1]; [1]University of Science and Technology Beijing, China

M. Bulk Metallic Glasses, Nanocrystalline Materials, and Ultrafine-Grain Materials: Ultrafine Grained Materials I

Program Organizers: Fernand Marquis, Naval Postgraduate School; Yue Zhang, University of Science and Technology Beijing; Nobuhiro Tsuji, Kyoto University; Eun Soo Park, Seoul National University; Michael Ferry, University of New South Wales; Yuntian Zhu, North Carolina State University

Tuesday PM
August 6, 2013

Room: Kohala 3
Location: Hilton Waikoloa Village

Session Chairs: Yuri Estrin, Monash University; Xiaolei Wu, Chinese Academy of Sciences; Nobuhiro Tsuji, Kyoto University; Qing Liu, Chongqing University

2:00 PM Keynote
Work Hardening of Grain-size Gradient Nanostructures: *Xiaolei Wu*[1]; Ping Jiang[1]; Liu Chen[1]; Fuping Yuan[1]; Yuntian Zhu[2]; [1]Institute of Mechanics, Chinese Academy of Sciences; [2]North Carolina State University

2:25 PM Invited
Thermal Stability of Nanocrystalline Aluminum Alloy Produced by SMAT and Its Effect on Atomic Diffusion: *Mingxing Zhang*[1]; Haiwei Chang[1]; [1]The University of Queensland

2:45 PM
Microstructure and Mechanical Properties of Harmonic Structure Designed Pure Aluminum: *Mie Ota*[1]; Takahiro Seo[1]; Kei Ameyama[1]; [1]Ritsumeikan University

3:00 PM Invited
Microstructures and Mechanical Properties of Cu and Cu-Al Alloys Processed by Plastic Deformation with Different Strain Rates and Deformation Temperatures: *Nairong Tao*[1]; K. Lu[1]; [1]Shenyang National Laboratoty for Materilas Science, Institute of Metal Research, Chinese Academy of Sciences

3:20 PM Invited
Strain Rate Sensitivity and Activation Volume in Flow Stress of ARB Processed and Annealed IF Steel: *Naoya Kamikawa*[1]; Akihiro Matsui[2]; Tadashi Furuhara[1]; [1]Tohoku University; [2]Graduate Student, Tohoku University

3:40 PM
Nanostructure Formation during Torsion Deformation at Various Temperatures and Strain Rates in Al-Mg Alloy: Kohta Takahashi[1]; Sunisa Khamsuk[1]; Daisuke Terada[1]; *Nobuhiro Tsuji*[1]; [1]Kyoto University

3:55 PM Invited
Fabrication of Ultrafine Grained Metals and Nanocomposites Using High-ratio Differential Speed Rolling Technique: *Woo Jin Kim*[1]; [1]Hongik University

4:15 PM Break

4:35 PM
Aging Behavior of Ultrafine Grained Commercial Al-Mg-Si Alloy Severely Deformed by ARB Process: *Daisuke Terada*[1]; Youma Kaneda[1]; Seungwon Lee[2]; Zenji Horita[2]; Kenji Matsuda[3]; Shoichi Hirosawa[4]; Nobuhiro Tsuji[1]; [1]Kyoto University; [2]Kyushu University; [3]University of Toyama; [4]Yokohama National Universiy

4:50 PM Invited
Nano Structure Formation through Sequential Evolution of Microstructures during Accumulative Roll Bonding: *Md Zakaria Quadir*[1]; [1]University of New South Wales

5:10 PM Invited
Microtexture Distribution in Friction-Stir-Processed Mg Alloys and its Effect on Deformation and Fracture Behaviors: Renlong Xin[1]; *Qing Liu*[1]; [1]Chongqing University

5:30 PM
Stress Controlled Grain Boundary Dynamics: Model Experiments on Bicrystals: *Dmitri Molodov*[1]; [1]RWTH Aachen University

5:45 PM
Evolution of Microstructure and Texture in Al 6061 Alloy Processed through Multidirectional Cryoforging: Nageswararao Palukuri[1]; Dharmendra Singh[1]; *R Jayaganthan*[1]; [1]IIT Roorkee

N. Advanced Materials Characterization and Evaluation: Integrated Computational and Experimental Tools for Analysis of Microstructure-Property Relationships

Program Organizers: Fernand Marquis, Naval Postgraduate School; Xiaodong Han, Beijing University of Technology; Sho Matsumura, Kyushu University; Dong Il Kwon, Seoul National University; Jin Zou, The University of Queensland; Alexis Lewis, Naval Research Laboratory

Tuesday PM
August 6, 2013

Room: King 2
Location: Hilton Waikoloa Village

Session Chair: Kaoru Sato, JFE Steel

2:00 PM Keynote
Microstructure Informatics for Mining Structure-Property-Processing Linkages from Large Datasets: *Surya Kalidindi*[1]; [1]Georgia Institute of Technology

2:25 PM Invited
Identification and Characterization of Defects in Functional Materials: First Principles Calculation and STEM-EELS: *Teruyasu Mizoguchi*[1]; [1]University of Tokyo

2:45 PM Invited
The Relationship between Microstructure and Magnetic Properties in Ethylene Pyrolysis Tubes: *Milo Kral*[1]; Amy McLeod[1]; [1]University of Canterbury

3:05 PM
Mechanical Characterization Using The Instrumented Indentation Test: Strength, Residual Stress: *Dong Il Kwon*[1]; Young-Cheon Kim[1]; Won-Seok Song[1]; Hee-Jun Ahn[1]; [1]Seonul National University

3:20 PM
Relationship Between Fracture Toughness and Microstructure of a New Near ß Titanium Alloy: *Jiangkun Fan*[1]; Hongchao Kou[1]; Minjie Lai[1]; Bin Tang[1]; Chang Hui[1]; Jinshan Li[1]; [1]State Key Laboratory of Solidification Processing, Northwestern Polytechnical University

3:35 PM
Microstructure - Bendability Relationship in V-Bending of Cast Aluminum Alloy A356: Mahmoud Marzouk[1]; *Mukesh Jain*[1]; Sumanth Shankar[1]; [1]McMaster University

3:50 PM
A High-Fidelity Strain-Mapping Framework: *Shahram Amini*[1]; Rajesh Kumar[1]; [1]United Technologies Research Center

4:05 PM Break

4:25 PM
Numerical Modelling for Characterising the Flammability of Natural Fibre Reinforced Composites: Maurice Chai[1]; *Raj Das*[1]; Simon Bickerton[1]; Debes Bhattacharyya[1]; [1]University of Auckland

4:40 PM
Multi-functional KIc-test Specimen for Assessment of Different Tool and High-speed Steel Properties: *Vojteh Leskovsek*[1]; Bojan Podgornik[1]; [1]Institute of Metals and Technology

4:55 PM
Structure Evolution of Copper-rich Cluster/Precipitate in RPV Model Steel at Thermal Aging: Liu Feng[1]; Bangxin Zhou[1]; Jianchao Peng[1]; Wenqing Liu[1]; *Jun-an Wang*[1]; [1]Shanghai University

5:10 PM
What Can We Learn from Measurements of Li-ion Battery Single Particles?: *Dean Miller*[1]; [1]Argonne National Laboratory

5:25 PM
Effect of Forge-folding Operation on Microstructure of Japanese Sword Revealed by EBSD and Orientation Fitting Methods: *Anh Pham*[1]; Takuya Ohba[1]; Shigekazu Morito[1]; Taisuke Hayashi[1]; Chihiro Matsumoto[1]; Muneo Yaso[2]; [1]Shimane University; [2]Wakoh Museum, Japan

O. Advanced Neutron and Synchrotron Studies of Materials: Plasticity and In-situ Studies

Program Organizers: Fernand Marquis, Naval Postgraduate School; Chengjia Shang, University of Sicence and Technology Beijing; Masato Ohnuma, National Institute for Materials Science; Baek Seok Seong, KAERI; Klaus-Dieter Liss, ANSTO; Rozaliya Barabash, Oak Ridge National Laboratory

Tuesday PM
August 6, 2013

Room: Kona 1
Location: Hilton Waikoloa Village

Session Chairs: Haozhe Liu, Harbin Institute of Technology; Masato Ohnuma, National Institute for Materials Science

2:00 PM Introductory Comments

2:05 PM
Tensile Deformation Behavior of Hydrogen Charged Ultra-high Strength Mooring Chain Studied by Neutron Diffraction: *Jiang Yin*[1]; [1]ASAC

2:20 PM Invited
Stress-Strain Relationship Between Ferrite and Bainite in Hot-rolled Dual Phase Steels Studied by In Situ Neutron Diffraction and Crystal Plasticity Theories: *Shi-Hoon Choi*[1]; Eun-Young Kim[1]; Jong-Seok Kim[1]; Seong-il Kim[1]; Wan-Chuck Woo[1]; [1]Sunchon National University

2:40 PM
Neutron Diffraction Study and EPSC Modelling of Multi-pass TIG Weld: *Shiv Sharma*[1]; Mark Turski[2]; Mike Fitzpatrick[3]; [1]Amity University Haryana; [2]Magnesium Elektron; [3]The Open University, UK

2:55 PM Invited
Neutron Diffraction Study on Inhomogeneous Plastic Deformation of High-nitrogen Duplex Stainless Steels: *Tae-Ho Lee*[1]; Heon-Young Ha[1]; Jun-Yun Kang[1]; Byoungchul Hwang[1]; Wanchuk Woo[2]; Eunjoo Shin[2]; Baek-Seok Seong[2]; [1]Korea Institute of Materials Science; [2]Korea Atomic Energy Research Institute

3:15 PM Invited
Texture Measurements at OPAL: Present and Future: *Ulf Garbe*[1]; Klaus-Dieter Liss[1]; Zhiyang Wang[1]; Huijun Li[2]; [1]ANSTO; [2]University of Wollongong

3:35 PM Invited
Dislocation Characteristics and Phase Stresses in Deformed Pearlitic Steels Determined by X-ray Diffraction Line-profile Analysis: *Shigeo Sato*[1]; Kazuaki Wagatsuma[1]; Shigeru Suzuki[2]; Masayoshi Kumagai[3]; Muneyuki Imafuku[3]; Hitoshi Tashiro[4]; Kentaro Kajiwara[5]; Takahisa Shobu[6]; [1]Institute for Materials Research, Tohoku University; [2]Institute of Multidisciplinary Research for Advanced Materials, Tohoku University; [3]Faculty of Engineering, Tokyo City University; [4]Technical consultant; [5]Japan Synchrotron Radiation Research Institute; [6]Japan Atomic Energy Agency

3:55 PM Invited
Pretransition Phenomena and Twin Boundary Motion in NiMnGa Alloys under External Fields: *Rozaliya Barabash*[1]; Ruqing Xu[2]; Oleg Barabash[3]; Hongbin Bei[1]; Evguenia Karapetrova[2]; [1]Oak Ridge National Laboratory; [2]Argonne National Laboratoryl; [3]University of Tennessee

4:15 PM Break

4:35 PM
Energy Dispersive Synchrotron Diffraction for In-situ Analyses of Hydrogen Behavior in Steels: *Thomas Kannengiesser*[1]; Eitan Dabah[1]; [1]BAM Federal Institute for Materials Research and Testing

4:50 PM
Investigation of Novel Spiropyran Derivatives as Light Responsive Liquid Crystalline Components: *Kristian Tangso*[1]; Wye-Khay Fong[1]; Tamim Darwish[2]; Tracey Hanley[2]; Nigel Kirby[3]; Ben Boyd[1]; [1]Monash University; [2]Australian Nuclear Science and Technology Organisation; [3]Australian Synchrotron

5:05 PM
Neutron Diffraction Study of Crystal Structure and Magnetic Transition in MnFePGe Magnetocaloric Compounds: *Danmin Liu*[1]; Qingzhen Huang[2]; Ming Yue[1]; Shaobo Wang[1]; Hu Zhang[1]; Jeffray Lynn[2]; [1]Beijing University of Technology; [2]National Institute of Standards and Technology

A. Materials for Energy: Session IV

Program Organizers: Fernand Marquis, Naval Postgraduate School; Shaoxiong Zhou, Central Iron and Steel Research, China; Akihiko Kimura, Kyoto University; Young Hwan Cho, KIST; Shixue Dou, Wollongong University; Renkun Chen, University of California

Thursday AM
August 8, 2013

Room: Kohala 2
Location: Hilton Waikoloa Village

Session Chairs: Renkun Chen, University of California; Karren More, Oak Ridge National Laboratory

8:00 AM Keynote
Solid Oxide Cells for Power Generation, Steam Electrolysis, and H_2O/CO_2 Co-Electrolysis: *Byung-Kook(BK) Kim*[1]; Kyung Joong Yoon[1]; Ji-Won Son[1]; Jong-Ho Lee[1]; Hae-June Je[1]; Hae-Weon Lee[1]; [1]Korea Institute of Science and Technology

8:25 AM Keynote
Polymeric Electrolytes and Catalysts for Anion-Exchange-Membrane Fuel Cells: *Rongrong Chen*[1]; [1]Indiana University Purdue Uni. Indianapolis (IUPUI)

8:50 AM Invited
Application of Advanced Microscopy to Elucidate Materials Degradation Mechanisms in PEM Fuel Cells: *Karren More*[1]; David Cullen[1]; Miaofang Chi[1]; Shawn Reeves[1]; [1]Oak Ridge National Laboratory

9:10 AM Invited
Electrochemical Strain Microscopy (ESM) Mapping of Electrode Properties in Li-ion All Solid State Battery: *Kaiyang Zeng*[1]; [1]National University of Singapore

9:30 AM
Effect of Supporting Electrolyte on the Electrocatalytic Activity of Electrodeposited Catalysts for Alkaline Fuel Cells: *Shelley Minteer*[1]; [1]University of Utah

9:45 AM
Repetitive Dehydrogenation and Rehydrogenation of 2LiBH4+(1-x) MgH2+xAl (x=0~0.5) Composites: Hiroyuki Nagai[1]; Youhei Ito[1]; Shin-ya Endo[1]; *Hiroyuki Takeshita*[1]; [1]KANSAI University

10:00 AM
Study of Electronic Conductivity of $LiNi_{0.5}Mn_{1.5}O_4$ Cathode Material for Lithium Ion Battery: *Takeshi Tojigamori*[1]; Keiichi Kohama[1]; Toshiya Saito[1]; Hideki Iba[1]; [1]Toyota Motor Corporation

10:15 AM Break

10:35 AM
Nano-structured Powders Prepared by Spray Drying and Heat-treatment and Electrochemical Properties for Anode in Lithium Ion Battery: *Seong-Hyeon Hong*[1]; Kyung-Tae Kim[1]; Hye-Young Koo[1]; Dong-Soo Park[1]; [1]Korea Institute of Materials Science

10:50 AM
Lithium Redox Process for Thermochemical Water-Splitting as Energy Conversion: Hiroki Miyaoka[1]; Naoya Nakamura[1]; *Takayuki Ichikawa*[1]; Yoshitsugu Kojima[1]; [1]Hiroshima University

11:05 AM
The Effect of Crystal Orientation and Grain Boundary for Li+ Diffusion Kinetics in $LiCoO_2$ Thin Film: *Kazuto Ide*[1]; Shunsuke Yamakawa[2]; Hisatsugu Yamasaki[1]; Toshiya Saito[1]; Hideki Iba[1]; [1]Toyota Motor Corporation; [2]Toyota Central R&D Labs., Inc.

11:20 AM
Carbon-coated $LiFePO_4$/porous Carbon Composites as Cathode Materials for Lithium Ion Batteries: *Li-Zhen Fan*[1]; Haifang Ni[1]; [1]University of Science and Technology Beijing

11:35 AM
Direct Observation of Microstructure Evolution in Li-Ion Battery Electrodes: Paul Shearing[1]; David Eastwood[2]; Jeff Gelb[3]; *Stephen Harris*[4]; Robert Bradley[2]; Vladimir Yufit[5]; Allen Gu[3]; Jin Yoon[3]; Philip Withers[2]; Nigel Brandon[5]; [1]University College London; [2]The University of Manchester; [3]Xradia, Inc.; [4]Lawrence Berkeley National Laboratory; [5]Imperial College London

11:50 AM
Co_3O_4/reduced Graphene Oxide Nanocomposites for High Performance Lithium Ion Cells: Xiaoting Hong[1]; Qi Bao[1]; *Kwun Nam Hui*[2]; X. Wu[1]; Kwan San Hui[3]; [1]South China Normal University; [2]Pusan National University; [3]City University of Kong Kong

B. Materials for the Environment: Catalysis, CO_2, Structural Materials and Polymers

Program Organizers: Fernand Marquis, Naval Postgraduate School; Chengjia Shang, University of Science and Technology Beijing; Shinji Fujimoto, Osaka University; Bong Sun Yoo, KIMS; Rachel Caruso, The University of Melbourne; William Tumas, Center for Chemical and Materials Science

Thursday AM
August 8, 2013

Room: Kona 3
Location: Hilton Waikoloa Village

Session Chair: Baiqing Xiong, General Research Institute For Non-ferrous Metals

8:00 AM Keynote
Catalytic and Mechanical Properties of Metal-supported Catalysts Prepared by Room Temperature Aerosol Deposition: *Joon-Hwan Choi*[1]; Ho-Jung Ha[1]; Jungho Ryu[1]; Jong-Jin Choi[1]; Woon-Ha Yoon[1]; Byung-Dong Han[1]; Dong-Soo Park[1]; Jong-Woo Kim[1]; Cheol-Woo Ahn[1]; [1]Korea Institute of Materials Science

8:25 AM Invited
Capture, Separation and Triggered Release of CO_2 with Metal Organic Frameworks: *Matthew Hill*[1]; [1]CSIRO

8:45 AM
Enhanced CO_2 Adsorption in Ti-exchanged Zirconium Organic Frameworks – A Molecular Simulation Study: *Ravichandar Babarao*[1]; Sam Lau[1]; Matthew Hill[1]; Anita Hill[1]; [1]CSIRO

9:00 AM
CO_2 Absorption and Desorption of Lithium Zirconate under Dry and Humid Conditions Investigated with a Thermobalance and a Water Vapor Furnace Coupled to a Mass Spectrometer: *Ekkehard Post*[1]; Lloyd MacPherson[2]; [1]NETZSCH Geraetebau GmbH; [2]NETZSCH Instruments North America, LLC

9:15 AM
Nanostructuring of Microporous Carbons with Carbon Nanotubes for Efficient Carbon Dioxide Capture: *Stephen Hawkins*[1]; Yonggang Jin[1]; Chi Huynh[1]; Shi Su[1]; [1]CSIRO

9:30 AM Invited
Application of Electrospun Gas Diffusion Nanofibre-membranes in the Determination of Dissolved Carbon Dioxide: Yen Truong[1]; Yukie O'Bryan[2]; Ian McKelvie[2]; *Ilias Kyratzis*[1]; William Humphries[1]; [1]CSIRO; [2]The University of Melbourne

9:50 AM
Mechanical and Physical Properties of Roof Tile Manufacturing from Red Mud: *Sabriye Piskin*[1]; Aysel Kanturk Figen[1]; Emrah Özkan[1]; Ünal Özçay[2]; [1]Yildiz Technical University; [2]2Gürallar tile factory

10:05 AM Break

10:25 AM
Using Ornamental Rock Waste in the Manufacture of Cement Blocks for Structural Masonry: *Afonso Azevedo*[1]; Jonas Alexandre[1]; [1]UENF

10:40 AM
Using Ornamental Rock Waste in the Manufacture of Pressed Brick and Hollow: Afonso Azevedo[1]; *Gustavo Xavier*[1]; Flavia Silva[1]; Jonas Alexandre[1]; [1]UENF

10:55 AM Keynote
Aragonite Precipitated Calcium Carbonate: A New Versatile Functional Filler for Light Weight Plastic: Thriveni Thenepalli[1]; Um Il[1]; *Ahn Whan*[1]; [1]Korea Research Institute of Geoscience and Mineral Resources (KIGAM)

11:20 AM Invited
The Synthesis of Calcium Sulfoaluminate – Calcium Silicates Blended Clinker from Urban Inorganic Wastes: *Kwang Suk You*[1]; Ji Whan Ahn[1]; Hyoung Woo Lee[2]; Ki Ung Lee[2]; [1]Korea Institute of Geoscience and Mineral Resources (KIGAM); [2]Hanil Cement Corporation Limited

11:40 AM
Study for the Development of Waste Cotton Fabric Reinforced Composites: *Mehmet Bodur*[1]; Mustafa Bakkal[1]; [1]Istanbul Technical University

C. Advanced High-Temperature Structural Materials: Processing of High-temperature Structural Materials I

Program Organizers: Fernand Marquis, Naval Postgraduate School; Guoqing Zhang, Beijing Institute of Aeronautical Materials; Haruyuki Inui, Kyoto University; Kyung-Tae Park, Hanbat National University; Julie Cairney, The University of Sydney; Eugene Olevsky, San Diego State University

Thursday AM
August 8, 2013

Room: King 1
Location: Hilton Waikoloa Village

Session Chairs: Kyosuke Yoshimi, Tohoku University; Qiang Feng, University of Science and Technology Beijing

8:00 AM Keynote
Subsurface Alloy Microstructural Changes During High Temperature Reaction of Fe-Cr Alloys in CO2: *David Young*[1]; Thuan Nguyen[1]; Jianqiang Zhang[1]; [1]University of New South Wales

8:25 AM Invited
Light-weight Mo-Borosilicide Alloys for Ultrahigh Temperature Structural Applications: *Martin Heilmaier*[1]; Daniel Schliephake[1]; [1]Karlsruhe Institute of Technology (KIT)

8:45 AM Invited
Ultra-Rapid Spark-Plasma Sintering of SiC Powder: *Eugene Olevsky*[1]; Steven Rolfing[1]; Yen-Shan Lin[1]; Andrey Maximenko[2]; [1]San Diego State University; [2]Moscow Engineering Physics University

9:05 AM Invited
Spark Plasma Sintered Tantalum Carbide with Graphene NanoPlatelets Reinforcement: Andy Nieto[1]; Cheng Zhang[1]; Debrupa Lahiri[1]; *Arvind Agarwal*[1]; [1]Florida International University

9:25 AM
Grain Boundary Engineering of Alloy 617 through Cold Deformation and Annealing: *Behrang Poorganji*[1]; Deepthi Tamana[1]; Xingshou Wen[1]; Richard Wright[2]; T.L Sam Sham[3]; vijay K Vasudevan[1]; [1]University of Cincinnati; [2]Idaho National Lab; [3]Oak Ridge National Lab

9:40 AM
Methodologies for Long-term Creep Life Extrapolation of Gr. 91 Steel: *Woo-Gon Kim*[1]; Jae-Young Park[2]; Jinsung Jang[1]; B.K. Choudhary[3]; Seon-Jin Kim[2]; Yong-Wan Kim[1]; Yong-Hwan Jeong[1]; [1]Korea Atomic Energy Research Institute; [2]Pukyong National Univ.; [3]IGCAR

9:55 AM
Densification of SiC Using Al_4SiC_4 Additive for the Preparation of SiCf/SiC: *Sea-Hoon Lee*[1]; Hai-Doo Kim[1]; [1]KIMS

10:10 AM Break

10:30 AM
Fully Dense Fine Grained FeAl-based Intermetallics Prepared by Spark Plasma Sintering Method: *Vladimír Šíma*[1]; Miroslav Cieslar[1]; Ibrahim Çelikyürek[2]; Osman Torun[3]; Tomáš Chráska[4]; [1]Charles University in Prague; [2]Eskisehir Osmangazi University; [3]Afyon Kocatepe University; [4]Institute of Plasma Physics AS CR

10:45 AM
Preparing SiC-TiB_2 Composite via Liquid Phase Sintering: *Yuhong Chen*[1]; Wenzhou Sun[1]; Laner Wu[1]; Liang Jiang[1]; [1]Beiang University for Nationalities

11:00 AM Invited
A New Approach to Grain Boundary Engineering by Transition of Serrated Grain Boundary: *Hyun Uk Hong*[1]; June Woo Choi[1]; Joong Geun Yoon[1]; Ji Won Lee[1]; Je Hyun Lee[1]; In Soo Kim[2]; Baig Gyu Choi[2]; Young Soo Yoo[2]; Dong Jin Kim[3]; Chang Yong Jo[2]; [1]Changwon National University; [2]Korea Institute of Materials Science; [3]Korea Atomic Energy Research Institute

11:20 AM
Preparation and Microstructure of Carbon/Carbon Composites Modified with Zr-Ti-C Fabricated by Reacted Melt Infiltration: *Yi Zeng*[1]; Xiang Xiong[1]; Guodong Li[1]; Zhaoke Chen[1]; Wei Sun[1]; Dini Wang[1]; [1]State Key Laboratory of Powder Metallurgy in Central South University

11:35 AM
Ordering Process of the Long–period Superstructures in Al-Ga-Ti System: *Mitsuharu Todai*[1]; Yohei Ogawa[1]; Takayoshi Nakano[1]; [1]Osaka University

11:50 AM
Optimizing the Microstructure of the Directionally Solidified Nb-Si-based Alloys: *Jia Lina*[1]; Chen Xiaojun[1]; Yue Sainan[1]; Su Linfen[1]; Zheng Lijing[1]; Zhang Hu[1]; [1]Beihang University

D. Advanced Steels and Processing:Advanced Steels and Processing I

Program Organizers: Fernand Marquis, Naval Postgraduate School; Han Dong, Central Iron and Steel Research Institute; Kaneaki Tsuzaki, National Institute for Materials Science; Sung Joon Kim, POSTECH; Rian Dippenaar, University of Wollongong; Kip Findley, Colorado School of Mines

Thursday AM
August 8, 2013

Room: Kona 1
Location: Hilton Waikoloa Village

Session Chair: Christopher Hutchinson, Monash University

8:00 AM Introductory Comments

8:05 AM
Corrosion Monitoring of CrCuNi Weathering Steel in a Simulated Coastal Environment: *Thee Chowwanonthapunya*[1]; Long Hao[1]; Junhua Dong[1]; Wei Ke[1]; [1]Institute of Metal Research

8:20 AM
Influence of Pre-oxidation on the Corrosion Behavior of Weathering Steel: Jiao Luo[1]; *Shanwu Yang*[1]; Yu He[1]; Xinlai He[1]; [1]University of Science and Technology Beijing

8:35 AM
Rusting Evolution and Anti-corrosion Mechanism of MnCuP Weathering Steel in Simulated Atmospheric Environments: *Long Hao*[1]; Junhua Dong[1]; Wei Ke[1]; [1]State Key Laboratory for Corrosion and Protection, Institute of Metal Research, Chinese Academy of Sciences

8:50 AM
Selective Corrosion of Stainless Steel at Low pH: *Kenichiro Eguchi*[1]; Yasuhide Ishiguro[1]; Mitsuo Kimura[1]; Hideto Kimura[1]; [1]JFE Steel Corporation

9:05 AM
Fitting and Evolution of Atmospheric Corrosion of Low alloy Steels Under Wet/Dry Cyclic Corrosion Test: *Junhua Dong*[1]; Wei Ke[1]; [1]Institute of Metal Research, CAS

9:20 AM
Study on the Corrosion Resistance of Hot Rolled Rebar Quenched with a New Chemical Reagent: *Jie Wei*[1]; Junhua Dong[1]; Wei Ke[1]; [1]Institute of Metal Research, Chinese Academy of Sciences

9:35 AM
The Corrosion Resistance of Weathering Steels in Atmospheric Exposure and Laboratory-accelerated Corrosion Tests: *Zhi Fen Wang*[1]; [1]Research and Development Center, Wuhan Iron and Steel (Group) Corporation

9:50 AM
Formation of Equiaxed Crystals by Complex Inclusions and Fluxes during Solidification of Advanced High Strength Steel: *Joohyun Park*[1]; Jun Seok Park[2]; Changhee Lee[1]; [1]Hanyang University; [2]University of Ulsan

10:05 AM Break

10:25 AM
Low-cycle Fatigue Properties of the Fe-30Mn-(6-x)Si-xAl TRIP/TWIP Alloys: *Ilya Nikulin*[1]; Takahiro Sawaguchi[1]; Kaneaki Tsuzaki[1]; [1]National Institute for Materials Science

10:40 AM
Production Problems in Stamping of Advanced High Strength Steels-Springback and Die Wear Issues: *Muammer Koc*[1]; Omar Cora[2]; [1]Istanbul Sehir University; [2]KTU

10:55 AM
Development of Technologies Integrating Hot Deformation with Heat Treatment for AHSS: *Xuejun Jin*[1]; Heping Liu[1]; Mingming Chen[1]; Riming Wu[1]; Li Wang[2]; [1]Shanghai Jiao Tong University; [2]Baosteel

11:10 AM
Innovative Heat Treatments for Engineering the Microstructures in Steels: Brian Hanhold[1]; Sri Venkata Tapasvi Lolla[1]; Gary Cola[2]; *Sudarsanam Babu*[1]; [1]The Ohio State University; [2]SFP Works LLC

11:25 AM
The Effects of Annealing Temperature in the Two-phase Ferrite + Austenite Field on the Tensile Properties of a 0.2C-4Mn High Strength Steel Modified by Aluminum and Silicon Additions: *Meysam Jafari*[1]; Warren Garrison[1]; [1]Carnegie Mellon University

11:40 AM
Static Model for Converter Steelmaking by Using Limestone: *Biao Tang*[1]; Wei Zhang[1]; Xiaoming Wang[1]; Guangqi Sun[1]; Yibo He[1]; Zongshu Zou[1]; Aibing Yu[1]; [1]Northeastern University

D. Advanced Steels and Processing: Performance of Steels in Experiments, Simulation, and Theory II

Program Organizers: Fernand Marquis, Naval Postgraduate School; Han Dong, Central Iron and Steel Research Institute; Kaneaki Tsuzaki, National Institute for Materials Science; Sung Joon Kim, POSTECH; Rian Dippenaar, University of Wollongong; Kip Findley, Colorado School of Mines

Thursday AM
August 8, 2013

Room: Kohala 4
Location: Hilton Waikoloa Village

Session Chairs: George Spanos, TMS; Mingxin Huang, The University of Hong Kong

8:00 AM Introductory Comments

8:05 AM Keynote
Shear Fracture of Advanced High Strength Steels (AHSS): *Robert Wagoner*[1]; [1]Ohio State University

8:30 AM Invited
Elasto-plastic Deformation in Pearlite Lamellar Structure – An Approach from Finite Element Analysis: *Tetsuya Ohashi*[1]; Lidyana Roslan[1]; Kosuke Takahashi[1]; [1]Kitami Institute of Technology

8:50 AM
Effect of Ferrite Grain Size on Local Elongation in a Low Carbon Steel: *Noriyuki Tsuchida*[1]; Haruka Nakano[1]; Tadanobu Inoue[2]; [1]University of Hyogo; [2]National Institute for Materials Scienece

9:05 AM
Microstructure Control for 550MPa/690MPa grade High Performance Structural Steel: *Chengjia Shang*[1]; Zhenjia Xie[1]; Wenhao Zhou[1]; Hui Liu[1]; [1]University of Science and Technology Beijing

9:20 AM
Relationship between Microstructures and Fracture Properties of Bainitic and Martensitic Steels: *Chang-Hoon Lee*[1]; Hu-Chul Lee[2]; Bong-Sang Lee[3]; Dong-Woo Suh[4]; Tae-Ho Lee[1]; [1]Korea Institute of Materials Science; [2]Seoul National University; [3]Korea Atomic Energy Research Institute; [4]POSTECH

9:35 AM
Effects of Substitutional Alloying Elements on Toughness of Ferritic Mn Steels at Low Temperature: *Il-cheol Yi*[1]; Ki Hyuk Kwon[1]; Yumi Ha[1]; Hakcheol Lee[2]; Nack J. Kim[1]; [1]Graduate Institute of Ferrous Technology, POSTECH; [2]Plate Research Group, Technical Research Laboratories, POSCO

9:50 AM Invited
Corrosion Characterization of Drillpipe Steels Used in the Petroleum Industry: *Brajendra Mishra*[1]; [1]Colorado School of Mines

10:10 AM Break

10:30 AM
Processing of an Ultra-High Strength Steel to Improve Toughness Properties: *Andrew Seymour*[1]; Paul Hill[2]; Paul Bowen[1]; [1]University of Birmingham; [2]Rolls-Royce Plc.

10:45 AM
An Investigation to Some Loss Subdivision Methods in Electrical Steel Sheets: *Seil Lee*[1]; [1]POSCO

11:00 AM
Evolution of Microstructures and Texture of 1.3%Si Non-oriented Electrical Steel in the Twin-roll Strips Casting Process: Yuanxiang Zhang[1]; *Yunbo Xu*[1]; Yang Wang[1]; Guodong Wang[1]; [1]State Key Laboratory of Rolling Technology and Automation, Northeastern University

11:15 AM
The Effect of Al Content on Texture Evolution and Magnetic Properties of Electrical Steel: *Eun Jee Oh*[1]; Jae Kyoum Kim[1]; Yang Mo Koo[1]; [1]Graduate Institute of Ferrous Technology (GIFT) / Pohang University of Science and Technology (POSTECH)

E. Light Metals and Alloys: Aluminum III

Program Organizers: Fernand Marquis, Naval Postgraduate School; Yongqing Zhao, Northwest Institute for Nonferrous Metal Research; Yoshihito Kawamura, Kumamoto University; Kwang Seon Shin, Seoul National University; Jian-Feng Nie, Monash University; Suveen Mathaudhu, U.S. Army Research Office

Thursday AM
August 8, 2013

Room: Queen 4
Location: Hilton Waikoloa Village

Session Chairs: Wesley Tayon, NASA Langley Research Center; Qingfeng Zhu, Northeastern University

8:00 AM Introductory Comments

8:05 AM
Near-net Shape Continuous Casting of Aluminum Alloy Billet Using Electromagnetic Field: *Joonpyo Park*[1]; Gyu Chang Lee Lee[1]; Jong Ho Kim[1]; Myoung-Gyun Kim Kim[1]; [1]Research Institute of Industrial Science and Technology

8:20 AM
Effects of Electromagnetic Field on Horizontal Continuous Casting of 6061 Aluminium Alloy Bar Process: *Wang Xingjie*[1]; Cui Jianzhong[2]; [1]Northeastern University; [2]Northeastern University

8:35 AM
Effect of Combined Electromagnetic Fields on the As-casting Structure and Mechanical Property of HDC Casting 7075 Al Alloy Ingot: *Qingfeng Zhu*[1]; Zhihao Zhao[1]; Lei Li[1]; Xiangjie Wang[1]; Yubo Zuo[1]; Jianzhong Cui[1]; [1]Key Laboratory of Electromagnetic Processing of Materials, Ministry of Education, Northeastern University

8:50 AM
Lattice Rotation Due to Cold-rolling on 1050 Aluminum with Near Rotated Cube Orientations: *Atsushi Yamamoto*[1]; Shunsuke Kitagaki[1]; Takuya Kajiura[1]; Masaaki Tsukamoto[1]; Daisuke Okai[1]; [1]University of Hyogo

9:05 AM
Submerged Friction Stir Welding (SFSW) Under Water and Under Liquid Nitrogen: An Improved Method for Joining Al Alloys to Mg Alloys: *Mohammad Ammar Mofid*[1]; Amir Abdollah-zadeh[1]; Firouz Kargar[1]; [1]Tarbiat Modres University

9:20 AM
Investigation of Abnormal Grain Growth in a Friction Stir Welded and Spin-Formed Al-Li Alloy 2195 Crew Module: *Wesley Tayon*[1]; Marcia Domack[1]; Eric Hoffman[1]; Stephen Hales[1]; [1]NASA Langley Research Center

9:35 AM
Friction Stir Lap Welding of Al and Mg Alloys: Deformation and Joint Strength: *Zhan Chen*[1]; [1]AUT University

9:50 AM
Friction Stir Extrusion of Aluminum Alloys: *Zhenzhen Yu*[1]; Zhili Feng[1]; Venkata Manchiraju[2]; Stan David[1]; [1]Oak Ridge National Laboratory; [2]Southwire Company

10:05 AM Break

10:25 AM
Joint Strength and Interfacial Microstructure of 2024 Aluminum Alloy Studs and AZ80 Magnesium Alloy Plates Joined by Advanced Stud Welding Method: *Yohei Harada*[1]; Yutaro Sada[1]; Shinji Kumai[1]; [1]Tokyo Institute of Technology

10:40 AM
Relationship between Aluminum Oxide Inclusion and Porosity in Aluminum Melt: *Jianmin Zeng*[1]; [1]Guangxi University

10:55 AM
Development of Al-TiC Alloys Using Powder Metallurgy as Grain Refiners for Aluminium and its Alloys: *Abdel-Nasser Omran*[1]; [1]Mining and Metallurgical Dept., Faculty of Engineering-Al-Azhar University

11:10 AM
Formabilty of Eco-Al Sheet Alloys for Automotive Parts: *Jongsup Lee*[1]; Jung-Han Song[1]; Geun-An Lee[1]; Yong-Bae Kim[1]; Sangmok Lee[1]; Eung-Zu Kim[1]; [1]Korea Institute of Industrial Technology

11:25 AM
Electrochemical Behaviour of a 2024 Al-Cu-Mg Alloy of Various Tempers in Different Media: *K S Ghosh*[1]; Md Hilal Sarbar Nawar[2]; Sagnik Bose[3]; [1]National Institute of Technology (NIT) Durgapur, India; [2]Tata Steel; [3]Jadavpur University

E. Light Metals and Alloys: Magnesium I

Program Organizers: Fernand Marquis, Naval Postgraduate School; Yongqing Zhao, Northwest Institute for Nonferrous Metal Research; Yoshihito Kawamura, Kumamoto University; Kwang Seon Shin, Seoul National University; Jian-Feng Nie, Monash University; Suveen Mathaudhu, U.S. Army Research Office

Thursday AM
August 8, 2013

Room: Kona 4
Location: Hilton Waikoloa Village

Session Chairs: Yoshihito Kawamura, Kumamoto University; Alexander Katsman, Technion - Israel Institute of Technology

8:00 AM Introductory Comments

8:05 AM Keynote
Some Issues in the Formability of Magnesium Alloys: *Matthew Barnett*[1]; [1]Deakin University

8:30 AM Keynote
Process Development of Wide Strip Production for Mg Alloy: *Oh Duck Kwon*[1]; Ki Ho Yun[1]; Hyun Seok Lee[1]; Jae Jung Kim[1]; Sang Ho Jo[1]; Tae Wook Kang[2]; [1]POSCO/Nonferrous Metal Business Dept.; [2]POSCO/WPM Mg Project

8:55 AM Invited
Phase-field Prediction of Precipitate Morphologies in Mg-RE Alloys: Yanzhou Ji[1]; Ahmed Issa[2]; Twewook Heo[2]; James Saal[2]; Chris Wolverton[2]; *Long Qing Chen*[1]; [1]Penn State University; [2]Northwestern

9:15 AM Invited
Development of High-speed Extrudable Magnesium Alloy with Precipitation Hardenability: *Shigeharu Kamado*[1]; Shiwei Xu[1]; Keiichiro Oh-ishi[2]; Taisuke Sasaki[3]; Kazuhiro Hono[3]; [1]Nagaoka University of Technology; [2]Toyota Central R&D Labs., Inc; [3]National Institute for Materials Science

9:35 AM Invited
Preparation of Large Scale Magnesium Alloy Billets by LFEC Processing: *Qichi Le*[1]; Lei Bao[1]; Zhiqiang Zhang[1]; Jianzhong Cui[1]; [1]Key Lab of Electromagnetic Processing of Materials, Ministry of Education, Northeastern University

9:55 AM
Ultrahigh Strength Magnesium Sheet Via Stacking Fault Engineering: Weiwei Jian[1]; Guangming Cheng[1]; Weizhong Xu[1]; Hao Yuan[1]; Carl Koch[1]; Yuntian Zhu[1]; *Suveen Mathaudhu*[2]; [1]North Carolina State University; [2]U.S. Army Research Office

10:10 AM Break

10:30 AM Keynote
Twinning Behavior and Its Effect on Workability of AZ31Mg Alloy: *Qing Liu*[1]; Renlong Xin; Yunchang Xin[2]; Guangjie Huang[2]; [1]Tokyo Institute of Technology; [2]Chongqing University

10:55 AM Invited
Microstructures and Tensile Properties of Rolled Mg-RE(-Zn) Alloy Sheet: *Donald Shih*[1]; Z Xu[2]; Jian-Feng Nie[2]; [1]The Boeing Company; [2]Monash University

11:15 AM Invited
Dynamic Deformation and Damage Behavior in Magnesium and Mg-Alloys: *George Gray*[1]; Ellen Cerreta[1]; [1]Los Alamos National Laboratory

11:35 AM
Microstructural Characterization of Metastable Phases in Homogenised and Aged Mg-Gd and Mg-Gd-Nd Alloys Containing Zn, Y and Zr: Suzan Khawaled[1]; Menachem Bamberger[1]; *Alexander Katsman*[1]; [1]Technion - Israel Institute of Technology

11:50 AM
Microstructure and Mechanical Behavior of As-cast, Extruded and Nanocrystalline Mg-9Li-3Al-2.5Sr Alloy: Yan Yang[1]; *Xiaodong Peng*[1]; [1]Chongqing University

G. Biomaterials, Smart Materials, and Structures: Session IV

Program Organizers: Fernand Marquis, Naval Postgraduate School; Chengbao Jiang, Beihang University; Takayuki Narushima, Tohoku University; Byong Taek Lee, Soonchunhyang University; Anita Hill, CSIRO; R. Narayan, UNC/NCSU Joint Department of Biomedical Engineering

Thursday AM
August 8, 2013

Room: Queen 6
Location: Hilton Waikoloa Village

Session Chairs: Cher Hon (Sam) Lau, CSIRO; Di Zhang, Shanghai Jiao Tong University

8:00 AM Introductory Comments

8:05 AM Keynote
Recent Development of Gold-base Biomedical Shape Memory Alloys: *Hideki Hosoda*[1]; [1]Tokyo Institute of Technology

8:30 AM Invited
Smart Membranes – the Role of Porous Aromatic Frameworks: *Cher Hon (Sam) Lau*[1]; Kristina Konstas[1]; Matthew Hill[1]; Anita Hill[1]; [1]CSIRO

8:50 AM Invited
Borate Glass Nanofiber/Whiskers in a Hybrid Orthopedic Composite Implants for Wound Healing and Bone Regeneration: *Bakr Rabeeh*[1]; [1]German University in Cairo, GUC

9:10 AM Invited
Research on Bioinspired Functional Materials Derived from Natural Materials: *Di Zhang*[1]; Wang Zhang[1]; Jiajun Gu[1]; Qinlei Liu[1]; Huilan Su[1]; Shemin Zhu[1]; [1]Shanghai Jiao Tong University

9:30 AM
Porous Titanium Implant and Micro-CT Based Characterization of Sub-Surface Morphology: *Junning Chen*[1]; Liangjian Chen[2]; Wei Li[1]; Michael Swain[1]; Qing Li[1]; [1]The University of Sydney; [2]Central South University

9:45 AM
Simultaneous Voltammetric Determination of Nitrophenol Isomers with Ordered Mesoporous Carbon Materials: Tingting Zhang[1]; Qiaolin Lang[2]; Liang Li[2]; Tie Li[3]; *Aihua Liu*[2]; [1]Qingdao Institute of Bioenergy & Bioprocess Technology, Chinese Academy of Sciences; Ocean University of China ; [2]Qingdao Institute of Bioenergy & Bioprocess Technology, Chinese Academy of Sciences; [3]Ocean University of China

10:00 AM Break

10:20 AM Keynote
Use of Hybrid Nanoparticles to Enhance Thermal Energy Storage Capacity for Concentrated Solar Power: *Dileep Singh*[1]; Sreeram Cingarapu[1]; Elena Timofeeva[1]; Michael Moravek[1]; [1]Argonne National Laboratory

10:45 AM Keynote
Metamagnetic Martensitic Transformation of Ductile Ni-Cu-Mn-Ga Magnetic Shape Memory Alloys: *Chengbao Jiang*[1]; Panpan Li[1]; Huanfang Wang[1]; Jingmin Wang[1]; Huibin Xu[1]; [1]Beihang University

11:10 AM Invited
Advance on Position Ultra-porous Crystals: *Paolo Falcaro*[1]; Dario Buso[1]; Anita Hill[1]; Cara Doherty[1]; [1]CSIRO

11:30 AM
Characterization of Self-Colored Dental Zirconia Frameworks: *Selvin Yesilay Kaya*[1]; Guray Kaya[2]; Rasim Ceylantekin[2]; Erhan Ayas[1]; Büsra Günhan[2]; [1]Anadolu University; [2]Dumlupinar University

11:45 AM
Control of Anisotropic Bone Matrix Formation by Long-term Mechanical Stress to Osteoblast: *Aira Matsugaki*[1]; Natsuko Fujiwara[1]; Takayoshi Nakano[1]; [1]Osaka University

H. Rare Earth, Electronic, and Magnetic Materials: Electronic Materials

Program Organizers: Fernand Marquis, Naval Postgraduate School; Wei Li, Central Iron & Steel Research Institute; Koki Takanashi, Tohoku University; Woo Young Lee, Yonsei University; Mark Ridgway, Australian National University; Sungho Jin, UC San Diego

Thursday AM
August 8, 2013

Room: Queen 5
Location: Hilton Waikoloa Village

Session Chairs: Wooyoung Lee, Yonsei University; Yuntian Zhu, North Carolina State University

8:00 AM Keynote
Coupling Magnetism to Electricity in Multiferroic Heterostructures: *Ramamoorthy Ramesh*[1]; [1]University of California, Berkeley

8:25 AM Invited
New Issues Relating to Interfacial Reactions Arising from Low Solder Volume in 3D IC Packaging: *C. Robert Kao*[1]; [1]National Taiwan University

8:45 AM Invited
Nanostructured Oxide Magnetic Semiconductors for Spintronics Devices: *Jiabao Yi*[1]; Xi Luo[1]; Nina Bao[2]; Haiming Fan[3]; Jun Ding[2]; Sean Li[1]; [1]The University of New South Wales; [2]National University of Singapore; [3]Northwestern University, China

9:05 AM Invited
Radiation Damage in GaN-Based Materials and Devices: *Erin Patrick*[1]; Mark Law[1]; Steve Pearton[1]; Richard Deist[1]; Fan Ren[1]; Lu Liu[1]; Alexander Polyakov[2]; Jihyun Kim[3]; [1]Univ.Florida; [2]Institute of Rare Metals; [3]Korea University

9:25 AM Invited
Multifunctional Carbon Nanotube Composites: *Yuntian Zhu*[1]; Xin Wang[1]; Qingwen Li[2]; Philip Bradford[1]; [1]North Carolina State University; [2]Suzhou Institute of Nanotechnology and Nanobionics

9:45 AM Invited
Structural Characteristics of Ge-based Diluted Magnetic Semiconductor Nanostructures: *Jin Zou*[1]; Yong Wang[1]; Faxian Xiu[2]; Zuoming Zhao[2]; Kang Wang[2]; [1]The University of Queensland; [2]University of California

10:05 AM Break

10:25 AM Invited
Challenge to Development of Diamond Power Devices for Saving Energy: *Yasuo Koide*[1]; [1]National Institute for Materials Science (NIMS)

10:45 AM Invited
Surface Nano-Modification and Low-Temperature Crystallization of Si-Related Semiconductors by Soft X-Ray: *Naoto Matsuo*[1]; Akira Heya[1]; Sho Amano[1]; Shuji Miyamoto[1]; Takayasu Mochizuki[1]; Kazuhiro Kanda[1]; [1]University of Hyogo

11:05 AM Invited
Silver-doped Manganites Produced by Polymer Assisted Deposition and Inkjet Printing Technique: Their Applications: *R. Cobas*[1]; S. Cadogan[1]; S. Muñoz-Perez[2]; M. C. Ridgway[2]; J. Albino Aguiar[3]; [1]University of New South Wales Canberra; [2]Australian National University; [3]Universidade Federal de Pernambuco

H. Rare Earth, Electronic, and Magnetic Materials: Rare Earth Magnets

Program Organizers: Fernand Marquis, Naval Postgraduate School; Wei Li, Central Iron & Steel Research Institute; Koki Takanashi, Tohoku University; Woo Young Lee, Yonsei University; Mark Ridgway, Australian National University; Sungho Jin, UC San Diego

Thursday AM
August 8, 2013

Room: Waikoloa 1
Location: Hilton Waikoloa Village

Session Chairs: Wei Li, Central Iron & Steel Research Institute; Kazuhiro Hono, National Institute for Materials Science

8:00 AM Keynote
Toward the Development of Dy-free High Coercivity Nd-Fe-B Permanent Magnets: *Kazuhiro Hono*[1]; Hossein Sepehri-Amin[1]; Tadakatsu Ohkubo[1]; [1]National Institute for Materials Science

8:25 AM Invited
The Pull of Stronger Magnets: *J.Ping Liu*[1]; [1]University of Texas at Arlington

8:45 AM Invited
Synchrotron X-ray Studies of Grain Boundary Phase in Nd-Fe-B Sintered Permanent Magnets towards High Coercive Force Performance: *Tetsuya Nakamura*[1]; Motohiro Suzuki[1]; Tomoki Fukagawa[2]; Sepehri Hossein[3]; Takeshi Nishiuchi[2]; Tomohito Maki[2]; Yasuo Narumi[4]; Hiroyuki Nojiri[4]; Kazuhiro Hono[3]; Toyohiko Kinoshita[1]; Satoshi Hirosawa[3]; [1]Japan Synchrotoron Radiation Research Institute (JASRI); [2]Hitachi Metals, Ltd.; [3]National Institute for Materials Science; [4]Tohoku University

9:05 AM
High Anisotropy and High Electrical Resistivity Nd-Fe-B/CaF_2 Composite Magnets with Laminated Structures: Wei Li[1]; *Liyun Zheng*[1]; Minggang Zhu[1]; [1]Central Iron & Steel Research Institute

9:20 AM
Thermal Stability of HDDR-treated Nd-Fe-B-type Magnetic Powder: *Hae-Woong Kwon*[1]; Abdul Matin Matin[1]; J G Lee[2]; J H Yu[2]; [1]Pukyong National University; [2]KIMS

9:35 AM Keynote
R&D Activities of Magnetic Materials in Korea: *HiJung Kim*[1]; [1]Korea Institute of Science and Technology

10:00 AM
Coercivity Enhancement and Elements Distribution of Sintered Magnet by Uneven Diffusion: *Shuai Guo*[1]; Renjie Chen[1]; Don Lee[1]; Aru Yan[1]; [1]Key Laboratory of Magnetic Materials and Devices, Zhejiang Province Key Laboratory of Magnetic Materials and Application Technology, Ningbo Institute of Material Technology & Engineering, Chinese Academy of Sciences

10:15 AM Break

10:35 AM
Silicon and Zirconium Co-doped $SmCo_7$ Alloys with Enhanced Coercivity: Deyuan Feng[1]; *Zhongwu Liu*[1]; Dechang Zeng[1]; Guoqing Zhang[2]; [1]South China University of Technology; [2]Beijing Institute of Aeronautical Materials

10:50 AM
Current Research on Nd-Fe-B Sintered Magnets in Korea: *Taesuk Jang*[1]; Y.D. Kim[2]; S.R. Lee[3]; H.J. Kim[4]; [1]Sunmoon University; [2]Hanyang University; [3]Korea University; [4]Ja Hwa Electronics Co.

11:05 AM
Effects of Y_2BaCuO_5 Pre-form Density on Pores and Critical Current Density of Liquid Infiltration Growth Processed $YBa_2Cu_3O_7$-y Bulk Superconductors: *Asif Mahmood*[1]; Yousef Al-Zaghayer[1]; [1]King Saud University

11:20 AM Invited
Graphene-magnetic Metal Interfaces in View of Spintronic Applications: *Seiji Sakai*[1]; Yoshihiro Matsmoto[1]; Shiro Entani[1]; Manabu Ohtomo[1]; Pavel Avramov[1]; [1]Japan Atomic Energy Agency

11:40 AM Invited
Irradiation-induced Porosity in Sb-based III-V Semiconductors: *Patrick Kluth*[1]; [1]The Australian National University

12:00 PM Invited
High Mobility and High Stability of Oxide Thin Film Transistor for Next Generation Display Applications: *Sang Yeol Lee*[1]; [1]Cheongju University

I. Thin Films and Surface Engineering: Functional Materials and Surface Treatment

Program Organizers: Fernand Marquis, Naval Postgraduate School; Chuang Dong, Dalian University of Technology; Takashi Goto, Tohoku University; Kyung-Ho Shin, Korea Institute of Science and Technology; Mingxing Zhang, The University of Queensland; Amit Misra, Los Alamos National Laboratory

Thursday AM
August 8, 2013

Room: Kohala 1
Location: Hilton Waikoloa Village

Session Chairs: Arvind Agarwal, Florida International University ; Indranath Dutta, Washington State University

8:00 AM Introductory Comments

8:05 AM Invited
Design of Electrode Materials for Lithium Rechargeable Batteries: *Kisuk Kang*[1]; [1]Seoul National University

8:25 AM
Effect of Growth Temperature on GaN Films Deposited on Stainless Steel Substrates by ECR-PEMOCVD: *Fu-Wen Qin*[1]; Zhongwei Duan[2]; Qinming Li[2]; Dong Zhang[3]; Zhenhe Ju[3]; Miaomiao Zhong[2]; Hui Wang[2]; Yuemei Liu[2]; Enping Wang[2]; Shuai Wang[2]; Jiming Bian[2]; [1]Dalian University of Technology ; [2]Dalian University of Technology; [3]New Energy Source Research Center of Shenyang Institute of Engineering

8:40 AM
Influence of N_2 Flux on GaN Film Deposition on ITO Coated Glass by ECR-PEMOCVD: Yue Zhao[1]; *Yizhen Bai*[1]; Fuwen Qin[1]; Runfang Kang[1]; Jiaqi Pang[1]; [1]Dalian University of Technology

8:55 AM
Electrochemical Codeposition of Ti-dispersed Ni-matrix Layers by Pulse-Form Current: *Ratchatee Techapiesancharoenkij*[1]; Pathompong Janetaisong[1]; Yuttanant Boonyongmaneerat[2]; Apirat Laobuthee[1]; [1]Kasetsart University; [2]Chulalongkorn University

9:10 AM
Degradation Tests on Surface with Hydrophobic Nano Coating: *Daniele Rolim*[1]; Jose Melo[1]; Luciano Sahdo[1]; [1]Nokia Institute of Technology

9:25 AM Invited
Femtosecond Laser Induced Surface Modification: Dong Hyuck Kam[1]; Lijun Song[2]; *Jyotirmoy Mazumder*[2]; [1]Samsung; [2]University of Michigan

9:45 AM Keynote
Laser Surfacing - Challenges and Opportunities in Manufacturing: *Milan Brandt*[1]; [1]RMIT University

10:10 AM Break

10:30 AM Keynote
Enhanced Conversion Efficiency of Thin Film Solar Cells by Patterned SiO_2 Layer: *Heon Lee*[1]; [1]Korea University

10:55 AM Invited
Laser-direct Patterning of Metal Thin Films for Electronics: *Myeongkyu Lee*[1]; [1]Yonsei University

11:15 AM
Nitriding Iron at Lower Temperature by Low Pressure Plasma Jet: *Chunyu Ma*[1]; Qingyu Zhang[1]; Qing Yao[2]; Shulin Li[1]; Guoqiang Lin[1]; [1]Key Laboratory of Materials Modification by Laser, Ion and Electron Beams , Dalian University of Technology; [2]Graduate School of Dalian University of Technology

11:30 AM
Thermo-mechanical Stress-driven Ag Direct Bonding: *Chulmin Oh*[1]; Shijo Nagao[1]; Katsuaki Suganuma[1]; [1]ISIR, Osaka university

J. Materials and Processes for Enhanced Performance: Non-Ferrous Alloys: Al and Cu Alloys; and Rare Metals

Program Organizers: Fernand Marquis, Naval Postgraduate School; Jishan Zhang, USTB; Yoshimi Watanabe, Nagoya Institute of Technology; Young-Kook Lee, Yonsei University; Robert O'Donnell, CSIRO; Jie Liu, Duke University

Thursday AM
August 8, 2013

Room: King 3
Location: Hilton Waikoloa Village

Session Chair: Santiago Gallo Corujeira, CSIRO Process Science and Engineering

8:00 AM
Effect of Ag Content on Grain Growth during Reversion in Precipitation Hardened Cu-Cr-Zr-Ag Alloys: *Hayao Eguchi*[1]; Masato Arai[1]; Shintaro Fujii[1]; Masahito Fujita[1]; Yoshimasa Takayama[2]; [1]Miyoshi Gokin Kogyo Co., Ltd.; [2]Utsunomiya University

8:15 AM Invited
Effect of Cross Accumulative Roll Bonding Process on Microstructure and Mechanical Properties of Laminated 1100/7075 Composite Sheets: *Zejun Chen*[1]; Hongbo Hu[1]; Xia Wu[1]; Minhong Zhou[1]; Kawunga Nyirenda[1]; Qing Liu[1]; Guojun Wang[2]; Deman Wang[2]; [1]Chongqing University; [2]Northeast Light Alloy Co., Ltd.

8:35 AM
Grain Refinement of Al Cast by Al_5CuTi_2, $Al_{22}Fe_3Ti_8$ and $Al_{67}Ni_8Ti_{25}$ Intermetallic Compounds with L12 Structure: *Yoshimi Watanabe*[1]; Kunika Yamanaka[1]; Takahiro Kunimine[1]; Hisashi Sato[1]; [1]Nagoya Institute of Technology

8:50 AM
The Mechanical Properties and Residual Stress of Ultrasonic Nano-crystal Surface Modified Friction Stir Welded Al 2024 T3- Al 7075 T6: *Kelimu Tulugan*[1]; Hyeongjin Kim[1]; Sungho Park[2]; Wonjo Park[1]; [1]Gyeongsang national University; [2]Changwon College

9:05 AM
Investigation on Microstructure and Dynamic Mechanical Properties of W-Cu-Zn Alloy: *Jinxu Liu*[1]; Shukui Li[1]; Xing Wang[2]; Yingchun Wang[1]; [1]Beijing Institute of Technology (BIT); [2]Institute of Process Engineering, Chinese Academy Of Sciences

9:20 AM
Microstructure and Mechanical Properties of 93W-4.9Ni-2.1Fe by Spark Plasma Sintering: *Ying Chun Wang*[1]; Shu Kui Li[1]; Jin Xu Liu[1]; Hong Zou[1]; [1]Beijing Institute of Technology

9:35 AM
Study for Production of Zirconium Sponge by Separated-Reduction Process: *Miseon Choi*[1]; Changkyu Lee[1]; Byeonghyun Yoon[1]; [1]RIST

9:50 AM
The Effect of Annealing on the Microstructure and Mechanical Properties of V-4Cr-4Ti Doping with Yttrium: *Lixia Peng*[1]; Qinying Xu[1]; Chunli Jiang[1]; [1]China Academy of Engineering Physics

10:05 AM Break

10:25 AM
Reduction of Titanium Powder Under Reductive Atmosphere and its Influence on NiTi Sintering: *Mohammad Saleh Khalatbari*[1]; Roozbeh Derakhshan[1]; Khatiboleslam Sadrnezhad[1]; [1]Sharif University

10:40 AM
Rheological Properties of Feedstock Composed of Titanium Alloy Powder and Polyethylene Glycol Based Binder System for Metal Injection Moulding: *Gnanavinthan Thavanayagam*[1]; Deliang Zhang[1]; Kim Pickering[1]; Peng Cao[2]; [1]Waikato Centre for Advanced Materials, School of Engineering, The University of Waikato; [2]The University of Auckland

K. Solidification, Deformation and Related Processing: Solidification II

Program Organizers: Fernand Marquis, Naval Postgraduate School; Wanqi Jie, Northwestern Polytechnical University; Hiroyuki Yasuda, Osaka University; Hyoung Seop Kim, POSTECH; Yinong Liu, The University of Western Australia; Zak Fang, University of Utah

Thursday AM
August 8, 2013

Room: Kona 2
Location: Hilton Waikoloa Village

Session Chairs: Zhang Weiwen Weiwen, South China University of Technology; Feng Liu, Northwestern Polytechnical University

8:00 AM Introductory Comments

8:05 AM
Step Free Energies at Faceted Solid-Liquid Interfaces from Equilibrium Molecular Dynamics Simulations: *Timofey Frolov*[1]; Mark Asta[1]; [1]University of California Berkeley

8:20 AM
Growth Speed and Thermal Gradient Dependence of Primary Dendrite Trunk Diameter in Directionally Solidified Al-Si Alloys: *Surendra Tewari*[1]; Richard Grugel[2]; David Poirier[3]; [1]Cleveland State University; [2]NASA; [3]The University of Arizona

8:35 AM
Comparison of the Volume Fractions of Primary Sn Depending on the Holding Time in Sn-Ag and Sn-Pb Alloys: *Yasuhiro Nagatomo*[1]; Hisao Esaka[1]; Kei Shinozuka[1]; [1]National Defense Academy

8:50 AM
Preparation and Characterization of Al2O3/YAG Eutectic Ceramic Plates with Large Size and High Density: *Hj Su*[1]; Jun Zhang[1]; Jianzheng Yu[1]; Lin Liu[1]; Hengzhi Fu[1]; [1]State Key Laboratory of Solidification Processing

9:05 AM
Rapid Solidification of Undercooled Eutectic Alloys: *Jinfu Li*[1]; Xiaoling Li[1]; Qisen Huang[1]; Li Liu[1]; Yaohe Zhou[1]; [1]Shanghai Jiao Tong University

9:20 AM
Regulation Tendency of Eutectic Microstructure of Laser Floating Zone Melted Al2O3/YAG Eutectic In Situ Composite: Kan Song[1]; *Jun Zhang*[1]; Weidan Ma[1]; Haijun Su[1]; Lin Liu[1]; Hengzhi Fu[1]; [1]Northwestern Polytechnical university

9:35 AM
Solidification Processing of Cast Energetic Materials: Ruslan Mudryy[1]; *Laurentiu Nastac*[2]; [1]US ARMY; [2]The University of Alabama

9:50 AM
Effect of Monotectic Reaction on Solidification Cracking Resistance of Lead Free Bronze: *Ryoko Yoshida*[1]; Toru Maruyama[1]; Toshihide Takenaka[1]; [1]Kansai University

10:05 AM Break

10:25 AM
Study on Directional Solidification Microstructures of Mg-Zn-Gd Ternary Magnesium Alloy: *Guangyu Yang*[1]; Shaojun Liu[1]; Jun Zhang[1]; Wanqi Jie[1]; Zhong Yu[1]; [1]Northwestern Polytechnical University

10:40 AM
Solidification of Iron-rich Intermetallics in Squeeze Cast Al-5.0Cu-0.5 Fe Alloys with Different Mn/Fe Ratio: *Zhang Weiwen*[1]; Lin Bo[1]; Zhang Datong[1]; Li Yuanyuan[1]; [1]South China University of Technology, School of Mechanical and Automotive Engineering

L. Modeling and Simulation of Processes, Microstructures, and Behavior: Modeling and Simulations of Materials Microstructure I

Program Organizers: Fernand Marquis, Naval Postgraduate School; Dianzhong Li, Institute of Metal Research, Chinese Academy of Sciences; Tetsuo Mohri, Hokkaido University; Won Tae Kim, Cheongju University; Graeme Murch, The University of Newcastle; Alfredo Caro, LANL

Thursday AM
August 8, 2013

Room: Kona 5
Location: Hilton Waikoloa Village

Session Chairs: Marius Stan, Los Alamos National Laboratory; Anthony Rollett, Carnegie Mellon University

8:00 AM Keynote
Advances in Modeling and Simulation of Microstructure, with an Emphasis on 3D Aspects: *Anthony Rollett*[1]; [1]Carnegie Mellon University

8:25 AM Invited
GPU Phase-field Simulations of Dendrite Competitive Growth in Directional Solidification: *Tomohiro Takaki*[1]; [1]Kyoto Institute of Technology

8:45 AM
Computational Modeling and Experimental Validation of Microstructure Development in Nickel-Base Superalloys Processed Through Scanning Laser Epitaxy (SLE): Ranadip Acharya[1]; Rohan Bansal[1]; Justin Gambone[1]; *Suman Das*[1]; [1]Georgia Institute of Technology

9:00 AM
Coupled Macro-Micro Modeling for Prediction of Grain Structure of Mg-Al Alloy: *Hai Hao*[1]; Xiaoteng Liu[1]; Yingde Song[1]; Xingguo Zhang[1]; [1]Dalian University of Technology

9:15 AM
Kinetics Modelling of Isothermal Bainite Transformation in Low Carbon Multi-microalloyed Steel: *Liangyun Lan*[1]; Chunlin Qiu[1]; Dewen Zhao[1]; [1]Northeastern University

9:30 AM Keynote
Computational Design of Multifunctional Microstructural Materials – An Inverse Problem: *Qing Li*[1]; Che-Cheng Chang[1]; Junning Chen[1]; Joseph Cadman[1]; Wei Li[1]; Shiwei Zhou[2]; Yuhang Chen[3]; [1]The University of Sydney; [2]RMIT University; [3]Heriot-Watt University

9:55 AM Invited
Microstructural Heterogeneity and Thermal Transport: *Marius Stan*[1]; [1]Argonne National Laboratory

10:15 AM Break

10:35 AM
Comparison of Laguerre Model and Potts Model of 3D Grain Structures: *Xiangge Qin*[1]; Guangbin Ren[1]; Qinglong Guo[1]; [1]Jiamusi University

10:50 AM
A Phase Field Finite Element Approach to Simulate Shape Memory Actuators: *Peter Anderson*[1]; Harshad Paranjape[1]; Xiang Chen[1]; Mathew Bowers[1]; Daniel Coughlin[1]; Michael Mills[1]; Yunzhi Wang[1]; Ronald Noebe[2]; [1]The Ohio State University; [2]NASA Glenn Research Center

11:05 AM
Simulation on Structure of Electroslag Remelting Ingot by Cellular Automata Method: *Baokuan Li*[1]; Qiang Wang[1]; Taiyin Gao[1]; [1]Northeastern University

11:20 AM
Electromagnetic Stirring of Plutonium Metal Part I: Theoretical Calculations and System Design (LA-UR-13-23071): *Nathan Rimkus*[1]; Todd Jankowski[1]; James Jurney[1]; William Peach[1]; Stephen Stout[1]; [1]Los Alamos National Laboratories

11:35 AM
Cellular Automaton Simulation of Dislocation-Nanofeature Interactions in a Nanostructured Ferritic Alloy: *Ning Zhou*[1]; Shenyan Huang[1]; Richard DiDomizio[1]; Laura Dial[1]; [1]GE Global Research

11:50 AM
Interaction of Dislocations with Carbon Interstitials in a-iron: *Ali Nemaollahi*[1]; Blazej Grabowski[1]; Jörg Neugebauer[1]; Dierk Raabe[1]; [1]Max-Planck Institut für Eisenforschung

M. Bulk Metallic Glasses, Nanocrystalline Materials, and Ultrafine-Grain Materials: Metallic Glass II

Program Organizers: Fernand Marquis, Naval Postgraduate School; Yue Zhang, University of Science and Technology Beijing; Nobuhiro Tsuji, Kyoto Univ; Eun Soo Park, Seoul National University; Michael Ferry, University of New South Wales; Yuntian Zhu, North Carolina State University

Thursday AM
August 8, 2013

Room: Waikoloa 2
Location: Hilton Waikoloa Village

Session Chairs: Peter Liaw, Univ of Tennessee; Zhiwei Shan, Xi'an Jiaotong University; Eun Park, Seoul National University; Do Kim, Yonsei University

8:00 AM Keynote
Fatigue Behavior of Bulk Metallic Glasses: *Peter Liaw*[1]; [1]University of Tennessee

8:25 AM
In Situ Structural Characterization for Metallic Glasses and Nanomaterials Under High Pressure via Synchrotron Techniques: *Luhong Wang*[1]; Haozhe Liu[1]; Xianhui Xiao[2]; Jon Almer[2]; Wenge Yang[3]; Francesco De Carlo[2]; [1]Harbin Institute of Technology; [2]Argonne National Laboratory; [3]Carnegie Institution of Washington

8:40 AM
Mechanical Properties of Al-Ni-Zr Bulk Metallic Glasses Interpreted with the Cluster-Plus-Glue-Atom Model: *Ying Qin*[1]; Fengwei Li[1]; Jianbing Qiang[1]; Shijie Zhu[1]; Qing Wang[1]; Yingmin Wang[1]; Xinglong Dong[1]; Chuang Dong[1]; [1]Dalian University of Technology

8:55 AM Invited
On the Fracture Toughness and Fatigue Strength of Bulk-Metallic Glasses: *Bernd Gludovatz*[1]; Marios Demetriou[2]; Jamie Kruzic[3]; William Johnson[2]; Robert Ritchie[4]; [1]Lawrence Berkeley National Laboratory; [2]Keck Laboratory of Engineering Materials, California Institute of Technology; [3]Department of Mechanical Engineering, Oregon State University; [4]Department of Materials Science and Engineering, University of California

9:15 AM Invited
"Work-Hardenable" Ductile Ti-based Bulk Metallic Glass Matrix Composites: W.H. Ryu[1]; H.J. Chang[2]; W.C. Woo[3]; *Eun Soo Park*[1]; [1]Seoul National University; [2]Korea Institute of Science and Technology (KIST); [3]Korea Atomic Energy Research Institute

9:35 AM Keynote
Application of Metallic Glass for High Performance Si Solar Cell: Oxidation Behavior of Metallic Glass: Ka Ram Lim[1]; Min Young Na[1]; Sung Hyun Park[1]; Kang Chul Kim[1]; Won Tae Kim[2]; *Do Hyang Kim*[1]; [1]Yonsei University; [2]Cheongju University

10:00 AM Break

10:20 AM
Castability of Bulk Metallic Glass Materials for Multi-scale Tooling Applications: *Philip Meagher*[1]; David Browne[1]; [1]University College Dublin

10:35 AM
Production of Coatings of Fe-based Glass Former Alloys Through Spray Forming, Thermal Spray and Laser Cladding: *Conrado Afonso*[1]; Piter Gargarella[2]; Ana Karla Melle[2]; Claudemiro Bolfarini[1]; Walter José Botta[1]; Claudio Kiminami[1]; [1]Universidade Federal de São Carlos (UFSCar); [2]Programa de Pós-graduação em Ciência e Engenharia de Materiais (PPG-CEM)

10:50 AM Invited
Static Evolution of β-relaxation in Some Pd-P- and Zr-based Bulk Metallic Glasses: *Osami Haruyama*[1]; Hiroyuki Sawada[1]; Kohtaro Tsujimura[1]; Nobuhiro Yamamoto[1]; Yoshihiko Yokoyama[2]; [1]Tokyo University of Science; [2]Tohoku University

11:10 AM
Interfacial Characteristics and Mechanical Properties of W Fiber Reinforced (Zr40.08Ti13.30Cu11.84Ni10.07Be24.71) 100-xNbx Metallic Glass Composites: *Zhengkun Li*[1]; Guofeng Ma[2]; Huameng Fu[1]; Zhengwang Zhu[1]; Aimin Wang[1]; Hong Li[1]; Hongwei Zhang[1]; Haifeng Zhang[1]; Zhuangqi Hu[1]; [1]Shenyang National Laboratory for Materials Science, Institute of Metal Research, Chinese Academy of Sciences; [2]Key Laboratory of Advance Materials Technology of Educational Department Liaoning Province, Shenyang University

M. Bulk Metallic Glasses, Nanocrystalline Materials, and Ultrafine-Grain Materials: Ultrafine Grained Materials II

Program Organizers: Fernand Marquis, Naval Postgraduate School; Yue Zhang, University of Science and Technology Beijing; Nobuhiro Tsuji, Kyoto Univ; Eun Soo Park, Seoul National University; Michael Ferry, University of New South Wales; Yuntian Zhu, North Carolina State University

Thursday AM
August 8, 2013

Room: Kohala 3
Location: Hilton Waikoloa Village

Session Chairs: Yuntian Zhu, NC State University; Zenji Horita, Kyushu University; Xiaozhou Liao, The University of Sydney; Hyoung Kim, POSTECH

8:00 AM Keynote
Bulk Nanostructured Materials with Multifunctionality Produced by High-Pressure Torsion: *Zenji Horita*[1]; [1]Kyushu University

8:25 AM Invited
Dislocation and Twin Mechanism-based Finite Element Analysis for Severe Plastic Deformation: *Hyoung Seop Kim*[1]; Dong Hyun Ahn[1]; [1]POSTECH

8:45 AM
Age Hardening of 7075 Alloy Processed by High-pressure Sliding (HPS): *Seungwon Lee*[1]; Kiyonari Tazoe[1]; Zenji Horita[1]; [1]Kyushu University

9:00 AM Invited
Aluminium–Magnesium Hybrid Material from Machining Chips: Yuanshen Qi[1]; *Rimma Lapovok*[1]; Yuri Estrin[1]; [1]Monash University

9:20 AM Invited
Tube High-pressure Shearing (t-HPS) for the Processing of Ultrafine-grained Materials: *Jing Tao Wang*[1]; [1]Nanjing University of Science and Technology

9:40 AM Invited
Structural and Chemical Heterogeneities of Ultrafine Eutectic Alloys: *Ki Buem Kim*[1]; [1]Sejong University

10:00 AM
Combination of ECAP Process and Heat Treatment to Achieve Refining Structure of Selected Magnesium Alloys: *Stanislav Rusz*[1]; Lubomir Cizek[1]; Eugenius Hadasik[1]; Tibor Donic[1]; Stanislav Tylsar[1]; Michal Salajka[1]; Jan Kedron[1]; [1]VSB - Technical University of Ostrava

10:15 AM Break

10:35 AM Invited
Deformation Twinning and De-twinning in Nanocrystalline Face-centered Cubic Metallic Materials: *Xiaozhou Liao*[1]; [1]The University of Sydney

10:55 AM
Grain Size Effect on Deformation Physics and Mechanical Behaviors of Nanostructured Materials: *Yuntian Zhu*[1]; Guangming Cheng[1]; Xiaolei Wu[2]; Xiaozhou Liao[3]; [1]North Carolina State University; [2]Institute of Mechanics; [3]University of Sydney

11:10 AM
Structure of Mg Single Crystals Deformed by ECAP: *Hiromoto Kitahara*[1]; Fumiaki Maruno[1]; Masayuki Tsushida[1]; Shinji Ando[1]; [1]Kumamoto University

11:25 AM
Establishment of Guidelines for Innovative Alloy Designing for Concurrently Strengthening Severely-deformed Al-Li-Cu Alloys by Ultrafine-grained and Precipitation Hardenings: *Shoichi Hirosawa*[1]; Takumi Hamaoka[1]; Zenji Horita[2]; Seungwon Lee[2]; Kenji Matsuda[3]; Daisuke Terada[4]; [1]Yokohama National University; [2]Kyushu University; [3]University of Toyama; [4] Kyoto University

11:40 AM Invited
Evolution of Solute-structuring and Grain-size in Hierarchy-strengthened Al-Mg Alloys: *Peter Liddicoat*[1]; Maxim Murashkin[2]; X. Liao[1]; Ruslan Valiev[2]; Simon Ringer[1]; [1]The University of Sydney; [2]Ufa State Aviation Technical University

N. Advanced Materials Characterization and Evaluation: Interface Structure

Program Organizers: Fernand Marquis, Naval Postgraduate School; Xiaodong Han, Beijing University of Technology; Sho Matsumura, Kyushu University; Dong Il Kwon, Seoul National University; Jin Zou, The University of Queensland; Alexis Lewis, Naval Research Laboratory

Thursday AM
August 8, 2013

Room: King 2
Location: Hilton Waikoloa Village

Session Chairs: Jian-Feng Nie, Monash University; Anthony Rollett, Carnegie Mellon University

8:00 AM Keynote
Interface Structure and Defect Configuration in the Heteroepitaxial Perovskite Thin Films: *Xiu-Liang Ma*[1]; [1]Institute of Metal Research, Chinese Academy of Sciences

8:25 AM Keynote
Interphase Interfaces in Magnesium Alloys: Yuman Zhu[1]; *Jian-Feng Nie*[1]; [1]Monash University

8:50 AM Invited
What Can We Learn from Atomic Scale Calculations of Grain Boundary Properties?: *Elizabeth Holm*[1]; Gregory Rohrer[1]; Stephen Foiles[2]; Anthony Rollett[1]; Eric Homer[3]; David Olmsted[4]; [1]Carnegie Mellon University; [2]Sandia National Laboratories; [3]Brigham Young University; [4]University of California Berkeley

9:10 AM
Quantification of Grain Boundary Networks in 2D and 3D: *Amanda Levinson*[1]; Alexis Lewis[2]; [1]National Research Council; [2]Naval Research Laboratory

9:25 AM
The Physical Corrosion Mechanism and Characterization of GFRP in Carbon Dioxide: *Ju Hua*[1]; Lu Rui[1]; Guo Na[1]; Zhang Dongxing[1]; [1]Harbin Institute of Technology

9:40 AM
Homology Metrics to Grain Boundary Engineereing: *Brian Lin*[1]; Anthony Rollett[1]; Gregory Rohrer[1]; [1]Carnegie Mellon University

9:55 AM
Effect of High Angle Grain Boundary on Deformation of Aluminum Bicrystalline Nanopillars: *Seung Min Han*[1]; Youbin Kim[1]; [1]Korea Advanced Institute of Science and Technology

10:10 AM Break

10:30 AM
Interface of Potentially Multiferroic Fe/BaTiO3 Epitaxial System: *Y.L. Zhu*[1]; Y.L. Tang[1]; L. Deng[1]; X.L. Ma[1]; [1]Shenyang National Lab for Materials Science, Institute of Metal Research, Chinese Academy of Sciences

10:45 AM
How a Twinning Interface Propagate? Materials'Atomic Scale & Deformation Dynamics by In Situ TEM: *Xiaodong Han*[1]; Pan Liu[1]; Lihua Wang[1]; Yonghai Yue[1]; Ze Zhang[2]; [1]Beijing University of Technology; [2]Zhejiang University

11:00 AM
Detection of Hydrogen Release from the Grain Boundary Fracture Zone in 7075 Aluminum Alloy: *Keitaro Horikawa*[1]; Shunsuke Hokazono[1]; Kenichi Tanigaki[1]; Hidetoshi Kobayashi[1]; [1]Osaka University

11:15 AM
Exploring the Reason for High Piezoelectricity in $Ba(Zr_{0.2}Ti_{0.8})O_3$-$x(Ba_{0.7}Ca_{0.3})TiO_3$ Piezoceramics: *Jinghui Gao*[1]; Xinghao Hu[1]; Xiaobing Ren[2]; [1]Xi'an Jiaotong University; [2]National Institute for Materials Science

11:30 AM
Ultrafast Electron Diffraction Studies of Lattice Dynamics in Thin Bismuth Films: Alex Bugayev[1]; *Hani Elsayed-Ali*[1]; [1]Old Dominion University

11:45 AM
Assessment of Crystallographic Deformation Behaviors in Aluminum Alloy Using Diffraction-Amalgamated Grain Boundary Tracking Technique: *Yasuto Tanabe*[1]; Hiroyuki Toda[1]; Takanobu Kamiko[1]; Yoshio Suzuki[2]; Akihisa Takeuchi[2]; Kentaro Uesugi[2]; Masakazu Kobayashi[1]; [1]Toyohashi University of Techinology; [2]JASRI

A. Materials for Energy: Session V

Program Organizers: Fernand Marquis, Naval Postgraduate School; Shaoxiong Zhou, Central Iron and Steel Research, China; Akihiko Kimura, Kyoto University; Young Hwan Cho, KIST; Shixue Dou, Wollongong University; Renkun Chen, University of California

Thursday PM
August 8, 2013

Room: Kohala 2
Location: Hilton Waikoloa Village

Session Chairs: Shaoxiong Zhou, Central Iron and Steel Research, China; Michael Hu, Oak Ridge National Laboratory

2:00 PM Keynote
Engineered Nanomaterials for Clean Renewable Energy and Detection Technologies: *Michael Hu*[1]; [1]Oak Ridge National Laboratory

2:25 PM Keynote
Designing Advanced Hydrogen Storage Materials: *Shin-ichi Orimo*[1]; [1]IMR, Tohoku University

2:50 PM Keynote
Nanoscale Thermoelectric Materials and Devices for Energy Applications: *Rama Venkatasubramanian*[1]; [1]RTI International

3:15 PM Invited
Rechargeable Nano-Batteries: Lessons from In-Situ Electron Microscopy: *Reza Shahbazian-Yassar*[1]; Anmin Nie[1]; [1]Michigan Technological University

3:35 PM Invited
HIgh Yield Fabrication of Semiconductor Nanoparticles for Thermoelectric Applications: *Renkun Chen*[1]; [1]University of California

3:55 PM Invited
Pyro-Synthesis of Carbon Wrapped Nanocrystalline Electrode Materials: *Jaekook Kim*[1]; [1]Chonnam National University

4:15 PM Break

4:35 PM Invited
Heterojunction Organic Photovoltaics– Nano Morphology Control and Interfacial Layers: Youn-Su Kim[1]; Jeesoo Seok[1]; Xie Lin[1]; Yoon Hee Jang[1]; Kyung Jin Kim[1]; Soyeon Yoon[1]; *Kyungkon Kim*[1]; [1]Ewha Womans Univerisity

4:55 PM
Uniform Synthesis of Compositionally and Highly Crystalline Bi1-xSbx Nanowire Arrays: *W. Graham Yelton*[1]; Steven Limmer[1]; [1]Sandia National Labs

5:10 PM
The Application of One-dimensional Carbon Nanomaterials in Supercapacitor: *Chunxu Pan*[1]; Yupeng Zhang[1]; [1]Wuhan University

5:25 PM
Electronic and Phonon Transports in Bulk Quantum Dots Engineered Half-Heusler Nanocomposites: *Pierre Ferdinand Poudeu Poudeu*[1]; [1]University of Michigan

5:40 PM
II-VI Heterojunctions of Core/Shell Nanowire Arrays for Three-Dimensional Photovoltaic Device Fabrication: *Weilie Zhou*[1]; [1]University of New Orleans

C. Advanced High-Temperature Structural Materials: Processing of High-temperature Structural Materials II

Program Organizers: Fernand Marquis, Naval Postgraduate School; Guoqing Zhang, Beijing Institute of Aeronautical Materials; Haruyuki Inui, Kyoto University; Kyung-Tae Park, Hanbat National University; Julie Cairney, The University of Sydney; Eugene Olevsky, San Diego State University

Thursday PM
August 8, 2013

Room: King 1
Location: Hilton Waikoloa Village

Session Chairs: David Young, University of New South Wales; Hyun Uk Hong, Changwon National University

2:00 PM Keynote
Design Principle and Strengthening of Advanced Austenitic Heat Resistant Steels Strengthened by Fe_2Nb Laves Phase: *Masao Takeyama*[1]; [1]Tokyo Institute of Technology

2:25 PM Invited
Prediction of Creep Life of Alloy 800H Using EBSD Grain Size Measurement Methods: *Milo Kral*[1]; Ben Gardiner[1]; [1]University of Canterbury

2:45 PM Invited
Plastic Deformation of Transition-metal Silicides with Complex Crystal Structures: *Kyosuke Kishida*[1]; Haruyuki Inui[1]; [1]Kyoto University

3:05 PM Invited
Planar Defects and Dislocations in Transition Metal Disilicides: *Vaclav Paidar*[1]; [1]Institute of Physics AS CR vvi

3:25 PM
Friction and Wear Properties of Sintered Sulfur-containing High-speed Steels at Elevated Temperature: *Rutie Liu*[1]; Xiang Xiong[1]; [1]Central South University

3:40 PM
Oxidation Response of Pack Cementation Coated TZM (Mo-0.5Ti-0.1Zr-0.02C) Alloys under Dynamic Environments: *J. Park*[1]; J. M. Kim[1]; S. -H. Cho[2]; Y. I. Son[3]; [1]Hanbat National University; [2]Dongyang Mirae University; [3]Agency for Defense Development

3:55 PM
Dislocation Related Lamellar Structure Formation and Oxidation Anisotropy of $(Mo1-xNbx)Si_2$ Single Crystals: *Lanting Zhang*[1]; Ou Zhu[2]; Ke Chen[1]; Koji Hagihara[3]; Takayoshi Nakano[3]; [1]Shanghai Jiao Tong University; [2]AVIC Commercial Aircraft Engine Co., Ltd; [3]Osaka University

4:10 PM Break

4:30 PM
B Effect in Nb-20Mo-15Si-25Cr-xB Alloys on the Oxidation Resistance up to 1400oC: *Shailendra Varma*[1]; Kathryn Thomas[1]; [1]The University of Texas at El Paso

4:45 PM
DRX Mechanisms and Twin Character Evolution during Warm-to-Hot Deformation in Nimonic 80A: *Ke Chen*[1]; Jieqiong Wu[1]; Hui Shi[1]; Lanting Zhang[1]; Hongwei Shen[2]; Aidang Shan[1]; [1]Shanghai Jiao Tong University; [2]Shanghai Electric Power Generation Equipment Co., Ltd. Shanghai Turbine Plant

D. Advanced Steels and Processing: Microstructural Evolution of Steels in Experiments, Simulation, and Theory

Program Organizers: Fernand Marquis, Naval Postgraduate School; Han Dong, Central Iron and Steel Research Institute; Kaneaki Tsuzaki, National Institute for Materials Science; Sung Joon Kim, POSTECH; Rian Dippenaar, University of Wollongong; Kip Findley, Colorado School of Mines

Thursday PM
August 8, 2013

Room: Kona 3
Location: Hilton Waikoloa Village

Session Chairs: Kaneaki Tsuzaki, National Institute for Materials Science; Elena Pereloma, University of Wollongong

2:00 PM Introductory Comments

2:05 PM Keynote
Microstructure Engineering in the Heat Affected Zone of Advanced Linepipe Steels: *Matthias Militzer*[1]; Warren Poole[1]; Thomas Garcin[1]; Morteza Toloui[1]; [1]The University of British Columbia

2:30 PM Keynote
The Kinetics of Ferrite Formation from Austenite in Multi-component Steels – Linking Experiments and Theory: Cong Qiu[1]; Hatem Zurob[2]; *Christopher Hutchinson*[1]; [1]Monash University; [2]McMaster University

2:55 PM Invited
Surface Hardening in Nitrided Ferrous Alloys by Nano-sized Clustering and Precipitation: *Goro Miyamoto*[1]; Tadashi Furuhara[1]; [1]Tohoku University

3:15 PM Invited
Microstructure Evolution in the Heat-affected Zone of Zr-Ti Microalloyed High-strength High-toughness Offshore Structural Steels: Yuqun Yin[1]; Nianchun Wu[1]; Li Li[1]; Yongkuan Yao[1]; Daoyuan Wang[1]; Huqiang Yan[1]; Honghong Wang[2]; *Kai-Ming Wu*[2]; [1]Nanjing Iron & Steel Group Co., Ltd.; [2]Wuhan University of Science and Technology

3:35 PM
Partitioning of Carbon into Austenite Matrix during Ferrite and Bainite Transformations in Low-alloy Low-carbon Steel: *Tadashi Furuhara*[1]; Naoki Takayama[1]; Goro Miyamoto[1]; [1]Tohoku University

3:50 PM
Partition of Alloying Elements in the Growth of Ferrite and the Effect of Austenite Deformation in Steels: *Zhi-Gang Yang*[1]; Z.-D. Li[1]; Y. Xia[1]; C. Zhang[1]; [1]Tsinghua University

4:05 PM Break

4:25 PM
Acicular Ferrite Formation controlled by Inclusion Characteristics: *Hee Jin Kim*[1]; [1]KITECH

4:40 PM
Evaluation of Kinetic Equation of Athermal Martensitic Transformation in Low Carbon Steels: Yuanyuan Wen[1]; Feng Huang[1]; *Zhenghong Guo*[1]; Yonghua Rong[1]; [1]Shanghai Jiao Tong University

4:55 PM
Effects of Isothermal Process on Content of Retained Austenite in High Chromium Cast Steels: *Kazuki Fujio*[1]; [1]University of Hyogo

5:10 PM
Pearlite Formation in Hypoeutectoid Fe–Mn–C Alloys: *Zhenqing Liu*[1]; Goro Miyamoto[1]; Zhigang Yang[2]; Tadashi Furuhara[1]; [1]Tohoku University; [2]Tsinghua University

5:25 PM
Ultrafine-grain Effect on Martensitic Transformation in a Hypereutectoid Steel: Fuliang Lian[1]; *Yongning Liu*[1]; Hongji Liu[1]; Junjie Sun[1]; Xuejiao Sun[1]; [1]Xi'an Jiaotong University

D. Advanced Steels and Processing: Steel Processing and Production I

Program Organizers: Fernand Marquis, Naval Postgraduate School; Han Dong, Central Iron and Steel Research Institute; Kaneaki Tsuzaki, National Institute for Materials Science; Sung Joon Kim, POSTECH; Rian Dippenaar, University of Wollongong; Kip Findley, Colorado School of Mines

Thursday PM
August 8, 2013

Room: Kohala 4
Location: Hilton Waikoloa Village

Session Chair: Rian Dippenaar, University of Wollongong

2:00 PM Introductory Comments

2:05 PM Invited
Hot Tear Segregations as Quality Decisive Factor for Advanced Steel Grades: *Christian Bernhard*[1]; G. Arth[1]; S. Ilie[2]; Sebastian Michelic[3]; [1]Montanuniversitaet Leoben; [2]Voestalpine Stahl GmbH; [3]INTECO Special Melting Technologies

2:25 PM
Molten Mold Flux Technology for Continuous Casting of the ULC and TWIP Steel: *Ki Hyeon Moon*[1]; Shin Yoo[1]; Geon Shin[1]; Min Seok Park[1]; [1]POSCO

2:40 PM
Effect of Steel Composition on the Oxide Scale Formation in Slab Continuous Casting: *Cuihuan Huang*[1]; [1]Northeastern University

2:55 PM
Formation and Evolution of Spinel Inclusions during Al-killed Steel Refining: *Zhiyin Deng*[1]; Miaoyong Zhu[1]; [1]Northeastern University

3:10 PM
Nature & Origin of Ultrasonically-detected Defects in Large Steel Forgings: *Kalyan Kannan*[1]; [1]Siemens Energy

3:25 PM
Heat Transfer Characteristic in a Slag Heat Recovery Chamber: *Nobuyuki Shigaki*[1]; Sumito Ozawa[1]; [1]JFE Steel corporation

3:40 PM
Development of a Heat Recovery System from Steelmaking Slag: *Sumito Ozawa*[1]; Nobuyuki Sigaki[1]; [1]JFE Steel Corporation

3:55 PM
Effective, Controlled Method to Add Sulfur into Molten Steel to Produce Free Cutting Steel for Automobile: *Tiejun Zhang*[1]; [1]Chongqing University of Arts and Science

4:10 PM Break

4:30 PM
Effect of Sulfur Segregation on the Hot Ductility of C-Mn-Al Steels: *Myeong Hun Kang*[1]; N.H. Heo[1]; Yang Mo Koo[1]; Jae Sang Lee[1]; [1]POSTECH

4:45 PM
Thermodynamic Analyses of Iron Oxides Redox Reactions: *Wei Zhang*[1]; Ju-hua Zhang[1]; Qiang Li[1]; Yi-bo He[1]; Biao Tang[1]; Ming-ming Li[1]; Zuo-liang Zhang[1]; Zong-shu Zou[1]; [1]NEU

5:00 PM
A Study on the Reheat Crack Mechanism of High Strength Hydroelectricity Steel: *Xi Zhang*[1]; [1]Shougang Research Institute of Technology

5:15 PM
Dependency of Carbon and Nitrogen in the CaF2-CaO-SiO2-Al2O3 Flux System with Basicity, CaF2, and Atmospheric Conditions: Il Sohn[1]; *Jun-Yong Park*[1]; [1]Yonsei University

5:30 PM
Water-simulation for Optimizing Inner Structure of Special-shape Tundish with Gas Curtain, Retaining Wall and Retaining Dam: *Hongbo Yang*[1]; Jingshe Li[1]; Fangfang Song[1]; Jiangshan Zhang[1]; [1]USTB

E. Light Metals and Alloys: Magnesium II

Program Organizers: Fernand Marquis, Naval Postgraduate School; Yongqing Zhao, Northwest Institute for Nonferrous Metal Research; Yoshihito Kawamura, Kumamoto University; Kwang Seon Shin, Seoul National University; Jian-Feng Nie, Monash University; Suveen Mathaudhu, U.S. Army Research Office

Thursday PM
August 8, 2013

Room: Kona 4
Location: Hilton Waikoloa Village

Session Chairs: Shigeharu Kamado, Nagaoka University of Technology; G.T. "Rusty" Gray, Los Alamos National Laboratory

2:00 PM Introductory Comments

2:05 PM Keynote
Characteristics of Deformation Microstructures in Mg Alloys with Synchronized Long-period Stacking Ordered Structure: *Kenji Higashida*[1]; Tatsuya Morikawa[1]; [1]Kyushu University

2:30 PM Keynote
Quasi-static and Dynamic Mechanical Properties of Magnesium-based Metal Matrix Nanocomposites: Jingling Liu[1]; Jianghua Shen[2]; Linan An[1]; *Qiuming Wei*[2]; [1]University of Central Florida; [2]University of North Carolina at Charlotte

2:55 PM Invited
Non-flammable Magnesium Alloys: *Bong Sun You*[1]; Young Min Kim[1]; Chang Dong Yim[1]; [1]Korea Institute of Materials Science

3:15 PM Keynote
Microstructure, Texture and Mechanical Behavior of Hot-rolled Ternary Mg-1Zn-0.7Y-0.5Zr(wt.%) Alloy Sheet: B.Q. Shi[1]; *Rongshi Chen*[1]; W. Ke[1]; [1]Institute of Metal Research Chinese Academy of Sciences

3:40 PM Invited
Deformation Behavior of 0001 Magnesium Single Crystal under Various Loading Conditions: *Qizhen Li*[1]; [1]University of Nevada, Reno

4:00 PM Break

4:20 PM Invited
Effects of Temperature on Deformation Behavior of Magnesium Single Crystals: Ming Zhe Bian[1]; Kyung Hoon Lee[2]; *Kwang Seon Shin*[1]; [1]Magnesium Technology Innovation Center, Seoul National University; [2]Solution Lab

4:40 PM
Grain Refinement of Mg-4Al-1Si Alloy by Intensive Melt Conditioning: *Xitao Wang*[1]; Yong He[1]; [1]University of Science and Technology Beijing

4:55 PM
Ultra-high Strength and High Ductility of Mg-Gd-Y-Zn-Zr Alloy Sheets Fabricated by Hot Rolling and Ageing: *Mingyi Zheng*[1]; C. Xu[1]; X.G. Qiao[1]; K. Wu[1]; S. Kamado[2]; [1]Harbin Institute of Technology; [2]Nagaoka Univeristy of Technology

5:10 PM
Microstructure, Strength and Ductility of Mg-6Al-4Zn-XSn Alloys: Xuguang Dong[1]; *Yuansheng Yang*[1]; [1]Institute of Metal Research, Chinese Academy of Sciences

5:25 PM
The Effect of Ca Additions on the Mechanical Properties of Mg-Al-Sn Alloys: *Young Cheol Lee*[1]; Young Min Kim[1]; Yong Ho Park[2]; [1]Korea Institute of Industrial Technology; [2]Busan National University

F. Composites and Hybrid Materials: Foams and Porous Materials

Program Organizers: Fernand Marquis, Naval Postgraduate School; Di Zhang, Shanghai Jiao Tong University; Yutaka Kagawa, The University of Tokyo; Jae Chul Lee, Korea University; Yuri Estrin, Monash University; Nikhilesh Chawla, Arizona State University

Thursday PM
August 8, 2013

Room: Queen 4
Location: Hilton Waikoloa Village

Session Chair: Nikhil Gupta, Polytechnic Institute of New York University

2:00 PM Invited
Multifunctionality in Lightweight Porous Composites: *Nikhil Gupta*[1]; [1]Polytechnic Institute of New York University

2:20 PM Invited
Compression of Crumpled Aluminum Thin Foils and Comparison with Other Cellular Materials: *Olivier Bouaziz*[1]; [1]ArcelorMittal Research

2:40 PM
Bioplotted Ceramics and Metals: A Universal Technique For Fabricating Complex, Ordered, and Functional Scaffolds: *Adam Jakus*[1]; Ramille Shah[1]; David Dunand[1]; [1]Northwestern University

2:55 PM Invited
Heat Sink Fabrication and Analysis from Directionally Solidified Porous Metal: *Yanxiang Li*[1]; [1]Tsinghua University

3:15 PM
Preparation of Monodispersed Hollow YSZ Spheres with Hierarchical Porosity: *Chang-An Wang*[1]; Sa Li[1]; Qi Zhang[1]; Yong Huang[1]; [1]Tsinghua University

3:30 PM Invited
Design of Low-density Structures for Optimised Structural Performance: *Mark Hoffman*[1]; Tania Vodenitcherova[1]; Kaveh Kabir[1]; Alan Xu[1]; [1]The University of New South Wales

3:50 PM Invited
Topological Interlocking as a Design Principle for Hybrid Materials: *Arcady Dyskin*[1]; Elena Pasternak[1]; Yuri Estrin[1]; [1]University of Western Australia

4:10 PM Break

4:30 PM
Voltage Controlled Creep of a Nanoporous Gold/Electrolyte Hybrid Material: Xing-Long Ye[1]; *Hai-Jun Jin*[1]; [1]Institute of Metal Research, Chinese Academy of Sciences

4:45 PM
Low-velocity Impact Response of Sandwich Composites with FRP Facesheets and Nanoclay-wood Flour Modified Polyurethane Foam: *Mahesh Hosur*[1]; Gregory Strawder[1]; Shaik Jeelani[1]; [1]Tuskegee University

G. Biomaterials, Smart Materials, and Structures: Session V

Program Organizers: Fernand Marquis, Naval Postgraduate School; Chengbao Jiang, Beihang University; Takayuki Narushima, Tohoku University; Byong Taek Lee, Soonchunhyang University; Anita Hill, CSIRO; R. Narayan, UNC/NCSU Joint Department of Biomedical Engineering

Thursday PM
August 8, 2013

Room: Queen 6
Location: Hilton Waikoloa Village

Session Chairs: Hideshi Miura, Kyushu University; Shailesh Divey, University of Texas at Arlington

2:00 PM Introductory Comments

2:05 PM Keynote
Smart Nanoporous Materials for Sensing and Energy Storage: *Ajayan Vinu*[1]; [1]The University of Queensland

2:30 PM Keynote
Nanocoatings, Degradable Metals and Surface Modifications for High-Performance Cardio-Vascular Biomaterials: *Diego Mantovani*[1]; [1]Laval University

2:55 PM Invited
Direct Laser Forming for More Complex Shaped Ti Alloy Compacts: *Hideshi Miura*[1]; Hyungoo Kang[1]; [1]Kyushu University

3:15 PM Invited
Tailored Yield-Type Tensile Structural Response With Autonomous Healing: Development of Concept: *Shailesh Divey*[1]; D. Stefan Dancila[1]; [1]University of Texas at Arlington

3:35 PM
An Approach for Selecting Biocompatible Implant Materials: Dielectric Properties of Metal Oxides: *Fereydoon Namavar*[1]; Alexander Rubinstein[1]; Renat Sabirianov[2]; John Sharp[1]; Kevin Garvin[1]; [1]University of Nebraska Medical Center; [2]University of Nebraska - Omaha

3:50 PM
Controlled Drug Delivery, Coating Integration, and Biodegradation from Drug-Eluting Stent (DES) Medical Devices: *Chang-Soo Kim*[1]; Solki Lee[1]; Marjan Nezafati[1]; [1]University of Wisconsin-Milwaukee

4:05 PM Break

4:25 PM Keynote
Nanostructured Mesoporous Materials for Bio-Encapsulation and Device Fabrication: *Anita Hill*[1]; Paolo Falcaro[1]; Cara Doherty[1]; [1]CSIRO

H. Rare Earth, Electronic, and Magnetic Materials: Nanostructrured Magnetic Materials

Program Organizers: Fernand Marquis, Naval Postgraduate School; Wei Li, Central Iron & Steel Research Institute; Koki Takanashi, Tohoku University; Woo Young Lee, Yonsei University; Mark Ridgway, Australian National University; Sungho Jin, UC San Diego

Thursday PM
August 8, 2013

Room: Queen 5
Location: Hilton Waikoloa Village

Session Chairs: Maria Soler, Universidade de Brasilia; Zhao-hua Cheng, Institute of Physics, Chinese Academy of Sciences

2:00 PM Keynote
Controllable Growth and Manipulation of Electric and Magnetic Properties of Magnetic Nanostructures: *Zhao-hua Cheng*[1]; [1]Institute of Physics, Chinese Academy of Sciences

2:25 PM
Strain Induced Ferromagnetism: *Sunglae Cho*[1]; Dang Duc Dung[1]; Yooleemi Shin[1]; Duong Anh Tuan[1]; Tran Viet Cuong[1]; [1]University of Ulsan

2:40 PM
Oxide/Graphene Nanocomposite Functional Materials: *Kwang-Bum Kim*[1]; Hyun-Kyung Kim[1]; [1]Yonsei University

2:55 PM Invited
Quantum Transport in Single-crystalline Bi Nanowires Grown by On-Film Formation of Nanowires: *Wooyoung Lee*[1]; [1]Yonsei University

3:15 PM Keynote
Hybrid Nanoscale Magnetic Composites: *Maria Soler*[1]; [1]Universidade de Brasilia

3:40 PM
Microstructure, Magnetic and Electrical Resistance of NdFeB/NdF3 Composite Magnets: *Liyun Zheng*[1]; Wei Li[1]; Minggang Zhu[1]; [1]Central Iron & Steel Research Institute

3:55 PM Invited
Bulk Anisotropic Nanocrystalline Rare-Earth Magnets: *Zhaohui Guo*[1]; Huijie Wang[1]; Minggang Zhu[1]; Wei Li[1]; [1]Central Iron & Steel Research Institute

4:15 PM Break

4:35 PM Invited
Magnetic Microstructures of Novel High Performance Permanent Magnetic Materials: *Yikun Fang*[1]; Wei Sun[1]; Wei Li[1]; Minggang Zhu[1]; Zhaohui Guo[1]; Wei Pan[1]; [1]Central Iron and Steel Research Institute

H. Rare Earth, Electronic, and Magnetic Materials: Rare Earth and Optical Materials

Program Organizers: Fernand Marquis, Naval Postgraduate School; Wei Li, Central Iron & Steel Research Institute; Koki Takanashi, Tohoku University; Woo Young Lee, Yonsei University; Mark Ridgway, Australian National University; Sungho Jin, UC San Diego

Thursday PM
August 8, 2013

Room: Waikoloa 1
Location: Hilton Waikoloa Village

Session Chairs: Joanna McKittrick, University of California, San Diego; Yasufumi Fujiwara, Osaka University

2:00 PM Keynote
Rare-earth Doped Semiconductors and Their Application to Novel Light-emitting Devices: *Yasufumi Fujiwara*[1]; [1]Osaka University

2:25 PM Keynote
Rare Earth Activated Oxides for Solid State Lighting: *Joanna McKittrick*[1]; Jinkyu Han[1]; Jae Ik Choi[1]; Jan Talbot[1]; [1]University of California, San Diego

2:50 PM Invited
Rare Earth Doped Tellurite and Chalcogenide Planar Waveguide Amplifiers and Lasers: *Steve Madden*[1]; [1]Australian National University

3:10 PM Invited
Improving the Output Power of GaN-based LEDs through Efficient Current Blocking and Injection: *Tae-Yeon Seong*[1]; [1]Korea University

3:30 PM
Study on Infrared Transmission Property of Mercury Indium Telluride Single Crystal: Congyuan Liu[1]; *Li Fu*[1]; Yapeng Li[1]; Xuan Zheng[1]; [1]State Key Laboratory of Solidification Processing, Northwestern Polytechnical University

3:45 PM
ZnO-graphene Hybrid Quantum Dots Light Emitting Diode: *Won Kook Choi*[1]; Dong-Ick Son[1]; Soon-Nam Kwon[1]; [1]Korea Institute of Science and Technology

4:00 PM
Enhancing the Coercivity and Thermal Stability of RE2Fe14B/a-Fe Nanocomposite Alloys by Zr Addition: Dongyan Qian[1]; *Zhongwu Liu*[1]; Xuexu Gao[2]; Jie Zhu[2]; Dechang Zeng[1]; [1]South China University of Technology; [2]University of Science and Technology Beijing

I. Thin Films and Surface Engineering: Coatings for Functional and Energy Applications

Program Organizers: Fernand Marquis, Naval Postgraduate School; Chuang Dong, Dalian University of Technology; Takashi Goto, Tohoku University; Kyung-Ho Shin, Korea Institute of Science and Technology; Mingxing Zhang, The University of Queensland; Amit Misra, Los Alamos National Laboratory

Thursday PM
August 8, 2013

Room: Kohala 1
Location: Hilton Waikoloa Village

Session Chairs: Byoung-Chul Min, KIST; Takashi Goto, Tohoku University

2:00 PM Introductory Comments

2:05 PM Keynote
Hybrid Nanoporous Metal/Oxide Films for Energy Storage: *Mingwei Chen*[1]; [1]Tohoku University

2:30 PM Invited
Plasma Sprayed Hydroxyapatite Coating with Carbon Nanotubes for Orthopedic Implants: *Arvind Agarwal*[1]; [1]Florida International University

2:50 PM Invited
Material and Structural Requirements for Optical Metamaterials and Plasmonics: *Jonghwa Shin*[1]; [1]Korea Advanced Institute of Science and Technology

3:10 PM
Surface Treatment of Thin AlOx on FeCo Thin Film for Nanocontact Formation in NCMR Device: *Masashi Sahashi*[1]; [1]Tohoku University

3:25 PM
High Speed Deposition of $YBa_2Cu_3O_{7-\delta}$ Superconducting Film and CeO_2 Buffer Layer by Laser Chemical Vapor Deposition: *Takashi Goto*[1]; Pei Zhao[1]; Akihiko Ito[1]; [1]Tohoku University

3:40 PM
Surface Characteristics and Electric Conductivity of MWCNTs/FEVE Copolymer Composite Coatings: *Zhanping Zhang*[1]; Yuhong QI[1]; Hongbo ZHAI[1]; [1]Dalian Maritime University

3:55 PM
Room Temperature Cold-sprayed TiO2 Scattering Layer for Flexible Dye-sensitized Solar Cells: *Guanjun Yang*[1]; Xuelong He[1]; [1]Xi'an Jiaotong University

4:10 PM Break

4:30 PM
Molecular Monolayers on Metal Oxide Nanolayers for High-Performance Organic Transistors and Solar Cells: *Hong Ma*[1]; Orb Acton[1]; Daniel Hutchins[1]; Nathan Cernetic[1]; Steven Hau[1]; Hin-Lap Yip[1]; Alex Jen[1]; [1]University of Washington

4:45 PM
The Structural and Magnetic Characterization in NiFe/CoO/Co Thin Films: *Ko-Wei Lin*[1]; Tien-Chi Lan[1]; Johan van Lierop[2]; [1]National Chung Hsing University; [2]University of Manitoba

J. Materials and Processes for Enhanced Performance: Powder and Composite Materials

Program Organizers: Fernand Marquis, Naval Postgraduate School; Jishan Zhang, USTB; Yoshimi Watanabe, Nagoya Institute of Technology; Young-Kook Lee, Yonsei University; Robert O'Donnell, CSIRO; Jie Liu, Duke University

Thursday PM
August 8, 2013

Room: King 3
Location: Hilton Waikoloa Village

Session Chair: Eri Miura-Fujiwara, University of Hyogo

2:00 PM
Effect of Powder Alloy Composition on the Microstructure and Properties of Cold Sprayed Cu-Ga Coating Layer: *Kee-Ahn Lee*[1]; Byung-chul Choi[1]; Dong-Yong Park[2]; Hyung-Jun Kim[3]; Ik-Hyun Oh[4]; [1]Andong National University; [2]Tae-Kwang Tech.; [3]RIST; [4]KITECH

2:15 PM
Effect of Shot Peening on Microstructure and Performance of the Fe-Cu-Ni-Mo-C Sintered Material: *Zhiyu Xiao*[1]; Xuan Ye[1]; Yuheng Lu[1]; Lei Hu[1]; Wen Zhang[1]; [1]South China University of Technology

2:30 PM
Effects of Thermal Conductivity of Matrix on Wear Behavior of Metal-based Composite: *Hisashi Sato*[1]; Vu Hai[1]; Motoko Yamada[1]; Yoshimi Watanabe[1]; [1]Nagoya Institute of Technology

2:45 PM Invited
Electrolytic Infiltration Inside Laser Sintered Porous Preforms: *Abhimanyu Bhat*[1]; David Bourell[1]; [1]University of Texas at Austin

3:05 PM
Fe–Ti Alloy Production from Mixed Ilmenite and Titanium Dioxide by Direct Electrolytic Reduction in Molten Calcium Chloride Electrolyte: *Mrutyunjay Panigrahi*[1]; Etsuro Shibata[1]; Atsushi Iizuka[1]; Takashi Nakamura[1]; [1]Institute of Multidisciplinary Research for Advanced Materials, Tohoku University

3:20 PM Invited
Low-cost Precursors for In-situ Synthesis of Composite Materials Using Plasma Transferred Arc Welding: *Santiago Corujeira Gallo*[1]; [1]CSIRO

3:40 PM
Melt Processing of Al-TiB2 Nanocomposite Materials: Ahmed Nabawy[1]; *X. Grant Chen*[1]; [1]University of Quebec at Chicoutimi

3:55 PM
New Gadolinium and Boron Containing Radiation Absorbing Composites: *Nikoloz Chikhradze*[1]; Fernand Marquis[1]; Leri Kurdadze[1]; Guram Abashidze[1]; [1]Mining Institute/Georgian Technical University

4:10 PM Break

4:30 PM
Processing of Tungsten Carbide Reinforced Ceramic and Metal Matrix Composites: *Nutthita Chuankrerkkul*[1]; Wantanee Buggakupta[1]; Parinya Chakartnarodom[2]; [1]Chulalongkorn University; [2]Kasetsart University

4:45 PM
Quality Assessment of Diamond Composite Materials: *James Boland*[1]; Xing Li[1]; Ute Schmidt[2]; [1]CSIRO; [2]WITec

L. Modeling and Simulation of Processes, Microstructures, and Behavior: Modeling and Simulations of Materials Microstructure II

Program Organizers: Fernand Marquis, Naval Postgraduate School; Dianzhong Li, Institute of Metal Research, Chinese Academy of Sciences; Tetsuo Mohri, Hokkaido University; Won Tae Kim, Cheongju University; Graeme Murch, The University of Newcastle; Alfredo Caro, LANL

Thursday PM
August 8, 2013

Room: Kona 5
Location: Hilton Waikoloa Village

Session Chairs: Aibing Yu, The University of New South Wales ; Qing Li, The University of Sydney

2:00 PM Invited
Size Dependent Transition in the Deformation Mode of Gold Nanowire: A Molecular Dynamics Simulation: *Pil Ryung Cha*[1]; Na-Young Park[2]; Ho-Seok Nam[1]; Seung-Cheol Lee[2]; [1]Kookmin University; [2]Korea Institute of Science and Technology

2:20 PM Invited
Phase-field Simulation of Interfacial Segregation and Microstructural Evolution for Developing High Temperature Structural Materials: *Yuichiro Koizumi*[1]; Koretaka Yuge[2]; Toshihiro Yamazaki[1]; Akihiko Chiba[1]; Koji Hagihara[3]; Takayoshi Nakano[3]; Kyosuke Kishida[2]; Haruyuki Inui[2]; [1]Tohoku University; [2]Kyoto University; [3]Osaka University

2:40 PM
New Microstructure Model for Particulate Reinforced Metal Matrix Composites: *Gergis William*[1]; Samir Shoukry[1]; Jacky Prucz[1]; [1]West Virginia University

2:55 PM
Phase Field Study of the Effect of Coalescence on the Kinetics of Particle Coarsening: *Junjie Li*[1]; Zhijun Wang[1]; Jincheng Wang[1]; [1]Northwestern Polytechnical University

3:10 PM
Quantitative Phase Field Simulation of Athermal Transition in Ti-Mo Alloys: *Bin Tang*[1]; Y.-W. Cui[2]; Hongchao Kou[1]; Minjie Lai[1]; Jinshan Li[1]; [1]Northwestern Polytechnical University; [2]IMDEA Materials

3:25 PM
Transition Metal K-edge XANES for Li-rich Layered Cathode Material: First-principles Study: *Tomoyuki Tamura*[1]; Ryo Kobayashi[1]; Shuji Ogata[1]; Tsukuru Ohwaki[2]; Atsushi Ito[2]; Kenzo Oshihara[2]; [1]Nagoya Institute of Technology; [2]Nissan Motor Co., Ltd.

3:40 PM Keynote
Mechanical Properties of Cellular Metals: Potential and Characterization: *Thomas Fiedler*[1]; Graeme Murch[1]; Andreas Oechsner[2]; Irina Belova[1]; [1]The University of Newcastle; [2]Universiti Teknologi Malaysia - UTM

4:05 PM Break

4:25 PM Invited
New Materials for Spintronics by Ab Initio Grain Boundary Engineering: Monika Vsianska[1]; Hana Vemolova[2]; *Mojmir Sob*[1]; [1]Central European Institute of Technology; [2]Masaryk University, Faculty of Science

4:45 PM
Multi-Phase-Field Simulation of Austenite-to-Ferrite Transformation in Steel Accelerated by Multiple-GPU Computing: *Akinori Yamanaka*[1]; [1]Tokyo University of Agriculture and Technology

5:00 PM
Simulation and Validation of Intermetallic Phase Formation in Magnesium Alloys: *Rainer Schmid-Fetzer*[1]; Joachim Groebner[1]; [1]Clausthal University of Technology

5:15 PM
Interfaces on Shock-Induced Damage in Two-Phase Metals-Copper-Lead: *Saryu Fensin*[1]; Steven Valone[1]; Ellen Cerreta[1]; George Gray[1]; Carl Trujillo[1]; [1]Los Alamos National Laboratory

5:30 PM
Phase Field Modeling of Domain Structures and P(E) Curves in Thin Ferroelectric Films and Multilayers: *Andrei Artemev*[1]; [1]Carleton University

L. Modeling and Simulation of Processes, Microstructures, and Behavior: Modeling and Simulations of Materials Processing III

Program Organizers: Fernand Marquis, Naval Postgraduate School; Dianzhong Li, Institute of Metal Research, Chinese Academy of Sciences; Tetsuo Mohri, Hokkaido University; Won Tae Kim, Cheongju University; Graeme Murch, The University of Newcastle; Alfredo Caro, LANL

Thursday PM
August 8, 2013

Room: Kona 2
Location: Hilton Waikoloa Village

Session Chairs: Lifeng Zhang, University of Science and Technology Beijing; Won Tae Kim, Cheongju University

2:00 PM Keynote
In-situ Observation of Solidification Behavior for Understanding: *Hideyuki Yasuda*[1]; Tomoya Nagira[1]; Masato Yoshiya[1]; Akira Sugiyama[1]; Kyohei Atsuji[1]; Noriaki Nakatsuka[1]; Shugo Morita[1]; [1]Osaka University

2:25 PM Invited
Simulation of Microstructural Evolution in Thin Solid Shell at the Initial Stage of Continuous Casting: S.G. Kim[1]; *Won Tae Kim*[2]; Y.B. Park[3]; P.R. Cha[4]; H.Y. Seo[5]; J.T. Choi[5]; [1]Kunsan National University; [2]Cheongju University; [3]Sunchon National University; [4]Kookmin University; [5]Hyundai Steel Company

2:45 PM
Macro-segregation Mechanism and Control for the Low Pressure Die Casting of ZL205A Aluminum Alloy Casting: *Shiping Wu*[1]; Ye Wang[1]; Huasen Liang[1]; [1]School of Materials Science and Engineering, Harbin Institute of Technology

3:00 PM
Fuzzy Controlling Withdrawal Technology by Numerical Simulation to Optimize Directional Solidification Process of Superalloy Casting: *Hang Zhang*[1]; Qingyan Xu[1]; Baicheng Liu[1]; [1]Tsinghua University

3:15 PM Invited
Modeling of Thin Strip Shape during Cold Rolling on Roll Crossing and Shifting Mill: *Abdulrahman Aljabri*[1]; Zhengyi Jiang[1]; Dongbin Wei[1]; [1]University of Wollongong

3:35 PM Keynote
Computational Materials Science in Pb-free Solders and Nanoparticles: *Hyuck Mo Lee*[1]; [1]KAIST

4:00 PM Break

4:20 PM Invited
Phase-field Modeling of the Microstructure Evolution during Solidification of Al-Cu Alloy and Comparison with In Situ Observed Experiment: *Yun Chen*[1]; Dian Zhong Li[1]; Bernard Billia[2]; Henri Nguyen-Thi[2]; [1]Shenyang National Laboratory for Materials Science, Institute of Metal Research, Chinese Academy of Sciences, Shenyang, [2]Aix-Marseille University & CNRS

4:40 PM
A 3D Numerical Model to Simulate the Titanium Behavior in an Eroded Hearth of an Ironmaking Blast Furnace: *Keisuke Komiyama*[1]; Bao-Yu Guo[1]; Habib Zughbi[2]; Paul Zulli[2]; Ai-Bing Yu[1]; [1]University of New South Wales; [2]Bluescope Steel Research

4:55 PM
Eulerian Modeling of Dynamic Processes for Visco-Plastic Crystals: *Ioan Ionescu*[1]; Oana Cazacu[2]; [1]University Paris 13, Sorbonne Paris Cite; [2]Universty of Florida

5:10 PM
Crystal Plasticity Analysis of Thermo-Plastic Deformation and Dislocation Accumulation in Impurity-Doped ULSI Cells: *Michihiro Sato*[1]; Tetsuya Ohashi[1]; Toru Oikawa[1]; Takuya Maruizumi[2]; [1]Kitami Institute of Technology; [2]Tokyo City University

5:15 PM
Surface Modification of Cu-based Bulk Metallic Glass by Electroplating Method: *Hiroshi Nishikawa*[1]; Takehiro Naoi[1]; Mikiko Saito[2]; Jun Mizuno[2]; Mikio Fukuhara[3]; [1]Osaka University; [2]Waseda University; [3]Tohoku University

M. Bulk Metallic Glasses, Nanocrystalline Materials, and Ultrafine-Grain Materials: Metallic Glass III

Program Organizers: Fernand Marquis, Naval Postgraduate School; Yue Zhang, University of Science and Technology Beijing; Nobuhiro Tsuji, Kyoto Univ; Eun Soo Park, Seoul National University; Michael Ferry, University of New South Wales; Yuntian Zhu, North Carolina State University

Thursday PM
August 8, 2013

Room: Waikoloa 2
Location: Hilton Waikoloa Village

Session Chairs: Tetsu Ichitsubo, Kyoto University; Michael Ferry, The University of New South Wales; Geun Lee, Korea Research Institute of Standards and Science; Ke-Fu Yao, Tsinghua University

2:00 PM Keynote
Perspectives from Nanoscale Elastic Inhomogeneity in Metallic Glasses: *Tetsu Ichitsubo*[1]; [1]Kyoto University

2:25 PM Invited
Research on Ti-Zr-Be-M Bulk Glassy Alloys with High Specific Strength: *Ke-Fu Yao*[1]; Pan Gong[1]; [1]Tsinghua University

2:45 PM
Bulk Metallic Glass Composites Fabricated within the Supercooled Liquid Region: *Karl Shamlaye*[1]; Kevin Laws[1]; Michael Ferry[1]; [1]UNSW

3:00 PM
Effect of Flux Treatment on Glass Forming Ability of Ni-Cr-P-B-Nb Alloys: *Kenji Amiya*[1]; Shinichirou Inagawa[2]; Yasunori Saotome[1]; [1]Tohoku University; [2]University of Hyogo

3:15 PM
Electrical Resistivities of La55Al25Ni10Cu10 Bulk Metallic Glasses in Isochronal and Isothermal Heating Processes: Feng Ye[1]; *Boyang Liu*[1]; [1]University of Science & Technology Beijing

3:30 PM
Investigation on the Structural Characteristics of Metallic Glasses Based on Viscosity Behavior and Crystallization Behavior: *Chaoli Ma*[1]; [1]Beihang University

3:45 PM Keynote
Effect of Local Order on Nucleation Barrier; Supercooling and Supercompressing of Liquid Metals and Liquid Water: *Geun Woo Lee*[1]; [1]Korea Research Institute of Standards and Science

4:10 PM Break

4:30 PM
Mechanisms of Ultrafine Grain Formation in TC21 Titanium Alloys by Hot-rolling: *Linru Wang*[1]; [1]Beihang University

4:45 PM
Nitrogen Doped Nanocrystalline TiO2 Powders: Synthesis and Applications: *Wenbin Cao*[1]; Wenxiu Liu[1]; Junna Xu[1]; [1]University of Science and Technology Beijing

5:00 PM
Structural Evolution during the Liquid-to-Glass Transition in Metallic Glasses: *Xiong-Jun Liu*[1]; Chain-Tsuan Liu[2]; Yuan Wu[1]; Hui Wang[1]; Zhaoping Lu[1]; [1]University of Science and Technology Beijing; [2]The City University of Hong Kong

M. Bulk Metallic Glasses, Nanocrystalline Materials, and Ultrafine-Grain Materials: Ultrafine Grained Materials III

Program Organizers: Fernand Marquis, Naval Postgraduate School; Yue Zhang, University of Science and Technology Beijing; Nobuhiro Tsuji, Kyoto Univ; Eun Soo Park, Seoul National University; Michael Ferry, University of New South Wales; Yuntian Zhu, North Carolina State University

Thursday PM
August 8, 2013

Room: Kohala 3
Location: Hilton Waikoloa Village

Session Chairs: Kyung-Tae Park, Hanbat National University; Anton Hohenwarter, MontanuniversitŠt Leoben; Rimma Lapovok, Monash University; Jozef Zrnik, Comtes FHT, Inc.

2:00 PM Keynote
Dynamic Tensile Extrusion Behavior of Ultrafine Grained OFHC Cu: Leeju Park[1]; Hak Jun Kim[1]; Chong Soo Lee[2]; *Kyung-Tae Park*[3]; [1]Agency for Defense Development; [2]POSTEC; [3]Hanbat National University

2:25 PM
Serration Behavior in Stress versus Strain Curves of Structural Materials: *Yong Zhang*[1]; J.P. Liu[1]; K. A. Dahmen[2]; Peter K. Liaw[3]; [1]University of Science and Technology Beijing; [2]University of Illinois at Urbana Champaign ; [3]The University of Tennessee

2:40 PM
Tribological Characterizations of Ultrafine-Grained Alloys Processed by High Pressure Torsion: *Nong Gao*[1]; Chuan Ting Wang[1]; Wood Robert[1]; Terence Langdon[1]; [1]University of Southampton

2:55 PM
Bending Superelastic Behavior of Ni-rich TiNi Alloy with Ultra Fine Grained Structure after ECAP Process: *Chaoying Xie*[1]; Jiang Wang[1]; [1]Shanghai Jiao Tong University

3:10 PM
Effect of Chemical Composition and Process Parameters on DIFT Occurrence in Low and Medium C-Boron Added Steels: *Ilaria Salvatori*[1]; Claudio Guarnaschelli[1]; [1]Centro Sviluppo Materiali

3:25 PM
Experimental Production of Submicron Titanium Rods Using Continuous Extrusion: *Michal Zemko*[1]; Tomas Kubina[1]; Josef Hodek[1]; Jaromir Dlouhy[1]; Libor Kraus[1]; [1]COMTES FHT a.s.

3:40 PM Invited
Microstructure and Mechanical Properties of Pure Al Processed by Constrained Groove Pressing: *Jozef Zrnik*[1]; Libor Kraus[1]; Peter Slama[1]; [1]Comtes FHT, Inc.

4:00 PM Break

4:20 PM
Microstructure and Mechanical Properties of Coarse Grain and Ultrafine Grain Titanium with Different Iron Contents: *Venkata Nagasekhar Anumalasetty*[1]; Gian Colombo[1]; Graham McIntosh[1]; Yulia Mardakhayeva[1]; Ding Yu[1]; [1]Carpenter Technology Corporation

4:35 PM
Influence of Low Temperature Annealing on Mechanical Behavior of Cu and Cu-Ge Alloy Processed by Cold Rolling: *Xinkun Zhu*[1]; [1]Kunming University of Science and Technology

4:50 PM
Mechanical Behavior and Microstructure of an Ultrafine Grained Al-Zn-Mg-Cu Alloy: Kaka Ma[1]; Troy Topping[1]; Tao Hu[1]; *Ali Yousefiani*[2]; Enrique Lavernia[1]; Julie Schoenung[1]; [1]University of California, Davis; [2]Boeing Research & Technology

5:05 PM
Microstructural Development and Formation of Nanolaminated Amorphous/Crystalline Structure in Multicomponent System Subjected to Severe Plastic Deformation: *Sergey Romankov*[1]; Yun Park[2]; Jeong Yoon[1]; [1]Chonbuk National University; [2]National Nanofab Center

5:20 PM
Microstructure Quantification and Mechanical Properties of Ultrafine Grained Fe-Cr Alloys and Pure Copper by Equal Channel Angular Pressing: *Muhammad Rifai*[1]; Ryosuke Haga[1]; Hiroyuki Miyamoto[2]; Hiroshi Fujiwara[2]; [1]Graduate School of Science and Engineering, Doshisha University, [2]Department of Mechanical Engineering, Doshisha University

N. Advanced Materials Characterization and Evaluation: 3D and 4D Characterization and Evaluation

Program Organizers: Fernand Marquis, Naval Postgraduate School; Xiaodong Han, Beijing University of Technology; Sho Matsumura, Kyushu University; Dong Il Kwon, Seoul National University; Jin Zou, The University of Queensland; Alexis Lewis, Naval Research Laboratory

Thursday PM
August 8, 2013

Room: King 2
Location: Hilton Waikoloa Village

Session Chairs: Dong Il Kwon, Seoul National University; Nikhilesh Chawla, Arizona State University

2:00 PM Keynote
Pushing the Limits of Dynamic Tomographic Microscopy: *Marco Stampanoni*[1]; Federica Marone[1]; Julie Fife[1]; Kevin Mader[1]; Rajmund Mokso[1]; [1]Paul Scherrer Institut

2:25 PM Invited
Diffraction-based 3D Imaging of Microstructural Evolution: *Erik Lauridsen*[1]; [1]Technical University of Denmark

2:45 PM Invited
3D/4D High Resolution Observation of Steels: *Hiroyuki Toda*[1]; Fukuto Tomizato[1]; Ryo Harasaki[1]; Dowon Seo[1]; Kentaro Uesugi[2]; Akihisa Takeuchi[2]; Yoshio Suzuki[2]; Masakazu Kobayashi[1]; [1]Toyohashi University of Technology; [2]Japan Synchrotron Radiation Research Institute

3:05 PM Invited
Atomic-scale 3D Crystallographic Information Obtained from Atom Probe Tomography: *Julie Cairney*[1]; Katja Eder[1]; Simon Ringer[1]; Peter Felfer[1]; Vicente Araullo-Peters[1]; [1]The University of Sydney

3:25 PM
Three Dimensional Tri Beam Tomography Datasets for Property Prediction: *Tresa Pollock*[1]; McLean Echlin[1]; [1]University of California Santa Barbara

3:40 PM
4D Functional Materials Science with X-ray Microscopy: Jeff Gelb[1]; *Jin Yoon*[1]; Arno Merkle[1]; Kevin Fahey[1]; [1]Xradia, Inc.

3:55 PM
Understanding Fatigue and Corrosion-Fatigue Behavior by In Situ 3D X-ray Synchrotron Tomography: Jason Williams[1]; Sudhanshu Singh[1]; Xianghui Xiao[2]; Francesco De Carlo[2]; *Nikhilesh Chawla*[1]; [1]Arizona State University; [2]Advanced Photon Source, Argonne National Laboratory

4:10 PM Break

4:30 PM
Evaluation of X-Ray Radiography as a Non-Destructive Testing Method for Parts Manufactured by Selective Laser Melting: *Paul Rometsch*[1]; Daniele Pelliccia[1]; Dacian Tomus[1]; Xinhua Wu[1]; Emilie Herny[2]; Stephane Vaillant[2]; Jean-Francois Rideau[2]; [1]Monash University; [2]Microturbo

4:45 PM
Atom Probe Study on the Adhesion Property and Compositional Variation in W/poly–Si NAND Gate Structure with Inter-control Layer: *Dong-hyun Jang*[1]; Ji-hyun Lee[1]; Chan-gyung Park[1]; [1]Pohang University of Science and Technology(POSTECH)

O. Advanced Neutron and Synchrotron Studies of Materials: New Opportunities for Materials Science

Program Organizers: Fernand Marquis, Naval Postgraduate School; Chengjia Shang, University of Sicence and Technology Beijing; Masato Ohnuma, National Institute for Materials Science; Baek Seok Seong, KAERI; Klaus-Dieter Liss, ANSTO; Rozaliya Barabash, Oak Ridge National Laboratory

Thursday PM
August 8, 2013

Room: Kona 1
Location: Hilton Waikoloa Village

Session Chairs: Fangwei Wang, Institute of Physics, Chinese Academy of Sciences; Andreas Magerl, University of Erlangen-Nürnberg

2:00 PM Introductory Comments

2:05 PM Keynote
Present Status of ERL Project in KEK – 3GeV Class ERL and XFEL-O: *Hiroshi Kawata*[1]; [1]KEK

2:30 PM Invited
Single-shot Time-resolved X-ray Scattering Measurements in Polycrystalline and Amorphous Materials Under Shock Wave Loading: *Kouhei Ichiyanagi*[1]; Nobuaki Kawai[2]; Tokushi Sato[3]; Shunsuke Nozawa[4]; Kazutaka Nakamura[5]; Shin-ichi Adachi[3]; Yuji Sasaki[1]; [1]The University of Tokyo; [2]Japan Aerospace Exploration Agency; [3]High Energy Accelerator Research Organization; [4]High Energy Accelerator Organization; [5]Tokyo Institute of Technology

2:50 PM Keynote
Status of China Spallation Neutron Source and Perspectives of Neutron Research in Advanced Materials: *Fangwei Wang*[1]; Tao Zhu[1]; Lunhua He[1]; Yuanbo Chen[1]; [1]Institute of Physics, Chinese Academy of Sciences

3:15 PM Invited
Application of Synchrotron Micro-XRD for the Measurement of Stress Evolution at the Intragranular Length Scale: *Peter Lynch*[1]; [1]Deakin University

3:35 PM Invited
Small and Wide Angle Neutron Scattering for Industrial Applications at HANARO: *Baek Seok Seong*[1]; Maneewon Apichate[2]; Eunjoo Shin[1]; Young-So Han[1]; Wan Chuck Woo[1]; Kye Hong Lee[1]; [1]KAERI; [2]University of Science & Technology

3:55 PM
Materials Properties Induced and Observed by Interaction with an Intense Femtosecond X-ray Laser Pulse: *Victor Streltsov*[1]; Ruben Dilanian[2]; Harry Quiney[2]; Keith Nugent[2]; [1]CSIRO CMSE; [2]University of Melbourne

4:10 PM Break

4:30 PM Keynote
Nucleation and Growth Observed by Ultrafast SAXS and WAXS: *Andreas Magerl*[1]; Andreas Schiener[1]; Heinz Amenitsch[2]; Nigel Kirby[3]; [1]University of Erlangen-Nürnberg; [2]Institute of Biophysics and Nanosystems Research; [3]Australian Synchrotron

4:55 PM
The MAX IV Facility; A Light Source for the Future: Jesper Andersen[1]; Christoph Quitmann[1]; *Yngve Cerenius*[1]; Franz Hennies[1]; Axel Steuwer[1]; [1]MAX IV Laboratory

5:10 PM Invited
Small and Intermediate-Angle Scattering Instruments for Materials Research at a Compact Accelerator Driven Neutron Source: *Michihiro Furusaka*[1]; [1]Hokkaido University

5:30 PM
Development of Concepts for New Neutron Beamlines Using VITESS Simulations: *Carolin Zendler*[1]; Klaus Lieutenant[1]; Daniil Nekrassov[1]; Leo D. Cussen[1]; [1]Helmholtz-Zentrum Berlin

5:45 PM
Applied, Advanced X-ray Tracing Simulations: *Erik Knudsen*[1]; Peter Willendrup[1]; Kim Lefmann[2]; Søren Schmidt[1]; [1]Technical University of Denmark; [2]Copenhagen University

A. Materials for Energy: Session VI

Program Organizers: Fernand Marquis, Naval Postgraduate School; Shaoxiong Zhou, Central Iron and Steel Research, China; Akihiko Kimura, Kyoto University; Young Hwan Cho, KIST; Shixue Dou, Wollongong University; Renkun Chen, University of California

Friday AM
August 9, 2013

Room: Kohala 2
Location: Hilton Waikoloa Village

Session Chairs: Magda Caro, Los Alamos National Laboratory; Akihiko Kimura, Kyoto University

8:00 AM Keynote
Material Degradation by Neutron Irradiation in Light Water Reactors Studied by Atom Probe Tomography and Positron Annihilation: *Yasuyoshi Nagai*[1]; [1]Tohoku University

8:25 AM Invited
Radiation Response of Nano-scale Gold Foams: *Magda Caro*[1]; [1]Los Alamos National Laboratory

8:45 AM Invited
Current Status and Issues of Silicon Carbide Composites for Nuclear Application: *Tatsuya Hinoki*[1]; [1]Kyoto University

9:05 AM Invited
Materials for Inertial Fusion Energy: *Michael Fluss*[1]; Luke Hsiung[1]; William Choi[1]; Peter Hosemann[2]; Scott Tumey[1]; Estelle Meslin[3]; [1]LLNL; [2]University of California, Berkeley; [3]CEA-Saclay

9:25 AM Invited
High-Cr ODS Steels R&D for Advanced Nuclear Systems - Keys of High Performance: *Akihiko Kimura*[1]; [1]Kyoto University

9:45 AM
First Principles Studies of Mechanical Properties of Thoria: Barbara Szpunar[1]; *Jerzy Szpunar*[1]; [1]University of Saskatchewan

10:00 AM Break

10:20 AM
Characterization of the Crystallographic Textures and Mechanical Anisotropy Factors in Two Modifications of Zr-2.5Nb Pressure-Tube Materials: *Randy Fong*[1]; Sven Vogel[2]; Ron Miller[3]; Henry Saari[3]; [1]AECL; [2]Los Alamos National Laboratory; [3]Carleton University

10:35 AM
Anode Materials for Reprocessing of Spent Nuclear Fuel: Augustus Merwin[1]; *Dev Chidambaram*[1]; [1]University of Nevada Reno

10:50 AM
Dispersion Characteristics of PAA(Polyacrylic Acid) for Tube Fouling Control in Power Plant: *Wan-Young Maeng*[1]; H Y Yang[2]; K B Sung[2]; H C Kwon[3]; K H Kim[1]; [1]Korea Atomic Energy Research Institute; [2]Korea Hydro Nuclear Power Co. LTD; [3]Korea Hydro & Nuclear Power Co. LTD

11:05 AM
Preparation of CIGS Targets by Spark Plasma Sintering Process: *Tae-Won Kim*[1]; Jae-Cheol Park[1]; Hyun-Kuk Park[1]; Ik-Hyun Oh[1]; [1]KITECH

11:20 AM Invited
Hydrogen Storage Performances of Mg20Ni10-xMx (M=Cu, Co, Mn; x=0-4) Alloys Prepared by Melt Spinning: *Dongliang Zhao*[1]; Tingting Zhai[1]; Tai Yang[1]; Yufang Lin[1]; Yanghuan Zhang[1]; [1]Central Iron and Steel Research Institute

A. Materials for Energy: Session VII

Program Organizers: Fernand Marquis, Naval Postgraduate School; Shaoxiong Zhou, Central Iron and Steel Research, China; Akihiko Kimura, Kyoto University; Young Hwan Cho, KIST; Shixue Dou, Wollongong University; Renkun Chen, University of California

Friday AM
August 9, 2013

Room: Kona 2
Location: Hilton Waikoloa Village

Session Chairs: Robert Varin, University of Waterloo; Young Whan Cho, Korea Institute of Science and Technology

8:00 AM Keynote
Nano Composites and Hybrid Material Systems for Energy Applications: *Fernand Marquis*[1]; [1]Naval Postgraduate School

8:25 AM
Vanadium Alloy Membranes for Hydrogen Purification: *Chikashi Nishimura*[1]; [1]NIMS

8:40 AM
Recent Advances in Nanostructured Complex Hydrides for Solid State Hydrogen Storage: *Robert Varin*[1]; [1]University of Waterloo

8:55 AM
Activation of TiFe Intermetallics for Hydrogen Storage Using High-Pressure Torsion: *Kaveh Edalati*[1]; Junko Matsuda[1]; Hideaki Iwaoka[1]; Shoichi Toh[1]; Etsuo Akiba[1]; Zenji Horita[1]; [1]Kyushu University

9:10 AM
Evidence for Existence and Generality of Competitive Reactions during Hydrogenation of Mg/Cu Super-laminate Composites: *Koji Tanaka*[1]; Kazuya Shibata[2]; Yasuki Nishida[2]; Kosuke Kurumatani[2]; Hiroshi Miyamura[3]; Shiomi Kikuchi[3]; Hiroyuki Takeshita[2]; [1]National Institute of Advanced Industrial Science and Technology (AIST); [2]Kansai University; [3]The University of Shiga Prefecture

9:25 AM
Metallic Amorphous Alloys for Hydrogen Separation Membrane: Young-Im Wang[1]; Mukta Debnath[1]; Min-Hyun Kim[1]; Eric Fleury[2]; *Jin-Yoo Suh*[1]; [1]Korea Institute of Science and Technology; [2]Universite de Lorraine

9:40 AM
Destabilization of Lithium Hydride by the Substitution of IV Group Elements: Ankur Jain[1]; Hiroki Miyaoka[2]; *Takayuki Ichikawa*[1]; Yoshitsugu Kojima[1]; [1]Institute for Advanced Materials Research, Hiroshima University; [2]Institute for Sustainable Sciences and Developement, Hiroshima University

9:55 AM
Solvent-Assisted Mechanochemical Synthesis of the Metal–Organic Framework $Cu_3(BTC)_2$ for Hydrogen Storage: *Hongwei Yang*[1]; Andrew Goudy[1]; [1]Delaware State University

10:10 AM Break

10:30 AM
Anomalously High Density of Adsorbed Hydrogen on Surface around Liquid Hydrogen Temperature: *Takayuki Ichikawa*[1]; Akira Kubota[1]; Hiroki Miyaoka[1]; Yoshitsugu Kojima[1]; [1]Hiroshima University

10:45 AM
Evaluating Chemical Adsorption on Nanodiamonds: A New Platform for Hydrogen Storage and Carbon Capture: *Lin Lai*[1]; Amanda Barnard[1]; [1]CSIRO

11:00 AM
Torrefaction of Yacon and Jerusalem Artichoke Stems as a Contribution to the Alternative Production of Inulin: *Vaclav Vesely*[1]; Jiri Sobek[1]; Jiri Hanika[1]; Miroslav Puncochar[1]; [1]Institute of Chemical Process Fundamentals

C. Advanced High-Temperature Structural Materials: Applications of High-temperature Structural Materials

Program Organizers: Fernand Marquis, Naval Postgraduate School; Guoqing Zhang, Beijing Institute of Aeronautical Materials; Haruyuki Inui, Kyoto University; Kyung-Tae Park, Hanbat National University; Julie Cairney, The University of Sydney; Eugene Olevsky, San Diego State University

Friday AM
August 9, 2013

Room: King 1
Location: Hilton Waikoloa Village

Session Chairs: Yong-Nam Kwon, Korea Institute of Materials Science; Yuansheng Yang, Institute of Metal Research, Chinese Academy of Sciences

8:00 AM Invited
Advanced Molybdenum Alloys for Ultra-high Temperature Structural Applications: *Kyosuke Yoshimi*[1]; Seong-Ho Ha[1]; Shimpei Miyamoto[1]; Tomohiro Arai[1]; Takahiro Kaneko[1]; Takahiro Moriyama[1]; Junya Nakamura[1]; Kouichi Maruyama[1]; Rong Tu[1]; Takashi Goto[1]; [1]Tohoku University

8:20 AM Invited
Densification and Sintering of Inconel 718: *Mathieu Brochu*[1]; David Levasseur[1]; [1]McGill University

8:40 AM Invited
Evaluation of Service Induce Microstructural Degradation in Forged Turbine Blade GH4033: Jinyan Tong[1]; Xianfei Ding[1]; Meiling Wang[1]; Yunrong Zheng[1]; *Qiang Feng*[1]; [1]University of Science and Technology Beijing

9:00 AM
The Development of NiTi-Al Based Intermetallic Alloys for Structural Applications: *Lijing Zheng*[1]; Hu Zhang[1]; Huibin Xu[1]; [1]Beihang University

9:15 AM
Design and Development of New Ni-Fe-base Superalloys for Coal-fired Boiler Applications Beyond 700°C: *Zhihong Zhong*[1]; Yuefeng Gu[1]; Yong Yuan[1]; Zhan Shi[1]; [1]National Institute for Materials Science, Japan

9:30 AM
Structure Property Relations in a Cast Nickel Base Superalloy for High Temperature Applications: *Mrinal Chatterjee*[1]; Pani Kishore Annam[1]; Narayana Rao Myneni[1]; [1]Midhani

9:45 AM
Nickel-Chromium Alloy Steels for Refractory Systems: *Michael Walton*[1]; Paul Plater[1]; [1]RefMet

10:00 AM Break

10:20 AM
New Materials for 750°C Boilers in Advanced Ultra-supercritical (A-USC) Power Plants: *Yuefeng Gu*[1]; Z ZHONG[1]; Y Yuan[1]; Z Shi[1]; [1]NIMS

10:35 AM
Novel Materials Systems for Thermal and Environmental Protection in Combustion Engines for Operation at Ultrahigh Temperatures: *Ralf Riedel*[1]; Emanuel Ionescu[1]; Martin Heilmaier[1]; Aleksander Gurlo[1]; [1]TU Darmstadt

10:50 AM
Microstructural Change of Monocrystalline Co–Al–W-based γ/γ' Two Phase Alloys by High Temperature Creep: *Katsushi Tanaka*[1]; Haruyuki Inui[2]; [1]Kobe University; [2]Kyoto University

11:05 AM
Deformation Behavior, Phase Stability of Mo-Si-B System and the Effect of Alloying with Transition Metals: *Oleg Kontsevoi*[1]; Arthur Freeman[1]; John Perepezko[2]; [1]Northwestern University; [2]University of Wisconsin–Madison

11:20 AM
Creep Behavior of a Zirconium Diboride-Silicon Carbide Composite: *Marc Bird*[1]; Jeremiah Pakki[1]; Bob Aune[1]; Paul Becher[2]; Kenneth White[1]; [1]University of Houston; [2]University of Tennessee Knoxville

D. Advanced Steels and Processing: Advanced High Strength Steels

Program Organizers: Fernand Marquis, Naval Postgraduate School; Han Dong, Central Iron and Steel Research Institute; Kaneaki Tsuzaki, National Institute for Materials Science; Sung Joon Kim, POSTECH; Rian Dippenaar, University of Wollongong; Kip Findley, Colorado School of Mines

Friday AM
August 9, 2013

Room: Kona 3
Location: Hilton Waikoloa Village

Session Chair: Amy Clarke, Los Alamos National Laboratory

8:00 AM Introductory Comments

8:05 AM Keynote
The Stability of Retained Austenite in Thermomechanically Processed CMnSi TRIP Steels: *Elena Pereloma*[1]; [1]University of Wollongong

8:30 AM Keynote
Microstructure-based Simulation to Understand Deformation Related to Phase Transformation in Steel: *Heung Nam Han*[1]; Miyoung Kim[1]; Dong-Wan Kim[1]; Won-Beom Lee[2]; Yigil Cho[3]; [1]Seoul National University; [2]Korea Institute of Industrial Technology; [3]Korea Institute of Science and Technology (KIST)

8:55 AM
Study on Ductility Improvement of High Al Content Fe-Mn-Al-C Steels: *Chang-Young Son*[1]; Jinmo Koo[1]; Je-Wook Jang[1]; Jae Kon Lee[1]; [1]POSCO

9:10 AM
High Performance Lightweight Steels: *Ivan Gutierrez-Urrutia*[1]; Dierk Raabe[1]; [1]Max-Planck-Institut for Iron Research

9:25 AM
Microstructural Evolution, Precipitation Behavior and Strengthening Mechanism of Nb-V-Ti Hot-rolled Ultra-high Strength F-B Automotive Steel with Very Fine M/A Constituents: *Jun Hu*[1]; Lin-Xiu Du[1]; Jian-Jun Wang[2]; [1]The State Key Laboratory of Rolling and Automation, Northeastern University; [2]Institute of Materials Research, School of Material and Metallurgy, Northeastern University

9:40 AM
Q-P Process on Steels with Various Carbon and Chromium Content: *Hana Jirkova*[1]; Ludmila Kucerova[1]; Bohuslav Masek[1]; [1]University of West Bohemia, Research Centre of Forming Technology

9:55 AM
Microstructure and Mechanical Properties of a Twinning-Induced Plasticity Steel Modified by Rare Earth: *Xiaodong Wang*[1]; Yong Zhong[2]; Li Wang[2]; Xuejun Jin[1]; [1]Shanghai Jiao Tong University; [2]Baosteel Research and Development Technology Center

10:10 AM Break

10:30 AM
Nano-scale Analysis of the Transformation Behavior and Mechanical Stability of the Retained Austenite in TRIP Steels: *Hyoung Seok Park*[1]; Nam Suk Lim[2]; Chan Gyung Park[1]; [1]Pohang University of Science and Technology (POSTECH); [2]POSCO

10:45 AM
The Mechanism of Ductility Enhancement by Retained Austenite in High Strength Steels: *Yonghua Rong*[1]; Nailu Chen[1]; Xunwei Zuo[1]; Jiawei Dai[1]; [1]Shanghai Jiao Ttong University

11:00 AM
Newly Developed Advanced High Strength Steels for Automobile Lightweight Applications: *Weiping Sun*[1]; [1]Nucor Corporation

D. Advanced Steels and Processing: Advanced Steels and Processing II

Program Organizers: Fernand Marquis, Naval Postgraduate School; Han Dong, Central Iron and Steel Research Institute; Kaneaki Tsuzaki, National Institute for Materials Science; Sung Joon Kim, POSTECH; Rian Dippenaar, University of Wollongong; Kip Findley, Colorado School of Mines

Friday AM
August 9, 2013

Room: Kohala 4
Location: Hilton Waikoloa Village

Session Chair: Ilya Nikulin, National Institute for Materials Science

8:00 AM Introductory Comments

8:05 AM
Effects of Si on Plastic Deformation of Low-Ni Duplex Stainless Steels at Ambient Temperature: Jeom Yong Choi[1]; Si Woo Hwang[2]; Min Chul Ha[2]; *Kyung-Tae Park*[2]; [1]POSCO; [2]Hanbat National University

8:20 AM
In Situ Observation of the Microstructure Evolution in HAZ and Analysis by EBSD: Zhihui Xiong[1]; *Xuemin Wang*[1]; Xinlai He[1]; Chengjia Shang[1]; Shilong Liu[1]; Guanghua Yu[1]; [1]University of Science and Technology Beijing

8:35 AM
Low-cost and Time-saving Thermomechanical Treatment on 54SiCr Steel: *Bohuslav Masek*[1]; Hana Jirkova[1]; Ludmila Kucerova[1]; Vit Pilecek[1]; [1]University of West Bohemia, Research Centre of Forming Technology

8:50 AM
Preferential Precipitation of Cementite in Ferrite Under a High Magnetic Field: *Hui-jin Choe*[1]; Izuru Miyazaki[1]; Tomoyuki Kakeshita[1]; Tomoyuki Terai[1]; Sukeyoshi Yamamoto[2]; Mitsuharu Yonemura[2]; [1]OSAKA University; [2]Nippon Steel & Sumitomo Metal

9:05 AM
Studying the Hot Working Characteristics and Dynamic Recrystallization Behavior of Conventional Low Carbon Steel During In-line Strip Production Process: *Jewoong Lee*[1]; Bruno De Cooman[1]; [1]GIFT, POSTECH

9:20 AM
Influence of Different Parameters on Theoretical Flame Temperature Before Tuyere in Corex Melter Gasifier: *Qihang Liu*[1]; Keng Wu[1]; Ping Fu[1]; Wenlong Zahn[1]; Erhang Zhang[1]; Qunjie Qu[1]; [1]University of Science and Technology Beijing

9:35 AM
Influence of the Pulverized Coal Ash on Theoretical Flame Temperature Before Tuyere in BF: *Erhua Zhang*[1]; Keng WU[1]; Wenlong Zhan[1]; Qihang Liu[1]; Xiaohui Wu[1]; Yong Zhao[1]; [1]University of Science and Technology Beijing

9:50 AM
Numerical Simulation of Electro-magnetic Flow Control Phenomenon in a Tundish: Jiangshan Zhang[1]; Jingshe Li[1]; Xiaohui Mao[1]; Haiyan Tang[1]; *Liyuan Sun*[1]; [1]University of Science and Technology Beijing

10:05 AM Break

10:25 AM
An Advanced Hot Rolling Processing of Controlling BN1H Stainless Steel Edge Cracking: *Lei Bao*[1]; [1]Baosteel Stainless Steel Company

10:40 AM
Removal of Phosphorus, Sulphur and Arsenic from Ferronickel and Nickel Alloys: *Yindong Yang*[1]; H. Chehade[1]; M. Guo[1]; P. Wu[1]; M. Barati[1]; A. McLean[1]; [1]The University of Toronto

10:55 AM
Factors Affecting the Mixing Characteristics of Molten Steel in the RH Refining Process: *Minren Xu*[1]; Qingcai Liu[1]; Guofang Wu[1]; Jian Ding[1]; Dongran Ma[1]; Lang Liu[1]; Bing Hu[2]; Lihua Ma[2]; [1]Chongqing University; [2]Chongqing Iron and Steel Co. Ltd

E. Light Metals and Alloys: Magnesium III

Program Organizers: Fernand Marquis, Naval Postgraduate School; Yongqing Zhao, Northwest Institute for Nonferrous Metal Research; Yoshihito Kawamura, Kumamoto University; Kwang Seon Shin, Seoul National University; Jian-Feng Nie, Monash University; Suveen Mathaudhu, U.S. Army Research Office

Friday AM
August 9, 2013

Room: Queen 5
Location: Hilton Waikoloa Village

Session Chairs: Long-Qing Chen, the Pennsylvania State University; Jianfeng Nie, Monash University

8:00 AM Introductory Comments

8:05 AM Invited
Metallurgical and Chemical Effects Relating to the Corrosion of Magnesium Alloys: Towards the Complete Story: *Nick Birbilis*[1]; [1]Monash University

8:25 AM Invited
Materials Science on Synchronized LPSO Structure: *Yoshihito Kawamura*[1]; [1]Kumamoto University

8:45 AM Invited
First-Principles Investigation of Mg-Rare Earth Precipitates and LPSO Structures: Ahmed Issa[1]; James Saal[1]; *Chris Wolverton*[1]; [1]Northwestern University

9:05 AM
Microtensile Testing of Long-Period Stacking Order Phase in a Mg-Zn-Y Alloy: *Kazuki Takashima*[1]; Yoji Mine[1]; Michiaki Yamasaki[1]; Yoshihito Kawamura[1]; [1]Kumamoto University

9:20 AM
Influence of SKPFM Volta Potential Distribution on the Corrosion Behavior of Mg-Gd-Zn-Al Alloys with LPSO Phase: *Michiaki Yamasaki*[1]; Manabu Ohtani[1]; Masatoshi Matsumoto[1]; Yoshihito Kawamura[1]; Hiroki Habazaki[2]; [1]Kumamoto University; [2]Hokkaido University

9:35 AM
Deformation Behavior of LPSO Phase and Zinc Accompanied by Deformation Kink Band Formation: *Koji Hagihara*[1]; Yoshihiro Fukusumi[1]; Michiaki Yamasaki[2]; Ryosuke Matsumoto[3]; Masahito Honnami[1]; Hitoshi Izuno[1]; Takayoshi Nakano[1]; Yoshihito Kawamura[2]; [1]Osaka University; [2]Kumamoto University; [3]Kyoto University

9:50 AM
Microstructure and Mechanical Properties of a Direct and Indirect-Extruded Mg-Zn-Y Alloy with LPSO Phase: *Jonghyun Kim*[1]; Yoshihito Kawamura[1]; [1]Kumamoto University

10:05 AM Break

10:25 AM
Microstructural Change during High Temperature Compressive Creep in an Long Period Stacking Ordered Mg-Ni-Y Alloy: *Mayumi Suzuki*[1]; Yuuki Muranaka[1]; Takaomi Itoi[2]; [1]Toyama Prefectural University; [2]Chiba University

10:40 AM
Characteristic Features of Wrought Magnesium Alloy with High Aluminum Content Fabrictated by Using Twin Roll Casting Process: *Hisaki Watari*[1]; Sueji Hirawatari[1]; Shin-ichi Nishida[1]; Hideto Harada[1]; Mayumi Suzuki[1]; Toshio Haga[1]; [1]Gunma University

10:55 AM
Improvement of Mechanical Properties and Microstructure of Twin-Roll-Cast AMX1001 Magnesium Alloy by Rolling Process: *Kunio Funami*[1]; Masafumi Noda[1]; Yoshio Gonda[2]; Gentaro Gonda[2]; Hisashi Mori[3]; [1]Chiba Institute of Technology; [2]Gonda Metal Co., Ltd; [3]Railway Technical Research Institute

11:10 AM
Thermodynamic Analysis of Phase Equilibria in the Mg-Al-Sc Ternary System: *Hiroshi Ohtani*[1]; Satoshi Iikubo[1]; Shuji Hamamoto[1]; [1]Kyushu Institute of Technology

11:25 AM
Thermodynamic Analysis of the Mg–Y–Zn Ternary System Using the Cluster Variation Method: *Satoshi Iikubo*[1]; Tatsuki Umebayashi[1]; Hiroshi Ohtani[1]; [1]Kyushu Institute of Technology

11:40 AM
Diffusion of Cu to Ti in Magnesium Melt for Purification Process: *Taiki Morishige*[1]; Yuki Konishi[1]; Asato Shimomura[1]; Toshihide Takenaka[1]; [1]Kansai University

E. Light Metals and Alloys: Magnesium IV

Program Organizers: Fernand Marquis, Naval Postgraduate School; Yongqing Zhao, Northwest Institute for Nonferrous Metal Research; Yoshihito Kawamura, Kumamoto University; Kwang Seon Shin, Seoul National University; Jian-Feng Nie, Monash University; Suveen Mathaudhu, U.S. Army Research Office

Friday AM
August 9, 2013

Room: Kona 4
Location: Hilton Waikoloa Village

Session Chairs: Xitao Wang, University of Science and Technology Beijing; Donald Shih, The Boeing Company

8:00 AM Introductory Comments

8:05 AM
Prediction of the As-cast Microstructure of Light Alloys: Manas Paliwal[1]; *In-Ho Jung*[1]; [1]McGill University

8:20 AM
Mechanical Properties and Formability of Titanium-Clad Magnesium Alloy Sheets: *Hirofumi Inoue*[1]; [1]Osaka Prefecture University

8:35 AM
Formability of Mg-Li Alloy Sheet by Square Cup Deep Drawing: *Yasunori Harada*[1]; Atsushi Yamamoto[1]; Takayuki Goto[2]; Eiji Nakamura[2]; [1]University of Hyogo; [2]Santoku Corporation

8:50 AM
Grain Orientation Effect on Shear Band Formation of AZ31 Magnesium Alloy during Plane Strain Compression: Jeong Hun Lee[1]; *S. Ahn*[1]; Chong Soo Lee[1]; [1]Pohang University of Science and Technology

9:05 AM
High Strain Rate Superplasticity of a Fine-grained AZ91 Magnesium Alloy Prepared by Friction Stir Processing: *Zhang Datong*[1]; Chai Fang[1]; Li Yuanyuan[1]; [1]South China University of Technology, School of Mechanical and Automotive Engineering

9:20 AM
Study on Semi-solid Microstructure Evolution of Mg-6Zn-2Gd-0.6Zr Extruded Magnesium Alloy by Strain-Induced Melt Activation (SIMA) Process: *Guangyu Yang*[1]; Junkai Fan[1]; Shaojun Liu[1]; Wanqi Jie[1]; Jun Zhang[1]; [1]Northwestern Polytechnical University

9:35 AM
Effect of Rotating Gas Bubble Stirring Treatment on the Microstructures of Semi-solid AZ91-2Ca Alloy: Jia Xu[1]; *Guohua Wu*[1]; Wencai Liu[1]; Yang Zhang[1]; Wenjiang Ding[1]; [1]Shanghai Jiao Tong University

9:50 AM
Microstructure and Properties of Heat Treated Magnesium Alloy with High Vacuum Die-casting: *Jixue Zhou*[1]; Weihong Li[1]; Yunteng Liu[1]; Chengwei Zhan[1]; Shouqiu Tang[1]; Yuansheng Yang[2]; [1]New Materials Research Institute, Shandong Academy of Sciences; [2]Institute of Metal Research, Chinese Academy of Sciences

10:05 AM Break

10:25 AM
Microstructural Evolution of Mg-Y-Zn Alloys during Isothermal Heat Treatments Examined by Sychrotron Radiation Small-angle Scattering: *Hiroshi Okuda*[1]; Toshiki Horiuchi[1]; Shojiro Ochiai[1]; Michiaki Yamasaki[2]; Yoshihito Kawamura[2]; [1]Kyoto University; [2]Kumamoto University

10:40 AM
Mechanical and Corrosion Properties of Extruded Mg-Sn Based Alloys: *Sung Soo Park*[1]; Hyeon Ju Kim[1]; Chan Ho Park[1]; Beomcheol Kim[1]; Bong Sun You[2]; [1]UNIST; [2]KIMS

10:55 AM
Influence of Extrusion Ratio on Microstructure and Mechanical Behavior of Mg-9Li-3Al-2.5Sr Alloy: *Yan Yang*[1]; Xiaodong Peng[1]; Weidong Xie[1]; Guobing Wei[1]; [1]Chongqing University

11:10 AM
Influence of Roll Separation Force and Rolling Reduction on Mechanical Properties of AT33 Mg Alloy: *Junho Park*[1]; Won Kyu Bang[2]; Jae Joong Kim[2]; Young Wook Chae[1]; Oh Duck Kwon[1]; Byeong Chan Suh[3]; Nack J. Kim[3]; [1]POSCO; [2]RIST; [3]POSTECH

11:25 AM
The Precipitation Hardening of a Cold Formed Mg-Li Alloy during Natural Recovery: *Wanqiang Xu*[1]; Hui Tang[1]; Zakaria Quadir[1]; Michael Ferry[1]; [1]University of New South Wales

F. Composites and Hybrid Materials: Fibrous Materials, Polymer and Ceramic Matrix Composites

Program Organizers: Fernand Marquis, Naval Postgraduate School; Di Zhang, Shanghai Jiao Tong University; Yutaka Kagawa, The University of Tokyo; Jae Chul Lee, Korea University; Yuri Estrin, Monash University; Nikhilesh Chawla, Arizona State University

Friday AM
August 9, 2013

Room: Queen 4
Location: Hilton Waikoloa Village

Session Chair: Yutaka Kagawa, The University of Tokyo

8:00 AM Keynote
Mechanism of Sulfur-containing Aryl Polyphosphonate as Flame Retardant for PET: *Deng Yi*[1]; [1]China Academy of Engineering and Physics

8:25 AM Invited
Design and Fabrication of Composite Environmental Barrier Coatings on Ceramic Matrix Composites: *Hideki Kakisawa*[1]; Takuya Matsumoto[1]; Yutaka Kagawa[1]; [1]University of Tokyo

8:45 AM
Synthesis and Characterization of Fluorine-doped Tin Dioxide Nanocomposites: *Huaming Yang*[1]; Chuanchang Li[1]; Aidong Tang[1]; [1]Central South University

9:00 AM Invited
The Development of C/SiC Composite Potential for High Temperature Applications: *Shaoming Dong*[1]; Yusheng Ding[1]; Xiangyu Zhang[1]; Zhen Wang[1]; Yanmei Kan[1]; [1]Shanghai Institute of Ceramic, Chinese Academy of Sciences

9:20 AM
Micromechanics Investigation of Crack Tip Deformation Field Using Digital Speckle Photography: *Fu-Pen Chiang*[1]; [1]Stony Brook University

9:35 AM
Quasi-static and Dynamic Compressive Deformation Behavior of Stainless-steel-fiber-reinforced Zr-base Amorphous Matrix Composites Fabricated by Liquid Pressing Process: *Gyeong Su Kim*[1]; Sang-Bok Lee[2]; Sang-Kwan Lee[2]; Sunghak Lee[1]; [1]POSTECH; [2]KIMS

9:50 AM Invited
Supercapacitive Performance with Nanofibers on 3D-interconnected Graphene: *Seong Chan Jun*[1]; Umakant Patil[1]; Juyeong Oh[2]; Ji Soo Sohn[1]; Suchan Lee[1]; Seok Lee[2]; Jae Hun Kim[2]; [1]Yonsei University; [2]Korea Institute of Science and Technology

10:10 AM Break

10:30 AM Invited
Multicomponent Materials Produced by Severe Plastic Deformation Methods: *Rimma Lapovok*[1]; Hoi Pang Ng[1]; Yuri Estrin[1]; [1]Monash University

10:50 AM Invited
Measurement and Simulation of Interfacial Thermal Resistance: *Yibin Xu*[1]; [1]National Institute for Materials Science

11:10 AM
The Imperfect Bonding Effects of Nano Fillers to the Mechanical Performance of Polymer Composites: *Jin Park*[1]; Jeong Lee[2]; [1]Minnesota State University; [2]Kangwon National University

11:25 AM
Izod Impact Tests in Polyester Matrix Composites Reinforced with Malva Fibers: *Frederico Margem*[1]; Jean Igor Margem[1]; Sergio Monteiro[2]; [1]UENF; [2]IME

11:40 AM
Tensile Test of High Strength Thinner Ramie Fiber Reinforced Polyester Matrix Composite: *Frederico Margem*[1]; Alice Bevitori[1]; Sergio Monteiro[2]; [1]UENF; [2]IME

G. Biomaterials, Smart Materials, and Structures: Session VI

Program Organizers: Fernand Marquis, Naval Postgraduate School; Chengbao Jiang, Beihang University; Takayuki Narushima, Tohoku University; Byong Taek Lee, Soonchunhyang University; Anita Hill, CSIRO; R. Narayan, UNC/NCSU Joint Department of Biomedical Engineering

Friday AM
August 9, 2013

Room: Queen 6
Location: Hilton Waikoloa Village

Session Chairs: Tolou Shokuhfar, Michigan Technological University; Jacqueline Johnson, UTSI

8:00 AM Introductory Comments

8:05 AM Keynote
Implant Biomaterials: Current Status, Trends and Opportunities: *Rena Bizios*[1]; [1]The University of Texas at San Antonio

8:30 AM Invited
Multifunctional Functionalized Oxide Colloidal Particles: Synthesis, Protein Adsorption and Cell Impact: *Laura Treccani*[1]; Shakiba Shahabi[1]; Timo Daberkow[1]; Kurosch Rezwan[1]; Fabian Meder[1]; [1]University of Bremen

8:50 AM Invited
Titania Nanotube Drug Carriers For Biomedical Implants: *Tolou Shokuhfar*[1]; Azhang Hamlekhan[1]; Suman Sinha-Ray[2]; Cortino Sukotjo[2]; Alexander Yarin[2]; [1]Michigan Technological University; [2]University of Illinois at Chicago

9:10 AM Invited
Nanoparticles in Medicine: *Jacqueline Johnson*[1]; Charles Johnson[1]; Stefan Schweizer[2]; Rick Lubinsky[3]; Amanda Petford-Long[4]; [1]UTSI; [2]South Westphalia University; [3]SUNY; [4]Argonne National Laboratory

9:30 AM
Dealloying of NiTi by Immersion in Metallic Melt: *Kyosuke Ueda*[1]; Masahiro Hirohashi[1]; Takayuki Narushima[1]; Takeshi Wada[1]; Hidemi Kato[1]; [1]Tohoku University

9:45 AM Keynote
Invited: Ceramic Nanosensor Breathalyzers Detect Disease: *Pelagia Gouma*[1]; [1]SUNY Stony Brook

10:10 AM Break

10:30 AM Invited
Osteoblast Responses to the Modified Surface of Porous Titanium: *Guangsheng Xu*[1]; Hongchao Kou[1]; Ruolin Li[1]; Tingli Lu[1]; Jinshan Li[1]; Lian Zhou[1]; [1]Northwestern Polytechnical University

10:50 AM
Degradation Behavior and Mechanical Properties of Mg-Ca Alloy after Immersion in Simulated Body Fluid: *Naoko Ikeo*[1]; Masayuki Nishioka[1]; Akihito Taguma[1]; Akiko Yamamoto[2]; Toshiji Mukai[1]; [1]Kobe University; [2]National Institute for Materials Science

11:05 AM Invited
Studies on the Competitive Interaction of Glutathione with 3-Aminopropyltrimethoxysilane-stabilized Gold Nanoparticles: *Aditya Narayanan*[1]; Prem Pandey[1]; [1]Institute of Technology, Banaras Hindu University

11:25 AM
Simultaneous Microfabrication and Tuning Porosity using the X-ray Lithography: *Sang Hoon Han*[1]; Cara Doherty[1]; Benedetta Marmiroli[2]; Plinio Innocenzi[3]; Young Moo Lee[4]; Anita Hill[1]; Paolo Falcaro[1]; [1]CSIRO; [2]Austrian Academy of Science; [3]Universita di Sassari; [4]Hanyang University

11:40 AM Invited
Cross Sectional TEM Observations and Elemental Mapping on Anodic Oxidation Surface Films of Titanium Alloy: *Yasuhiro Tanaka*[1]; Yusuke Fukuchi[1]; Luo Fei[1]; [1]Kagawa University

I. Thin Films and Surface Engineering: Functional Coatings

Program Organizers: Fernand Marquis, Naval Postgraduate School; Chuang Dong, Dalian University of Technology; Takashi Goto, Tohoku University; Kyung-Ho Shin, Korea Institute of Science and Technology; Mingxing Zhang, The University of Queensland; Amit Misra, Los Alamos National Laboratory

Friday AM
August 9, 2013

Room: Waikoloa 1
Location: Hilton Waikoloa Village

Session Chair: Kyung Shin, KIST

8:00 AM Introductory Comments

8:05 AM Keynote
Engineering Thin Film Semiconductor Gas Sensors to Increase Sensitivity and Decrease Operation Temperature: *John Bell*[1]; Tuquabo Tesfamichael[1]; [1]Queensland University of Technology

8:30 AM Keynote
$L1_0$ Ordering of FePtB Layers by Oxidation-induced Stress of Capping Layer: Gyung-Min Choi[1]; *Byoung-Chul Min*[1]; Kyung-Ho Shin[1]; [1]Korea Institute of Science and Technology (KIST)

8:55 AM Invited
Fabrication and Characterization of Metal Oxide Nanotubes on Biometals: *Cuie Wen*[1]; Sepideh Minagar[2]; [1]Swinburne University of Technology ; [2]Swinburne University of Technology

9:15 AM Invited
Allylamine Functionalization of 3C-SiC Thin Film: Hao Zhuang[1]; *Xin Jiang*[1]; [1]University of Siegen

9:35 AM
Interface Adhesion and Coating Integrity of the Thin Film Au-metallization for Bi2Te3-based Thermoelectric Module: *Nancy Yang*[1]; [1]Sandia National Laboratories

9:50 AM Keynote
Microstructures and Properties Modulation for ZnO Thin Films: *Feng Pan*[1]; Fei Zeng[1]; Cheng Song[1]; [1]Tsinghua University

10:15 AM Break

10:35 AM
ZnO-based Heterojunctions: Structural, Electrical and Optical Properties: *Chang Liu*[1]; [1]Wuhan University, School of Physics and Technology

10:50 AM
Effect of Structure on P-type Conduction and Optical Transparency of M2O (M: Cu and Ag) Films Prepared by Reactive Magnetron Sputtering: *Qin Huang*[1]; Liu Wang[1]; Xiaofang Bi[1]; [1]Beihang University (BUAA)

11:05 AM
Nanocrystalline Antimony-doped Tin Oxide Films Prepared by Sol-Gel: Jorge Alberto Galaviz Perez[1]; Fei Chen[1]; *Jorge Roberto Vargas Garcia*[2]; Qiang Shen[1]; Lianmeng Zhang[1]; [1]Wuhan University of Technology; [2]National Polytechnic Institute

11:20 AM
Nano-textured, Optically Transparent, Durable Superhydrophobic Thin Films: *Tolga Aytug*[1]; John Simpson[1]; Andrew Lupini[1]; Gerald Jellison[1]; Ilia Ivanov[1]; Daniel Hillesheim[1]; Kyle Winter[1]; Rosa Trejo[1];

Stephen Pennycook[1]; Parans Paranthaman[1]; [1]Oak Ridge National Laboratory

I. Thin Films and Surface Engineering: Surface Modification and Coatings

Program Organizers: Fernand Marquis, Naval Postgraduate School; Chuang Dong, Dalian University of Technology; Takashi Goto, Tohoku University; Kyung-Ho Shin, Korea Institute of Science and Technology; Mingxing Zhang, The University of Queensland; Amit Misra, Los Alamos National Laboratory

Friday AM
August 9, 2013

Room: Kohala 1
Location: Hilton Waikoloa Village

Session Chair: DONG Chuang, Dalian University of Technology

8:00 AM Introductory Comments

8:05 AM Keynote
Wear and Heat Resistant Coatings for Cutting Tools: *Akira Osada*[1]; [1]Mitsubishi Materials Corporation

8:30 AM Invited
Model for Atomic Layer Deposition of Aluminum on Inner Wall of Rectangular Pipes with Large Length Aspect Ratio: *Yuqing Xiong*[1]; [1]Lanzhou Institute of Physics

8:50 AM Invited
Warm Spray Technology for Advanced Thick Coatings: *Seiji Kuroda*[1]; Makoto Watanabe[1]; Jin Kawakita[1]; KeeHyun Kim[1]; Hiroshi Katanoda[2]; Naoyuki Ohno[3]; [1]National Institute for Materials Science; [2]Kagoshima University; [3]Plasma Giken Co., Ltd.

9:10 AM
Study on Improving Surface Characteristics of Stainless Steel Alloys by Electropolishing: *Seonghyun Kim*[1]; Woong Kirl Choi[1]; Eun Sang Lee[1]; Chul Hee Lee[1]; Seung Geon Choi[1]; [1]Inha University

9:25 AM Invited
Plastic Deformation Induced by SMAT at the Surface and Sub-surface of Steels: Determination of the Effect of Some Processing Parameters by EBSD: *Thierry Grosdidier*[1]; Youssef SAMIH[1]; Beaussir[1]; Chuang Dong[2]; [1]Laboratoire d'Etude des Microstructures et de Mécanique des Matériaux (LEM3); [2]Dalian University of Technology

9:45 AM Invited
Recent Progress on the Heteroepitaxy Crystallography: *Dong Qiu*[1]; Mingxing Zhang[1]; [1]The University of Queensland

10:05 AM Break

10:25 AM
Effect of Processing Parameters on Raman Spectra and Structure Characteristics of AlN Films Fabricated by HIPIMS Technology: *Bih-Show Lou*[1]; Yu-Chiao Hsiao[2]; Jyh-Wei Lee[3]; Yung-Chin Yang[2]; Ching-Shiun Chen[1]; Yuan- Tai Lai[1]; [1]Chang Gung University,; [2]National Taipei University of Technology; [3]Ming Chi University of Technology

10:40 AM
Influence of the Cu Content on the Structure and Properties of Me-Cu-N (Me=Zr,Ti) Nanocomposite Films Deposited by Pulsed Bias Arc Ion Plating: *Lin Zhang*[1]; Guoqiang Lin[1]; Qing Yao[1]; Shouhua Ji[1]; [1]Dalian University of Technology

10:55 AM
Anti-radiation Performance Against Ar12+ Ions of Bulk Metallic Glass (Cu47Zr45Al8)98.5Y1.5: *Xianxiu Mei*[1]; Xue Ma[1]; Bin Wang[1]; Younian Wang[1]; Chuang Dong[1]; Zhiguang Wang[1]; [1]Key Laboratory of Materials Modification by Laser, Ion and Electron Beams (Dalian University of Technology), Ministry of Education

11:10 AM
Influence of the Lubricant Temperature and Operation Charge in Metallic Surfaces Wear: *Isaias Hilerio*[1]; [1]UAM Azcapotzalco

J. Materials and Processes for Enhanced Performance: Welding and Joining

Program Organizers: Fernand Marquis, Naval Postgraduate School; Jishan Zhang, USTB; Yoshimi Watanabe, Nagoya Institute of Technology; Young-Kook Lee, Yonsei University; Robert O'Donnell, CSIRO; Jie Liu, Duke University

Friday AM
August 9, 2013

Room: King 3
Location: Hilton Waikoloa Village

Session Chair: To Be Announced

8:00 AM
Derivation of Forces Acting on the Liquid Weld Metal Based on Arc Pressure Measurements Produced Using Alternating Shielding Gases in the GTAW Process: *Stuart Campbell*[1]; Alexander Galloway[1]; Norman McPherson[2]; [1]University of Strathclyde; [2]BAE Systems Surface Ships Limited

8:15 AM
Comparative Study of Laser Cladded and Plasma Transferred Arc Nickel Based Coatings with Crushed and Fused Tungsten Carbides: Santiago Corujeira Gallo[1]; Nazmul Alam[1]; Duy Ngo[2]; Milan Brandt[2]; *Robert O'Donnell*[1]; [1]CSIRO; [2]RMIT University SAMME

8:30 AM
Effect of Brazing Temperature on Microstructure and Mechanical Properties of Graphite/Copper Joints: *Jie Zhang*[1]; Tianpeng Wang[1]; Chunfeng Liu[1]; Yanming He[1]; [1]Harbin Institute of Technology

8:45 AM
Evaluation of Physical and Optical Properties on Functionally Graded Piping Joints Made from Cu and Austenitic Stainless Steel: *Kouichi Nakano*[1]; [1]Graduate School of Life Science and Systems Engineering, Kyushu Institute of Technology

9:00 AM
Low Temperature Sintering Bonding of Metals Using Ag Nanoparticles Derived from Ag_2O: *Akio Hirose*[1]; Shinya Takata[1]; Tomo Ogura[1]; [1]Osaka University

9:15 AM
Microstructure and Composite Design through Laser Cladding Multi-layer Nb-Si-Ti: *J. Liang*[1]; S Y Chen[1]; C S Liu[1]; W Chen[1]; [1]Northeastern University

9:30 AM
Study of Thermal Damage Introduced by Laser Cladding Process Part 1. Existence Verification by Experiment: *Chao Zeng*[1]; Wei Tian[1]; Wen-He Liao[2]; Liang Hua[3]; [1]College of Mechanical and Electrical Engineering; [2]Nanjing University of Science and Technology; [3]Nanjing Institute of Railway Technology

9:45 AM
Study of Thermal Damage Introduced by Laser Cladding Process Part 2. A Generalized Description: *Wei Tian*[1]; Chao Zeng[1]; Wen-He Liao[2]; Liang Hua[3]; [1]College of Mechanical and Electrical Engineering; [2]Nanjing University of Science and Technology; [3]Nanjing Institute of Railway Technology

L. Modeling and Simulation of Processes, Microstructures, and Behavior: Modeling and Simulations of Materials Microstructure III

Program Organizers: Fernand Marquis, Naval Postgraduate School; Dianzhong Li, Institute of Metal Research, Chinese Academy of Sciences; Tetsuo Mohri, Hokkaido University; Won Tae Kim, Cheongju University; Graeme Murch, The University of Newcastle; Alfredo Caro, LANL

Friday AM
August 9, 2013

Room: Kona 5
Location: Hilton Waikoloa Village

Session Chairs: Pil Ryung Cha, Kookmin University; Long Qing Chen, Penn State University

8:00 AM
Relaxation of Defect Structure in Lithium Conducting Sulfide-Based Solid Electrolyte: *Hisatsugu Yamasaki*[1]; Yuki Kato[1]; Shinya Nishino[2]; Takeo Fujiwara[2]; [1]Toyota Motor Corporation; [2]The University of Tokyo

8:15 AM
Structural Phase Transformations in Metallic Grain Boundaries: *Timofey Frolov*[1]; David Olmsted[1]; Mark Asta[1]; Yuri Mishin[2]; [1]University of California Berkeley; [2]George Mason University

8:30 AM
Strain-induced Phase Transition in Martensitic Alloys: Phase-field Simulation: Yanguang Cui[1]; *Jianfeng Wan*[1]; Jihua Zhang[1]; Yonghua Rong[1]; [1]Shanghai Jiao Tong University

8:45 AM Keynote
Phase-field Modeling of Microstructure Evolution: *Long Qing Chen*[1]; [1]Penn State University

9:10 AM
The Velocity of Plate Precipitates Growing by the Ledge Mechanism: *Jeffrey Hoyt*[1]; [1]McMaster University

9:25 AM
Nano-twin Structure Simulated by Field Crystal Method: *Gao Yingjun*[1]; [1]Guangxi University

9:40 AM
Refinement of Coarse-grained Austenite in a Nb-V-Ti Microalloyed Steel Processed by Medium-thin Slab Casting and Direct Rolling Route: *Qingyun Sha*[1]; [1]Anshan Iron and Steel Group Company

9:55 AM
Phase-field Simulation of Solidification Microstructure Evolution in The Presence of Lateral Constraints: Lifei Du[1]; *Rong Zhang*[1]; Limin Zhang[1]; Lin Liu[1]; [1]Northwestern Polytechnical University

10:10 AM Break

10:30 AM
The Statistical Analysis of Dislocation Percolation: A Mathematical Contribution to Strain Hardening Theory: *Rafael Schouwenaars*[1]; [1]Universidad Nacional Autonoma de Mexico

10:45 AM
Influence of Surfactant on Bubble Motion in Liquid Steel: *In-Beom Park*[1]; Sang-Joon Kim[1]; Hae-Geon Lee[1]; [1]Pohang University of Science and Technology

L. Modeling and Simulation of Processes, Microstructures, and Behavior: Modeling and Simulations of Materials Processing IV

Program Organizers: Fernand Marquis, Naval Postgraduate School; Dianzhong Li, Institute of Metal Research, Chinese Academy of Sciences; Tetsuo Mohri, Hokkaido University; Won Tae Kim, Cheongju University; Graeme Murch, The University of Newcastle; Alfredo Caro, LANL

Friday AM
August 9, 2013

Room: Kohala 3
Location: Hilton Waikoloa Village

Session Chairs: Thomas Fiedler, The University of Newcastle; Aibing Yu, The University of New South Wales

8:00 AM Keynote
Computational Study of Interparticle Forces: *Aibing Yu*[1]; [1]The University of New South Wales

8:25 AM Invited
Thermo-mechanical Behavior and Cracking Susceptibility of Solidifying Shell in Continuous Casting Mold: *Miaoyong Zhu*[1]; Zhaozhen Cai[1]; [1]Northeastern University

8:45 AM
Modelling and Validation of Three Dimensional Fan Blade 'Twist and Camber' Forming Process: *Enrique Alabort*[1]; Roger Reed[1]; Duncan Putman[2]; [1]University of Oxford; [2]Rolls-Royce plc

9:00 AM
The Numerical Simulation of Flow-field inside The Raceway in Blast Furnace Based on CFD: *Hui Sun*[1]; [1]University of Science and Technology Beijing

9:15 AM
Front Tracking Model of Simultaneous Melting and Solidification during Multiple Layer Deposition in GMA Welding: *Gregory Duggan*[1]; Mingming Tong[1]; David Browne[1]; [1]University College Dublin

9:30 AM
Numerical Simulation of Solidification and Macrosegregation in Heavy Steel Ingot with Water Cooling: *Zhenhu Duan*[1]; Houfa Shen[1]; Baichen Liu[1]; [1]Tsinghua University

9:45 AM Invited
Study on the Interfacial Heat Transfer Coefficient of High Pressure Die Casting Process of AM60B Alloy: Yong-You Cao[1]; Zhi-Peng Guo[1]; *Shou-Mei Xiong*[1]; [1]Tsinghua University

10:05 AM Break

10:25 AM
Formation of Free Surface Vortex in the Steelmaking Process (Dual Tapping Hole System): *Seung-Jin Lee*[1]; Sang-Joon Kim[1]; [1]Graduate Institute of Ferrous Technology , POSTECH

10:40 AM
A Finite Element Analysis for Ring Rolling under a Step-wise Steady State Assumption: *Du-Kyu Lee*[1]; Eung-Zu Kim[1]; Yong-Shin Lee[2]; [1]Korea Institute of Industrial Technology; [2]Kookmin University

10:55 AM
Numerical Study on Behavior of Top-Blown Supersonic Jets and Their Interaction with Bath in BOF Steelmaking Convertor: *Mingming Li*[1]; Qiang Li[1]; Lin Li[1]; Mingxia Feng[1]; Zouliang Zhang[1]; Zongshu Zou[1]; [1]Northeastern University of China

11:10 AM
Numerical and Experimental Study of Mass Transport Phenomena for Concentration Profiles in Two Liquid Phases: *Hyun-Jin Cho*[1]; Sang-Joon Kim[1]; Hae-Geon Lee[1]; [1]POSTECH

11:25 AM
Three-dimensional Numerical Simulation of the Thermal Damaged Mechanism of Baosteel Blast-Furnace Tuyere: *Zhekai Zhang*[1]; Shengli Wu[1]; Kaiping Du[1]; [1]School of Metallurgical and Ecological Engineering, University of Science and Technology Beijing

N. Advanced Materials Characterization and Evaluation: In-situ Microscopy and Analysis

Program Organizers: Fernand Marquis, Naval Postgraduate School; Xiaodong Han, Beijing University of Technology; Sho Matsumura, Kyushu University; Dong Il Kwon, Seoul National University; Jin Zou, The University of Queensland; Alexis Lewis, Naval Research Laboratory

Friday AM
August 9, 2013

Room: King 2
Location: Hilton Waikoloa Village

Session Chairs: Jin Zou, The University of Queensland; Manabu Ishimaru, Osaka University

8:00 AM Keynote
Materials' Deformation Dynamics at Atomic Scale
In situ Atomic Scale Electron Microscopy on Material's Mechanical Properties: *Ze Zhang*[1]; Xiaodong Han[2]; [1]Zhejiang University; [2]Beijing University of Technology

8:25 AM Invited
In-situ Atomic Resolution Environmental TEM as Quantitative Microscopy in Materials Science: *Seiji Takeda*[1]; [1]Osaka University

8:45 AM Invited
Exploring the Mechanical Behavior of GaAs Nanowires Using In-situ Deformation Transmission Electron Microscopy: *Xiaozhou Liao*[1]; [1]The University of Sydney

9:05 AM
In-situ Characterizing the Mechanical and Electronic Properties of InAs Nanowire: *Qing Chen*[1]; Xian Long Wei[1]; Ting Ting Xu[1]; Xing Li[1]; [1]Peking University

9:20 AM
In-Situ Characterisation of Zeolite Phase Development in Geopolymers: *Natasha Wright*[1]; Pre De Silva[2]; Kwesi Sagoe-Crentsil[1]; David Hay[1]; Yesim Gozukara[1]; [1]CSIRO; [2]Australian Catholic University

9:35 AM
A Nanolab in TEM for Nanomaterial Research: *Litao Sun*[1]; [1]Southeast University

9:50 AM
Carbon-Copper Composite Sphere for Possible In Situ Microlab in Transmission Electron Microscope: *Zheng-Guang Yan*[1]; Xiaoliang Zhou[1]; Xiaodong Han[1]; [1]Beijing University of Technology

10:05 AM Break

10:25 AM
Deformation Mechanism of Al Particles During Ball Milling Studied by EBSD and X-Ray Diffraction: *Seyed Salman Razavi-Tousi*[1]; Jerzy Szpunar[1]; [1]U of S

10:40 AM
In-Situ X-Ray Radiographic Observations of Eutectic Transformations in Al-Cu alloys: Andrew Murphy[1]; Wajira Mirihanage[2]; Ragnvald Mathiesen[2]; *David Browne*[1]; [1]University College Dublin; [2]Norwegian University of Science and Tecnhology

10:55 AM
High Resolution Chemical and Mechanical Characterization of Energy Related Materials: *Michel Trudeau*[1]; Lisa Rodrigue[1]; René Veillette[1]; [1]Hydro-Quebec Research Institute

O. Advanced Neutron and Synchrotron Studies of Materials: Phase Transformations

Program Organizers: Fernand Marquis, Naval Postgraduate School; Chengjia Shang, University of Sicence and Technology Beijing; Masato Ohnuma, National Institute for Materials Science; Baek Seok Seong, KAERI; Klaus-Dieter Liss, ANSTO; Rozaliya Barabash, Oak Ridge National Laboratory

Friday AM
August 9, 2013

Room: Kona 1
Location: Hilton Waikoloa Village

Session Chairs: Uwe Klemradt, RWTH Aachen University; Ralph Gilles, TU Muenchen

8:00 AM Introductory Comments

8:05 AM Keynote
X-ray Photon Correlation Spectroscopy: a New Tool for Studying Diffusionless Phase Transitions and Ageing: *Uwe Klemradt*[1]; [1]RWTH Aachen University

8:30 AM
In-situ Identification of Metastable Phases during Solidification from Undercooled $LuFeO_3$ Melt by Two-dimensional Detector at 1 kHz: *Malahalli Vijaya Kumar*[1]; Junpei Okada[1]; Takehiko Ishikawa[1]; Kazuhiko Kuribayashi[2]; [1]Japan Aerospace Exploration Agency; [2]Shibaura Institute of Technology

8:45 AM
In-situ Studies of the Transformation Behaviour and Martensite Evolution in Ti-Ni Based Shape Memory Alloys: *Nicholas Jones*[1]; David Dye[2]; [1]University of Cambridge; [2]Imperial College London

9:00 AM
In-situ Studies on Alpha-Phase Precipitation Kinetics in Near-Beta Titanium Alloys: *Lisa Thoennessen*[1]; Klaus-Dieter Liss[2]; Ali Dehghan-Manshadi[1]; Rian Dippenaar[1]; [1]University of Wollongong; [2]Australian Nuclear Science and Technology Organisation

9:15 AM Invited
In-situ Synchrotron XRD Study on Phase Transformation of Galvanized Steel: *Chang-hwan Chang*[1]; Kwang-Soo Shin[1]; Il-Ryoung Sohn[2]; Joong-Chul Park[2]; Man-Kil Joo[1]; [1]Analysis & Assessment Center / RIST; [2]POSLAB / POSCO

9:35 AM Invited
In-situ High Temperature Measurements with Neutron and Synchrotron Probes Assist Development of High Temperature Alloys: *Ralph Gilles*[1]; Debashis Mukherji[2]; Pavel Strunz[3]; Premek Beran[4]; Helmut Eckerlebe[5]; Joachim Roesler[2]; [1]TU Muenchen; [2]TU Braunschweig; [3]NPI; [4]NPI; [5]HZG

9:55 AM Invited
New Mechanisms of Superelasticity in Shape Memory Alloys: *Yandong Wang*[1]; [1]Northeastern University

10:15 AM Break

10:35 AM
Observation of Melting and Alloy of Metallic Nanoparticle via In situ Synchrotron Radiation X-ray Diffraction: *In-Gann Chen*[1]; Tzu-Hsuan Kao[1]; Jenn-Ming Song[2]; Hsin-Yi Lee[3]; [1]National Cheng Kung University; [2]National Chung Hsing University; [3]National Synchrotron Radiation Research Center

10:50 AM Invited
Understanding Local Phase Evolution Using New, High-Resolution X-Ray Microbeam Techniques: *John Budai*[1]; Alexander Tselev[1]; Jonathan Tischler[2]; Evgheni Strelcov[1]; Andrei Kolmakov[3]; Michael Manley[1]; Olivier Delaire[1]; Chen Li[1]; Lynn Boatner[1]; [1]Oak Ridge National Laboratory; [2]Argonne National Laboratory; [3]Southern Illinois University

11:10 AM
Instability of NiTi Actuation Analysed by In-situ Neutron and X-ray Diffraction: *Petr Sittner*[1]; Pavel Sedmák[1]; Jan Pilch[1]; Carolina Curfs[2]; Premysl Beran[3]; [1]Institute of Physics ASCR; [2]ESRF; [3]Nuclear Physics Institute ASCR

11:25 AM Invited
High-temperature Defect Kinetics in Titanium and Zirconium Alloys Revealed In-situ by the Dynamic Extinction of Neutron Radiation: *Klaus-Dieter Liss*[1]; Saurabh Kabra[2]; Lisa Thoennessen[3]; Stefanus Harjo[4]; Mark Reid[5]; Kun Yan[3]; Robert Harrison[3]; Rian Dippenaar[5]; [1]JAEA+ANSTO; [2]Rutherford-Appleton Laboratory; [3]Australian Nuclear Science and Technology Organisation; [4]Japan Atomic Energy Agency; [5]University of Wollongong

11:45 AM
Mechanics and Dynamics of the Strain-induced M1-M2 Structural Phase Transition in Individual VO2 Nanowires Studied using Synchrotron Polychromatic X-ray Laue Microdiffraction: *Kai Chen*[1]; Hua Guo[2]; Nobumichi Tamura[2]; Andrew Minor[2]; Junqiao Wu[2]; [1]Xi'an Jiaotong University; [2]Lawrence Berkeley National Lab

12:00 PM Concluding Comments

A. Materials for Energy: Poster Session

Program Organizers: Fernand Marquis, Naval Postgraduate School; Shaoxiong Zhou, Central Iron and Steel Research, China; Akihiko Kimura, Kyoto University; Young Hwan Cho, KIST; Shixue Dou, Wollongong University; Renkun Chen, University of California

Tuesday PM
August 6, 2013

Room: Monarchy
Location: Hilton Waikoloa Village

A1: 3D TiO2 Long Nanotube Arrays Manufactured by Anodization of Ti Mesh for Lithium-Ion Batteries: *Huijun Li*[1]; [1]University of Wollongong

A2: Corrosion Problems in Heat Recovery for Water Heating: *Enrique Posada*[1]; [1]INDISA S.A.

A3: Investigation on Co-combustion Kinetics of Anthracite Coal and Biomass Char by Thermogravimetric Analysis: *Wang Guangwei*[1]; Shao Jiugang[1]; [1]University of Science and Technology Beijing

A4: Analysis of Micro-compositional and Micro-structural Changes at Grain Boundary in PE16 Irradiated by Helium: *Satoru Koido*[1]; Ryuichi Toyokawa[1]; Norihito Sakaguchi[1]; Tamaki Shibayama[1]; Seiichi Watanabe[1]; Shinichiro Yamashita[2]; Yoshihiro Sekio[2]; [1]Division of Material Science and Engineering, Faculty of Engineering Hokkaido University; [2]Japan Atomic Energy Agency

A5: Diffusion Bonding of W/ODS Steel Using Fe- Insert Foil for Fusion Applications: *Hiroyuki Noto*[1]; Syuichi Taniguchi[1]; Akihiko Kmura[1]; Hiroaki Kurishita[2]; Satoru Matsu[2]; [1]Kyoto University; [2]Tohoku University

A6: Hydrogen Permeability of Pure V and its Alloy Membranes without Pd Overlayer: *Hiroshi Yukawa*[1]; Yuki Nakamura[1]; Tomonori Nambu[2]; Yosihisa Matsumoto[3]; [1]Nagoya University; [2]Suzuka National College of Technology; [3]Oita National College of Technology

A7: Adaptive Porous Materials for Gas Storage: *Kristina Konstas*[1]; Cara Doherty[1]; Anita Hill[1]; Matthew Hill[1]; [1]CSIRO

A8: Effect of Doping in Ti4Ni4Si7 Matrix Confining Nano-Si for Highly Reversible Anode Materials in Lithium Ion Batteries: *Chan Soon Kang*[1]; Seung-Bum Son[1]; Seul Cham Kim[1]; Yong Seok Choi[1]; Se-Hee Lee[2]; Kyu Hwan Oh[1]; [1]Seoul National University; [2]University of Colorado at Boulder

A9: Characterization of Ni Nano Powder Synthesized by Wire Explosion Process: *Hyo-Soo Lee*[1]; [1]KITECH

A10: Defects and Local Compositional Changes in Sn-coated MCMB Particles Cycled as Anodes in Lithium-ion Cells: *Sandeep Bhattacharya*[1]; Sanam Atashin[1]; Ahmet T. Alpas[1]; [1]University of Windsor

A11: Renewable Thermoenergetic Resources in the Pyrometallurgical Copper Production Process: *Milorad Cirkovic*[1]; Milance Mitovski[2]; Vlastimir Trujic[1]; Aleksandra Mitovski[3]; Mile Bugarin[1]; [1]Mining and Metallurgy Institute Bor; [2]RTB-BOR Group, Bor, Serbia; [3]University of Belgrade, Tehnical Faculty, Bor

A12: Charpy Impact Properties of ODS Ferritic Steels: *Shigeharu Ukai*[1]; Wataru Izawa[1]; Naoko Oono[1]; Shigenari Hayashi[1]; Takashi Sakamura[1]; Yutaka Kohno[1]; Satoshi Ohtsuka[1]; Takeji Kaito[1]; [1]Hokkaido University

A13: Anode Properties of MgH_2 for All Solid State Lithium Ion Battery: *Suguru Ikeda*[1]; Takayuki Ichikawa[2]; Hiroki Miyaoka[3]; Yoshitsugu Kojima[2]; [1]Graduate School of Advanced Sciences of Matter, Hiroshima University; [2]Institute for Advanced Materials Research, Hiroshima University; [3]Institute for Sustainable Sciences and Development, Hiroshima University

A14: Study on the Combustion Characteristics and Kinetics of Pulverized Coal in High Oxygen-enriched Condition: *Shao Jiugang*[1]; Wang Guangwei[1]; [1]University of Science and Technology Beijing

A15: Relation Between Melting and Hydrogen Desorption Characteristics for LiBH4-NaBH4 Mixtures: Daiki Hatamoto[1]; *Hiroyuki Takeshita*[1]; Shigeyuki Takagi[2]; Shin-ichi Orimo[2]; [1]Kansai University; [2]IMR,Tohoku University

A16: Effect of Microstructure on Hydrogen Absorption Property in Hyper-eutectic Mg-31mass%Ni Hydrogen Absorption Alloy: *Hideyuki Saitoh*[1]; Makoto Kondo[1]; [1]Muroran Institute of Technology

A17: Durability and Cycling Stability of Copper Coated Titania Nanotube as Anode Materials for Li-Ion Battery: *Seong-Hwan Kim*[1]; Hyeng-Woo Eom[1]; Se-Young Choi[1]; [1]Yonsei University

A18: Heat Capacity and Thermal Expansion Measurements of Solar Salts: *Ekkehard Post*[1]; Lloyd MacPherson[2]; [1]NETZSCH Geraetebau GmbH; [2]NETZSCH Instruments North America, LLC

A19: Doping of Freestanding Bulk GaN: *Galia Pozina*[1]; Carl Hemmingsson[1]; [1]Linköping University

A20: Growth of Freestanding GaN by HVPE on 3" Sapphire Substrate: *Carl Hemmingsson*[1]; Galia Pozina[1]; [1]Linköping University

A21: First-Principles Molecular Dynamics Simulation of Chemical Degradation Process in Perfluorosulfonic Acid Membranes: *Akira Kobayashi*[1]; Takeshi Ishikawa[1]; Yuji Higuchi[1]; Nobuki Ozawa[1]; Momoji

Kubo[1]; [1]Tohoku University

A22: Nanosized Chevrel Phase Materials of Mg-Cu-Mo6S8 System as Cathodes for New Rechargeable Magnesium Batteries: *Xiaomei Wu*[1]; Xiaoqin Zeng[1]; Liming Peng[1]; Wenjiang Ding[1]; [1]Shanghai Jiao Tong University

A23: Thermodynamic Evaluation for Formation of MgCu2 from MgH2 and Cu: *Kazuya Shibata*[1]; Koji Tanaka[2]; Kosuke Kurumatani[1]; Yasuki Nishida[1]; Hiroyuki Takeshita[1]; [1]Kansai University; [2]Advanced Industrial Science and Technology

A24: Purification of Metallurgical Grade Silicon by Electron-Beam Melting and Its Photovoltaic Performance: *Jin-Seok Lee*[1]; Bo-Yun Jang[1]; Joon-Soo Kim[1]; Young-Soo Ahn[1]; [1]Korea Institute of Energy Research

A25: Synthesis of Silicon Nanostructure by Magnesiothermic Reduction and their Electrochemical Properties: *Won-Sik Kim*[1]; Jeong-Hoon Jeun[1]; Seong-Hyeon Hong[1]; [1]Seoul National University

A26; Effect of Atomic Layer Deposited Thin TiO_2 Layers on the Performance of Dye-Sensitized Solar Cells: *Do-Heyoung Kim*[1]; Hyun-sub Kim[1]; [1]Chonnam National University

A27: Electrochemical Study of Ag Ionization in Molten Lead Borosilicate Glass during Fire-through Ag Contact Formation: Bo-Mook Chung[1]; Sung-Bin Cho[2]; *Joo-Youl Huh*[2]; [1]KPM TECH; [2]Korea University

A29: Microstructure and Properties of Nano-structured 9Cr Oxide Dispersion Strengthened Steels Produced by Atomization and Hot Isostatic Pressing: *Xie Rui*[1]; LU Zheng[1]; LIU Chunming[1]; [1]The Northeastern university of China

A30: Study on Super Stable All-solid-state Battery at High Temperature: *Seok Hee Lee*[1]; Seung Hyun Jee[2]; Young Soo Yoon[2]; [1]Yonsei University; [2]Gachon University

B. Materials for the Environment: Poster Session

Program Organizers: Fernand Marquis, Naval Postgraduate School; Chengjia Shang, University of Science and Technology Beijing; Shinji Fujimoto, Osaka University; Bong Sun Yoo, KIMS; Rachel Caruso, The University of Melbourne; William Tumas, Center for Chemical and Materials Science

Tuesday PM
August 6, 2013

Room: Monarchy
Location: Hilton Waikoloa Village

B1: Good Defluorination Properties of Porous Alloy Loaded Cerium Oxide: *Jianqing Chen*[1]; Donghui Yang[1]; Yong Wei[1]; Jinghua Jiang[1]; Aibin Ma[1]; Dan Song[1]; [1]Hohai University

B2: Fluffy Core/Shell, Yolk/Shell and Hollow Anatase Nanostructures for High Efficiency Photocatalysis Application: *Lu Cao*[1]; Dehong Chen[1]; Rachel Caruso[1]; [1]The University of Melbourne

B3: Hydrothermal Synthesis and Photocatalytic Properties of Pyrochlore Sm2Zr2O7 Nanopowders: *Jin Haibo*[1]; Chen Pengwan[1]; [1]Beijing Institute of Technology

B4: Studies on the Structures and Optical Properties TiO2 Doped with Transition Metal Ions: *Xiuhua Liu*[1]; [1]China Academy of Engineering Physics

B5: Catalyst Activity of Atomized Ni3(Al,V) Powder for CO Oxidation: *Shirai Yosuke*[1]; [1]Nims

B6: Gold Nanoparticles Modified Porous Titania Mats for Photocatalytic Application in Water Treatment: *Xingdong Wang*[1]; Jon Choi[1]; David Mitchell[1]; Yen Truong[1]; I. Kyratzis[1]; Rachel Caruso[1]; [1]CSIRO

B7: Synthesis and Deposition of CeO2 Nanocrystals via Aqueous Solution Process for Catalytic Environmental Depollution: *Masakuni Ozawa*[1]; Katsutoshi Kobayashi[2]; Masaaki Haneda[2]; [1]Nagoya University; [2]Nagoya Institute of Technology

B8: Formation of Nanometer-sized Platinum Particles by Processing Precursor-containing Aqueous Solution: *Masakuni Ozawa*[1]; Kei Fujimoto[2]; Masaaki Haneda[2]; [1]Nagoya University; [2]Nagoya Institute of Technology

B9: Synthesis and Antibacterial Properties of Silver and Copper Ions Against Escherichia Coli, Salmonella Typhimurium, Staphylococcus Aureus and Pseudomonas Aeruginosa: *Gyu-In Shim*[1]; Hyeng-Woo Eom[1]; Se-Young Choi[1]; [1]Yonsei University

C. Advanced High-Temperature Structural Materials:Poster Session

Program Organizers: Fernand Marquis, Naval Postgraduate School; Guoqing Zhang, Beijing Institute of Aeronautical Materials; Haruyuki Inui, Kyoto University; Kyung-Tae Park, Hanbat National University; Julie Cairney, The University of Sydney; Eugene Olevsky, San Diego State University

Tuesday PM
August 6, 2013

Room: Monarchy
Location: Hilton Waikoloa Village

C1: Cast and Aged Microstructures and Mechanical Property at Elevated Temperature of Inconel 713C: *Kee-Do Woo*[1]; Dong-Soo Kang[1]; Dong-Gun Kim[1]; Dae-Young Kim[1]; Whang-Jin Kang[2]; Eun-Jeong Jo[2]; [1]Chonbuk National University; [2]NIB Materials Co.,

C2: Correlation of Microstructures with Mechanical Properties in Recrystallized 15Cr-ODS Steels: *Yoosung Ha*[1]; Chonghong Zhang[2]; Akihiko Kimura[3]; [1]Graduate School of Energy Science, Kyoto University; [2]Institute of Modern Physics, China Academy of Science; [3]Institute of Advanced Energy, Kyoto University

C3: Effect of Alumina Addition on Silica-Zircon Porous Ceramics: *Jeong-gu Yeo*[1]; Young-Hwan Kim[2]; Jinseok Lee[1]; Ungyu Paik[2]; [1]Korea Institute of Energy Research; [2]Hanyang University

C4: Effects of Al Addition on the High Temperature Oxidation Behavior of CM-247 LC Ni-based Superalloy: *Mau-Sheng Chiou*[1]; Sheng-Rui Jian[1]; An-Chou Yeh[2]; Chen-Ming Kuo[1]; [1]I-Shou University; [2]National Tsing Hua University

C5: Effects of Alloying Elements on Thermal Aging Embrittlement of 15Cr Ferritic Steels: *Chen Dongsheng*[1]; Akihiko Kimura[2]; Zhang Chonghong[3]; Han Wentuo[2]; [1]Graduate School of Energy, Kyoto University; [2]Institute of Advanced Energy, Kyoto University; [3]Chinese Academy of Sciences

C6: Fracture Charateristics of a Single Crystal Nickel-based Superalloy: *Dan Wu*[1]; Lixi Tian[1]; Chaoli Ma[1]; [1]Beihang University

C7: One Step Fabrication of Spherical Zirconia Particle by Atmospheric Pressure Plasma Jet: *Yu-Lin Kuo*[1]; Yu-Ming Su[1]; Chun-Ming Lin[1]; Sun-Fen Lee[2]; Huai-Shan Chin[3]; [1]National Taiwan University of Science and Technology; [2]National Taiwan University; [3]Metal Industries Research & Development Centre

C8: Study of Sea Salt Effect on the Oxidation of CMSX-4 at 1100°C: *Feng Li*[1]; Hon Tong Pang[1]; Siavash Pahlavanyali[2]; Ian Edmonds[3]; Catherine Rae[1]; [1]University of Cambridge; [2]ERA Technology Ltd; [3]Rolls-Royce plc

C9: The Effect of Dissolved Hydrogen and Oxygen on Stress Corrosion Cracking Susceptibility of ODS Ferritic Steel in SCPW: *Hwanil Je*[1]; Akihiko Kimura[2]; [1]Graduate School of Energy Science, Kyoto University; [2]Institute of Advanced Enegry, Kyoto Univerisity

C10: The Effect of Grain Boundary Character Distribution on Oxidation Resistance of ZG30Cr20Ni10 Heat Resistant Steel: *Xiaoyan Wang*[1]; Dao Zhang[1]; Sen Yang[1]; [1]Nanjing University of Science and Technology

C11: Vacancy Behavior in B2-type FeAl Measured by High-Temperature XRD: *Mi Zhao*[1]; Kyosuke Yoshimi[1]; Kouichi Maruyama[1]; Kunio Yubuta[1]; [1]Tohoku University

C12: Determination of Fracture Toughness Values of Two Ni –base Super Alloys for High Temperature Applications: Muhammad Hasan[1]; *Mubarak ALGrafi*[1]; [1]Taibah University

C13: Study on Precipitation Behavior of \948 Phase in IN718 Alloy by Electric Field Treatment: *Yang Liu*[1]; Lei Wang[1]; Xiu Song[1]; Danyang Dong[1]; Jinhui Du[2]; Beijiang Zhang[2]; [1]Northeastern University; [2]Central Iron and Steel Research Institute

C14: The Microstructure and Properties of Alloys Based on the Ni-Co-Al-Ti System: *Katerina Christofidou*[1]; Nicholas Jones[1]; James Minshull[1]; Steffen Neumeier[2]; Mark Hardy[3]; Howard Stone[1]; [1]University of Cambridge; [2]University of Erlangen-Nurnberg; [3]Rolls-Royce plc.

C15: Characterization of Discontinuous Cellular Carbide Precipitation in INCONEL® 740H: Andrea Casias[1]; *Greg Lehnhoff*[1]; Kip Findley[1]; Chester Van Tyne[1]; [1]Colorado School of Mines

D. Advanced Steels and Processing: Poster Session

Program Organizers: Fernand Marquis, Naval Postgraduate School; Han Dong, Central Iron and Steel Research Institute; Kaneaki Tsuzaki, National Institute for Materials Science; Sung Joon Kim, POSTECH; Rian Dippenaar, University of Wollongong; Kip Findley, Colorado School of Mines

Tuesday PM
August 6, 2013

Room: Monarchy
Location: Hilton Waikoloa Village

D1: Atomic Interaction between Carbon and Substitutional Transition Elements in α Iron: *Seiya Hiramatsu*[1]; Hiroshi Numakura[1]; Yuki Tanaka[2]; Tatsuro Takeuchi[1]; [1]Osaka Prefecture University; [2]Kobe Steel Ltd

D2: Effects of Negative Gradient Magnetic Field on the Carbon Diffusion Behavior in Pure Iron: *Yan Wu*[1]; Sheng Duan[1]; Xiang Zhao[1]; Liang Zuo[1]; [1]Northeastern University

D3: First-principles Study of B, C, and N Dissolved in a Iron: *Souissi Maaouia*[1]; Chen Ying[2]; Numakura Hiroshi[1]; [1]Osaka Prefecture University; [2]Tohoku University

D4: High Speed and Stable Continuous-casting Technique on No.4CCM in JFE Steel Corporation Kurashiki Works: *Kento Suzuki*[1]; Koji Okada[1]; Kiyohiro Kameda[1]; Takeshi Asahina[1]; Kenji Oshima[1]; [1]JFE Steel Corporation / West Japan Works

D5: Localized Stability Study of Retained Austenite in GCr15 for Advance Processing of Bearing Steel: *Wei Li*[1]; Xiaohui Lu[1]; Xuejun Jin[1]; [1]Shanghai Jiaotong University

D6: Quantitative Analysis of Dynamic Recrystallization in Warm Deformation of Interstitial-free Steel with Different Initial Structures: *Un-Hae Lee*[1]; Naoya Kamikawa[1]; Goro Miyamoto[1]; Tadashi Furuhara[1]; [1]Tohoku University

D7: Si-C and Si-N Interaction in α Iron: *Yuusuke Watanabe*[1]; Hiroshi Numakura[1]; [1]Osaka Prefecture University

D8: Study of Rack and Chord Assembly Formability for Jack-up Platforms: *Kwang Soo Park*[1]; Sook Hwan Kim[1]; Heung Ju Kim[1]; Dong Kyu Kim[2]; [1]RIST(Research Institute of Industrial Science of Technology; [2]DK Solution Corp

D9: Surface Residual Stress of Shot-Peened Advanced TRIP-aided Steels: *Masahiro Natori*[1]; Sun-Moo Song[1]; Koh-ichi Sugimoto[1]; [1]Shinshu University

D10: Mechanical Properties of Low Steel Alloy (SA350 LF3) for Transport and Storage Cask of Spent Nuclear Fuel: Bohye Bak[1]; Byung Jun Kim[1]; In-Wook Park[1]; *Dae-Geun Nam*[1]; [1]Korea Institute of Industrial Technology

D11: Microstructual Evolution of a Medium Carbon Advanced High Strength Steel Heat-treated by Quenching-Partitioning Process: *Ning Zhong*[1]; X. D Wang[1]; Na Min[1]; [1]Shanghai Maritime University

D12: Effects of Heating Rate on the Phase Transformation Temperature of Austenite in M Steel Sheet: *Liu Yandong*[1]; Wei Sun[1]; [1]Northeastern University

D13; Study for Influence of Prereduction Degree on the Softening and Melting Properties of Sinter: *Rui Mao*[1]; [1]University of Science and Technology Beijing

D14: Effect of Low Temperature Heating on the Microstructure and Mechanical Properties of High Strength Stainless Steel Wire Rope: Qingxing Wu[1]; Liuyang Zhang[1]; Shuangxi Song[1]; Vincent Ji[2]; Lihua Liu[3]; Hen Yang[3]; Qinhua Xu[3]; *Chaoying Xie*[1]; [1]Shanghai Jiao Tong University; [2] Univ. Paris-Sud; [3]Jiangsu Fasten Company Limited

D15: The Production of Bio-Steel and its Applied Research on Watches: *Bei Li*[1]; Han Dong[2]; Xianyong Bao[1]; Yuping Lang[2]; Jie Zhou[1]; Changjun Xing[2]; Haiyuan Tang[1]; Fan Rong[2]; Jianyin Weng[1]; Shaohua Sun[2]; [1]Fiyta; [2]CISRI

D16: Mechanical Properties and Microstructure of Friction Stir Welds Using Stainless Steel: *Kwang-jin Lee*[1]; Sang-Hyuk Kim[1]; Ram Song[1]; Kee-do Woo[1]; [1]Korea Institute of Industrial Technology

D17: High Temperature Tensile and Creep Behavior of T92/S304H Dissimilar Weld Joint: Myung-Yeon Kim[1]; Julien Grancier[1]; Eric Fleury[2]; *Jin-Yoo Suh*[1]; Young-Kook Lee[3]; [1]Korea Institute of Science and Technology; [2]Université de Lorraine - Metz; [3]Yonsei University

D18: Fracture Behavior of High Strength Stainless Steel Wire Rope Under Fatigue Test: Qingxing Wu[1]; Lihua Liu[2]; Hen Yang[2]; Liming Wang[2]; Qinhua Xu[2]; *Chaoying Xie*[1]; [1]Shanghai Jiao Tong University; [2]Jiangsu Fasten Company Limited

D19: Zinc Distribution in Blast Furnace and Its Damage Mechanism: Bing Dai[1]; Jianliang Zhang[1]; Zhe Jiang[1]; Cui Wang[1]; *Jiu-Gang Shao*; [1]University Science and Technology Beijing

D20: Study of Multicycle Quenching-Partitioning-Tempering Process: *Xunwei Zuo*[1]; Zhenghong Guo[1]; Nailu Chen[1]; Yonghua Rong[1]; [1]Shanghai Jiao Ttong University

D21: A Nanoscale Duplex Precipitation Approach for Property Enhancement of Fe-base Alloys: *Zhongwu Zhang*[1]; C. T. Liu[2]; X.-L. Wang[2]; M. Miller[3]; B. A. Chin[4]; [1]Harbin Engineering University; Nanjing University of Science and Technology; [2]City University of Hong Kong; [3]Oak Ridge National Laboratory; [4]Auburn University

D22: High-Temperature Deformation Behavior of Carbon Steel Containing Dispersed Fine Voids: *Makoto Okonogi*[1]; Naoki Yoshinaga[1]; Hiromi Miura[2]; [1]Nippon Steel & Sumitomo Metal Corporation; [2]The University of Electro-Communications

E. Light Metals and Alloys: Poster Session

Program Organizers: Fernand Marquis, Naval Postgraduate School; Yongqing Zhao, Northwest Institute for Nonferrous Metal Research; Yoshihito Kawamura, Kumamoto University; Kwang Seon Shin, Seoul National University; Jian-Feng Nie, Monash University; Suveen Mathaudhu, U.S. Army Research Office

Tuesday PM
August 6, 2013

Room: Monarchy
Location: Hilton Waikoloa Village

E1: Age-hardening Behavior of Deformed Excess Mg-type Al-Mg-Si Alloys: *Yurie Ogawa*[1]; Susumu Ikeno[2]; Yasuharu Yoshimura[3]; Kazuhiko Kita[3]; Kenji Matsuda[1]; [1]University of Toyama; [2]Hokuriku Polytechnic College; [3]YKK Co.

E2: Aging Behavior and Microstructure Observation of MgB2/ Al-1.0mass%Mg2Si Composite Materials: *Chihaya Kawamoto*[1]; Kenji Matsuda[1]; Susumu Ikeno[2]; Katsuhiko Nishimura[1]; Yosimitsu Hisinuma[3]; [1]University of Toyama; [2]Hokuriku Polytechnic Collage; [3]National Institute for Fusion Science

E3: Anodizing of Aluminum Foil Using a Sulfuric Acid Bath: *Takumi Mori*[1]; Manabu Takai[2]; Yukihiro Sakamoto[2]; [1]Chiba Institute of Technology

E4: Effect of Ca Addition on the High Temperature Deformation Behavior of AZ31 Magnesium Alloy: *Naoto Sakai*[1]; Kunio Funami[1]; Masafumi Noda[1]; Hisashi Mori[2]; [1]Chiba Institute of Technology; [2]Railway Technical Research Institute

E5: Effect of Cross-slip Activity on Al Single Crystals with Single-slip Orientation: *Chihiro Watanabe*[1]; Yugo Wakamatsu[1]; Ryoichi Monzen[1]; [1]Kanazawa University

E6: Effect of Crystal Grain Orientation on Grain Boundary Fracture in Polycrystalline Al-Zn-Mg-Cu Alloy: *Naoya Miura*[1]; Katsumi Watanabe[1]; Yasuhiro Uetani[2]; Susumu Ikeno[3]; Tomoo Yoshida[4]; Satoshi Murakami[4]; Kenji Matsuda[1]; [1]University of Toyama; [2]Toyama Prefectural University; [3]Hokuriku Polytechnic College; [4]Aisin Keikinzoku Co., LTD

E7: Effect of Cu / Ag Addition on the Age-hardening Behavior in Al-Mg-Ge Alloys: *Keisuke Matsuura*[1]; Kenji Matsuda[1]; Tomoatsu Murakami[1]; Susumu Ikeno[2]; [1]University of Toyama; [2]Hokuriku Polytechnic College

E8: Effect of Rolling on the High Strength of 6N01 Aluminum Alloy: *Hiroaki Kusuhara*[1]; Kunio Funami[1]; Masafumi Noda[1]; Hisashi Mori[2]; [1]Chiba Institute Of Technology; [2]Railway Technical Research Institute

E9: Effect of Shot Peening on Bending Strength of AZ31 Magnesium Alloy Pipe: *Izumi Fukuda*[1]; Yasunori Harada[2]; [1]Kumamoto National College of Technology; [2]Graduate School of Engineering, University of Hyogo

E10: Investigation on Microstructure in As-cast AA7136 Aluminum Alloy and its Evolution during Homogenization: *Zhihui Li*[1]; Yongan Zhang[1]; Baiqing Xiong[1]; Yunqiang Fan[1]; Xiwu Li[1]; Hongwei Liu[1]; Feng Wang[1]; Ranran Zhu[1]; [1]General Research Institute for Non-ferrous Metals

E11: Effects of Post-heat Treatment on Bonding Strength and Mechanical Properties of a Mg-Al Clad Sheet: *Jung-Su Kim*[1]; Hyo Kyung Sung[1]; Kwang Seok Lee[2]; Joong Eun Jung; SungHak Lee[1]; Young Won Chang[1]; [1]POSTECH; [2]KIMS

E12: Grain Refinement in Pure Mg and Mg-Zn Alloys during Hot Compression Test: *Yuko Fukuta*[1]; Daisuke Terada[1]; Nobuhiro Tsuji[1]; Taisuke Sasaki[2]; Kazuhiro Hono[2]; [1]Kyoto University.; [2]National Institute for Materials Science

E13: Grain-size Effect on Deformation Mechanism and Superplasticity of Mg-3Al-1Zn Alloy: M. J. Lee[1]; W. J. Kim[2]; T. J. Lee[2]; *Yong Bum Park*[1]; [1]Sunchon National University; [2]Hongik University

E14: Growth of the AlN and Fe-Al Intermetallic Compound Multilayer as Different Nickel Concentration: *Jung Hyun Kong*[1]; Masahiro Okumiya[1]; Yoshiki Tsunekawa[1]; KyYoul Yun[2]; Sang Gweon Kim[3]; Masashi Yoshida[4]; [1]Toyota Technological Institute; [2]Gifu University; [3]Korea Institute of Industrial Technology; [4]Shizuoka Institute of Science and Technology

E15: HRTEM Observation of Precipitation in Mg-Gd-Y Alloys during Aging at 473K: Daisuke Nakagawa[1]; Junya Nakamura[2]; William Lefebvre[3]; Seiji Saikawa[1]; Susumu Ikeno[4]; *Kenji Matsuda*[1]; [1]University of Toyama; [2]Tohoku University; [3]Universite de Rouen; [4]Hokuriku Polytechnic College

E16: Influence of Deformation Twin on Fatigue Crack Growth in Extruded AZ31 Magnesium Alloy: *Shigeki Morita*[1]; Koya Matsushita[1]; Seiya Fujiwara[1]; Tsuyoshi Mayama[2]; Nobusuke Hattori[1]; [1]Saga University; [2]Kumamoto University

E17: Influence of Plastic Processing on Mechanical Properties of Mg-6Al-1Zn-1Ca Alloy with Coarse Grain: *Masafumi Noda*[1]; Kunio Funami[1]; Naoto Sakai[1]; Takuma Yasukawa[1]; Takahito Hamada[1]; Hisashi Mori[2]; [1]Chiba Institute of Technology; [2]Railway Technical Research Institute

E18: Microstructural Features and Age Hardening in an Al-Mg-Ga Sacrificial Anode Alloy: *Myeong Heom Park*[1]; Daisuke Terada[1]; Manuel Marya[2]; Nobuhiro Tsuji[1]; [1]Kyoto University; [2]Schlumberger Technology Corporation

E19: Microstructure Evolution of AZ91D Magnesium Alloy during Extrusion-Torsion Simultaneous Processing: *Mitsuaki Furui*[1]; Shoyo Sakashita[1]; Kazuya Shimojima[1]; Tetsuo Aida[1]; Kiyoshi Terayama[1]; Yuusuke Ishizaka[2]; Masayuki Yamamoto[2]; Masayuki Ohta[2]; [1]University of Toyama; [2]Tsukiboshi Corporation

E20: Observation of Equilibrium Phase for Cu or Ag Addition Al-Mg-Si Alloys: *Shintaro Hida*[1]; Katsumi Watanabe[1]; Momoko Tokuda[1]; Susumu Ikeno[1]; Kengi Matsuda[1]; [1]University of Toyama

E21: Recovery and Recrystallization in 1050 Aluminum Alloy after Cold-rolling at 50 %: *Takuya Kajiura*[1]; Atsushi Yamamoto[1]; [1]University of Hyogo

E22: Relation between Texture Development and Creep Resistance of Extruded Mg-Zn-Gd Alloys with LPSO Phase: *Yuri Jono*[1]; Michiaki Yamasaki[1]; Yoshihito Kawamura[1]; [1]Kumamoto University

E23: Variation of Aging Behavior for Cu or Ag Addition Al-Zn-Mg Alloys: *Katsumi Watanabe*[1]; Susumu Ikeno[2]; Tomoo Yoshida[3]; Satoshi Murakami[3]; Kenji Matsuda[1]; [1]University of Toyama; [2]Hokuriku Polytechnic College; [3]Aisin Keikinzoku Co.

E24: A Study for Fabrication of Extrusion Tube in Mg-Al-Sn-Ag Alloys Using Seamless Extrusion Process: *Hyeon-Taek Son*[1]; Yong-Ho Kim[1]; Jung-Han Kim[1]; Hyo-Sang Yu[1]; [1]Korea Institute of Industrial Technology

E25: Achieving a Good Combination of Strength and Ductility in an Equal-channel Angular Pressed Mg97.1Zn1Gd1.8Zr0.1 Alloy: *Ai-Bin Ma*[1]; Fumin Lu[1]; Jinghua Jiang[1]; Donghui Yang[1]; Dan Song[1]; Yuchun Yuan[1]; Jianqing Chen[1]; [1]Hohai University

E26: Effects of Annealing Temperature on the Recrystallization Behavior and Microstructure of Al-Mn Alloys with Different Second Phase Particles: *Lee YongChul*[1]; Hiroyasu Tezuka[1]; Equo Kobayashi[1]; Tatsuo Sato[1]; [1]Tokyo Institute of Technology

E27: Fabrication of Micro-fine Spherical Ti-6Al-4V Alloy Powders Based on Hydrogen Decrepitation and Plasma Spheroidization: *Cheng-cheng Liu*[1]; Xin Lu[1]; Xuan-hui Qu[2]; [1]School of Materials Science and Engineering,University of Science and Technology Beijing; [2]State Key Laboratory for Advanced Metals and Materials,University of Science and Technology Beijing

E28: Microstructure and Mechanical Properties of Diecasting AZ91D Alloy with Different Cooling Rate: *Heon Kang*[1]; Seung Won Kang[1]; Dong Hyun Bae[1]; [1]Yonsei University

E29: Microstructure and Mechanical Properties of As-rolled Mg-Zn-Zr-Ag-Ca-Li Alloys with Rolling Temperature: *Hyo-Sang Yoo*[1]; Hyeon-Taek Son[1]; Seong-Hee Lee[2]; Yong-Ho Kim[1]; Jung-Han Kim[1]; Jeong-Won Choi[1]; [1]Korea Institute of Industrial Technology; [2]Dept. of Advanced Materials Science and Engineering, Mokpo National University

E30: Selective Laser Melting of Al-based Alloys: *Prashanth Konda Gokuldoss*[1]; Sergio Scudino[1]; Lukas Löber[1]; Zhi Wang[1]; Uta Kuehn[1]; Jürgen Eckert[1]; [1]Leibniz Institute for Solid State and Materials Research

E31: Effect of Si and Ca Additions on Microstructure of As-Cast Mg-Sn-Sr Alloy: *You Junhua*[1]; [1]Shenyang University of Technology

E32: Friction Study of Magnesium Alloy on Plastic Deformation: *Liqun Ruan*[1]; Akihide Maeda[1]; Shunsuke Ezaki[1]; Sihiko Hatori[1]; [1]Kumamoto University

E33: Influence of High Magnetic Field on Intermediate Phase Growth in Mg-Al Diffusion Couple: *Chunyan Ban*[1]; Chuhan Wang[1]; Yimeng Hu[1]; Lian Liu[1]; Jianzhong Cui[1]; [1]Northeastern University

E34: Organic Coatings To Prevent Molten Metal Water Explosions in Aluminium Plants: *Alex Lowery*[1]; George Stavnes[2]; [1]WISE CHEM LLC; [2]Pyrotek Inc

E35: Study on the Hot Tearing Susceptibility of Mg-7Al-xCa-2Si-0.8Zn-0.5Sr-0.4Mn Heat-resistant Magnesium Alloys: You Junhua[1]; *Tao Siwei*[1]; Qiu Keqiang[1]; [1]Shenyang University of Technology

E36: Influence of Y/Zn Mole Ratio on the Phase Composition and Mechanical Properties of Mg-Y-Zn Alloys: *Huan Liu*[1]; Feng Xue[1]; Jing Bai[1]; Jian Zhou[1]; [1]Southeast University

E37: Hot Deformation Behavior of an Al-7.6Zn-1.8Mg-1.4Cu-0.12Zr Alloy: *Xiwu Li*[1]; Baiqing Xiong[1]; Yongan Zhang[1]; Zhihui Li[1]; Feng Wang[1]; Hongwei Liu[1]; Lizhen Yan[1]; [1]General Research Institute for Nonferrous Metals

E38: The Effects of Mischmetal on Reheating and Microstructure of Semi Solid Mg-8Al-0.3Mn Alloy: *Taeyoung Choi*[1]; Dae-Hwan Kim[1]; Sugun Lim[1]; [1]i-Cube Center, ReCAPT, Gyeongsang National University

E39: Analysis of Molten Melt Behavior in High Pressure Diecasting Sleeve by Water Modeling: *Jihwan Choi*[1]; Cheolwung Lee[1]; Sungbum Park[1]; Pilhwan Yun[1]; Jinyoung Park[1]; Eoksoo Park[1]; [1]Korea Institute of Industrial Technology

E40: Effect of Sn and Ca Addition on Microstructure and Mechanical Properties of Mg-3Zn-11Li Based Alloy: *Jung-Han Kim*[1]; Hyeon-Taek Son[1]; Hyo-Sang Yoo[1]; Yong-Ho Kim[1]; Jeong-Won Choi[1]; [1]Korea Institute of Industrial Technology

E41: Effect of Zn/Mg on Aging Behavior in Al-Zn-Mg Alloys: *Masatomo Nishi*[1]; Naoya Miura[1]; Katsumi Watanabe[1]; Susumu Ikeno[2]; Tomoo Yoshida[3]; Satoshi Murakami[3]; Kenji Matsuda[1]; [1]University of Toyama; [2]Hokuriku Polytechnic College; [3]Aisin Keikinzoku Co., LTD

E42: Texture Development and Mechanical Properties in ATX630 Mg Alloy by Twin Roll Strip Casting: *Yong Bum Park*[1]; Myung Jae Lee[1]; [1]Sunchon National University

E43: Behavior of Intermetallic Compound in Al-Si-Cu Alloy with Cooling Rate Variation: *Pil Hawn Yun*[1]; Sungbum Park[1]; Insik Lee[1]; Jihwan Choi[1]; Jinyoung Park[1]; Eoksoo Kim[1]; [1]Korea Institute of Industrial Technology

F. Composites and Hybrid Materials: Poster Session

Program Organizers: Fernand Marquis, Naval Postgraduate School; Di Zhang, Shanghai Jiao Tong University; Yutaka Kagawa, The University of Tokyo; Jae Chul Lee, Korea University; Yuri Estrin, Monash University; Nikhilesh Chawla, Arizona State University

Tuesday PM
August 6, 2013

Room: Monarchy
Location: Hilton Waikoloa Village

F1: Effect of Boron Nitride Nanotube in Titanium Composite: *Md Mahedi Hasan Bhuiyan*[1]; Luhua Li[1]; Peter Hodgson[1]; Ying Chen[1]; [1]Deakin University

F2: Effects of Foam Agent on the Properties and Microstructure of Porous Anorthite/Mullite Ceramics by Foam Gel-casing Method: *Cuiwei Li*[1]; Yamei Lin[1]; Yao Han[1]; Chang-An Wang[2]; [1]Beijing Jiaotong University; [2]Tsinghua University

F3: Effect GeO2 on Sintering and Electrical Properties of (K0.5-x/2Na0.5-x/2Lix) (Ta0.2Nb0.8)O3 Lead-free Piezoelectric Ceramics: *Kepi Chen*[1]; Feng Gao[1]; [1]North China Electric Power University

F4: Wettability Enhancement between Aluminum and Carbon Nanotubes by Functionalization with Nickel Oxide: Tae-Hoon Kim[1]; Min-Ho Park[1]; Kwan-Woo Song[1]; Jee-Hwan Bae[1]; *Cheol-Woong Yang*[1]; [1]Sunkyunkwan University

F5: Characteristic of Al/Graphite Metal Matrix Composites via Friction Stir Processing: *Ram Song*[1]; Kwang-jin Lee[1]; Sang-hyuk Kim[1]; Kyung-won Seol[2]; [1]Korea Institute of Industrial Technology; [2]Chonbuk National University

F6: Fabrication of Al-Cu Clad Plates by Hybrid Roll Casting: *Kwang Seok Lee*[1]; Su Eun Lee[1]; Yong-Nam Kwon[1]; [1]Korea Institute of Materials Science

G. Biomaterials, Smart Materials, and Structures: Poster Session

Program Organizers: Fernand Marquis, Naval Postgraduate School; Chengbao Jiang, Beihang University; Takayuki Narushima, Tohoku University; Byong Taek Lee, Soonchunhyang University; Anita Hill, CSIRO; R. Narayan, UNC/NCSU Joint Department of Biomedical Engineering

Tuesday PM
August 6, 2013

Room: Monarchy
Location: Hilton Waikoloa Village

G1: Analytical Model for Polymerization Characteristic of Dental Composite Resin: *Sang-Jae Yoon*[1]; Mariko Nishimura[1]; Kazuo Arakawa[1]; [1]Kyushu Univeristy

G2: Antibacterial Ceramic Fabricated by the Ti-bearing Blast Furnace Slag: *Ang Tian*[1]; He Yang[2]; Xiangxin Xue[2]; Yong Li[2]; [1]Northeastern University ; [2]Northeastern University

G3: Effects of Pore Characteristics on the Mechanical Properties of Porous Commercial Pure Titanium: *Yongmoon Lee*[1]; Byeonggab Lee[1]; Dong Jun Lee[1]; Jiwon Jeong[1]; Sang Ho Oh[1]; Hyeong Seop Kim[1]; Chong Soo Lee[1]; [1]POSTECH

G4: Electrochemical Etching of Nitinol Using a New Electrolyte Solution: *Zhendi Yang*[1]; Peng Cao[1]; [1]University of Auckland

G5: High Curie Temperature Mn Doped Bi2Te3 Nanoplates: Lina Cheng[1]; Zhigang Cheng[1]; Song Ma[2]; Zhidong Zhang[2]; Gaoqing (Max) Lu[1]; *Jin Zou*[1]; [1]The University of Queensland; [2]Institute of Metal Research

G6: Production of High Translucent Self-Colored Dental Zirconia Blocks: *Guray Kaya*[1]; Selvin Yesilay Kaya[2]; Erhan Ayas[2]; Rasim Ceylantekin[1]; Büsra Günhan[1]; [1]Dumlupinar University; [2]Anadolu University

G7: Mid-infrared Surface Plasmon Resonance Sensors Based on the Crystalline Chalcogenide Thin Films: *Taek-Sung Lee*[1]; Yong Gun Kwon[1]; Inho Kim[1]; Kyeong-Seok Lee[1]; Won Mok Kim[1]; Tae-Yeon Seong[2]; [1]Korea Institute of Science and Technology; [2]Korea University

G8: Photocatalytic Activity of TiO_2 Layer Formed by Two-step Thermal Oxidation: *Shota Sado*[1]; Kyosuke Ueda[1]; Takayuki Narushima[1]; [1]Tohoku University

G9: Plasma Electrolytic Oxidation Treatment of Pure Magnesium for Potential Biological Application: *Jonathan Hu*[1]; Xueyuan Nie[1]; [1]University of Windsor

G10: Polymer-Cu/TiO2 Antimicrobial Coatings: *Xiaojin Wei*[1]; Wei Gao[1]; [1]The University of Auckland

G11: Preparation of Ag-doped Calcium Phosphates: *Ozkan Gokcekaya*[1]; Kyosuke Ueda[1]; Takayuki Narushima[1]; Celaletdin Ergun[2]; [1]Tohoku University; [2]Istanbul Technical University

G12: Probing the Interface between Oppositely Charged Surfactant-Polymer Solutions for Complex Nanostructures Using Synchrotron Small Angle X-ray Scattering: *Kristian Tangso*[1]; Patrick Spicer[2]; Patrick Hartley[3]; Seth Lindberg[4]; Nigel Kirby[5]; Robert Knott[6]; Ben Boyd[1]; [1]Monash University; [2]University of New South Wales; [3]Commonwealth Scientific and Industrial Research Organisation; [4]The Procter and Gamble Company; [5]Australian Synchrotron; [6]Australian Nuclear Science and Technology Organisation

G13: Sequential Release of Two Drugs from Flexible Drug Delivery Films: *Cheryl Rabek*[1]; Thomas Dziubla[1]; David Puleo[1]; [1]University of Kentucky

G14: Effect of Austenite Aging on $Co_{46}Ni_{25}Ga_{29}$ High-temperature Shape Memory Alloy: *Yan Xin*[1]; Yan Li[2]; [1]North China Electric Power University; [2]Beihang University

G15: Permselective Microstructures Fabricated Using the X-ray Lithography: *Sang Hoon Han*[1]; Cara Doherty[1]; Benedetta Marmiroli[2]; Anita Hill[1]; Paolo Falcaro[1]; [1]CSIRO; [2]Austrian Academy of Science

G16: Microstructure, Mechanical Property and Biocompatibility of Ti-Nb Based Composite with CPP Fabricated by Rapid Sintering: *Kee-Do Woo*[1]; Dong-Soo Kang[1]; Dong-Gun Kim[1]; Min-Soo Kim[1]; Hyung-Sup Kang[1]; [1]Chonbuk National University

G17: Physical Properties of Binary Ti-xZr Alloys for Dental Material: Ji Hyun Kong[1]; Yu Kyoung Kim[2]; Il Song Park[2]; Tae Sung Bae[2]; *Min Ho Lee*[2]; [1]Myong Sung Dental Clinic; Chonbuk National University; [2]Chonbuk National University

G18: Deformation Induced Changeable Young's Modulus in Ternary Ti-Cr-O Alloys for Spinal Fixation Applications: *Huihong Liu*[1]; Mitsuo Niinomi[1]; Masaaki Nakai[1]; Junko Hieda[1]; Ken Cho[1]; [1]Institute for Materials Research, Tohoku University

G19: Hydroxyapatite: Adjustments of Morphology for Sensors: *Yong Liu*[1]; Ying Zhang[1]; Bing Yang[1]; Qing Zhang[1]; [1]Central South University

G20: Mg-Zn-Y Alloys with Long-period Stacking Ordered Structure for Biodegradable Implants: Xu Zhao[1]; Ling-ling Shi[1]; *Jian Xu*[1]; [1]Institute of Metal Research, Chinese Academy of Sciences

G21: Production of Beta Titanium Alloys of Ti-Nb-Fe-Sn System for Orthopedic Implants.: *Conrado Afonso*[1]; Rubens Caram[2]; [1]Universidade Federal de São Carlos (UFSCar); [2]Unicamp

G22: A Novel Biomedical ß-type Ti alloy TLM materials Used in Teeth Implants: *Yu Zhentao*[1]; Yu Sen[1]; Zhang Yafeng[1]; Ma Xiqun[1]; [1]Northwest Institute for Nonferrous Metal Research

H. Rare Earth, Electronic, and Magnetic Materials: Poster Session

Program Organizers: Fernand Marquis, Naval Postgraduate School; Wei Li, Central Iron & Steel Research Institute; Koki Takanashi, Tohoku University; Woo Young Lee, Yonsei University; Mark Ridgway, Australian National University; Sungho Jin, UC San Diego

Thursday PM
August 8, 2013

Room: Monarchy
Location: Hilton Waikoloa Village

H1: 4 Terminal Non-local Signals in Lateral Transport Devices with Various Ordered Co2FeAl0.5Si0.5 Full-Heusler Alloy Electrodes: *Tatsuya Saito*[1]; Nobuki Tezuka[1]; Masashi Matsuura[1]; Satoshi Sugimoto[1]; [1]Tohoku University

H2: Coercivity and Grain Boundary Microstructure in Sintered Nd-Fe-B Magnets Modified by DyF_3: *Jing Wang*[1]; Fang Xu[2]; Mengyan Wu[1]; Xianping Dong[1]; Lanting Zhang[1]; [1]Shanghai Jiao Tong University; [2]AVIC Commercial Aircraft Engine Co.Ltd

H3: Estimates of Diffusion Coefficient of Nd Inside the Nd-Fe-B in Liquid Mg by Liquid Metal Extraction (LME) Process: *Hong Jun Chae*[1]; Sunwoo Nam[1]; Bum Sung Kim[1]; Taek-Soo Kim[1]; [1]KITECH

H4: Fabrication and Magnetic Anisotropy of $L1_0$-FeNi Films Prepared on Metallic Single Crystal Substrates: *Takayuki Kojima*[1]; Misako Ogiwara[1]; Masaki Mizuguchi[1]; Masato Kotsugi[1]; Koki Takanashi[1]; [1]Institute for Materials Research, Tohoku University

H5: Hybrid Element of Magnetic Quantum Cellular Automata and Domain Wall Logic: *Hikaru Nomura*[1]; Fumikiko Nakamura[1]; Yuya Takeda[1]; Soichiro Miura[1]; Shun Hirai[1]; Ryoichi Nakatani[1]; [1]Osaka University

H6: Preparation of Ultra-fine Nd-Fe-B Powder for Nd-Fe-B Sintered Magnet: *Michihide Nakamura*[1]; Masashi Matsuura[1]; Nobuki Tezuka[1]; Satoshi Sugimoto[1]; Yasuhiro Une[2]; Hirokazu Kubo[2]; Masato Sagawa[2]; [1]Tohoku university; [2]Intermetallics Co., Ltd.

H7: Study of Post-sintering Annealing of an N38SH Grade Sintered NdFeB Magnet with Low Oxygen Content: *Mengyan Wu*[1]; Lihua Liu[1]; Chong Ma[1]; Jing Wang[1]; Jiangdong Zhang[2]; Lanting Zhang[1]; [1]Shanghai Jiao Tong University; [2]Roco Magnetics Co., LTD

H8: Substoichiometric Sintering of Rare-earth Oxides: *J. B. Henderson*[1]; [1]Netzsch Instruments North America LLC

H9: Electrochemical Hydrogen Storage Kinetics of the As-melt La0.75-xMxMg0.25Ni3.2Co0.2Al0.1 (M = Zr, Pr; x = 0-0.2) Alloys Applied to Ni-MH Battery: *Yanghuan Zhang*[1]; Tingting Zhai[1]; Tai Yang[1]; Hongwei Shang[1]; Dongliang Zhao[1]; [1]Central Iron and Steel Research Institute

H10: Structural, Magnetic Properties and Magnetocaloric Effect of $Mn_{1.2}Fe_{0.8}P_{0.6}Si_{0.4}B_{1-x}$ Compounds: Zheng Zhigang[1]; Tan Zhucai[1]; Zhong Xichun[1]; Liu Zhongwu[1]; *Zeng Dechang*[1]; [1]South China University of Technology

H11: Upconversion Luminescence of Ho3+/Tm3+/Yb3+ Co-doped CaMoO4 Nanoparticles: *Jeong Ho Ryu*[1]; Hyun Cho[2]; [1]Korea National University of Transportation; [2]Pusan National University

H12: Morphology and Crystalline Structure of ZnO Formed by Internal Oxidation in Pd: *Kei Watanabe*[1]; Norihito Sakaguchi[1]; Kazuya Kurokawa[1]; [1]Hokkaido University

H13: Massive Crystallization in FeSiNbBCu Alloys under Rapid Annealing Conditions: *Pradeep Konda Gokuldoss*[1]; Pyuck-Pa Choi[1]; Aleksander Kostka[1]; Giselher Herzer[2]; Dierk Raabe[1]; [1]Max Planck Institute for Iron Research GmbH; [2]Vacuumschmelze GmbH&Co.KG

H14: Microstructure and Magnetic Properties of Ce-Nd-Fe-B Powder Prepared by Crystallization from Amorphous State: *Changjiang Yan*[1]; Shuai Guo[1]; Renjie Chen[1]; Don. Lee[1]; Aru Yan[1]; [1]Ningbo Institute of Materials Technology & Engineering, Chinese Academy of Sciences

H15: Meallization from Neodymium (III) Compound by Chemical and Electrowinning Process: *Hong-Youl Ryu*[1]; Wan-Gou Kim[1]; Hayk Nersisyan[1]; Go-Gi Lee[2]; Jong-Hyeon Lee[1]; [1]Chungnam National University; [2]Research Institute of Industrial Science and Technology

H16: Metal Electrode Effect on Nanocapacitor Performance: *Matt OKeefe*[1]; Wayne Huebner[1]; James Claypool[1]; [1]Missouri S&T

H17: Fabrication of Dense Non-circular Nanomagnetic Device Arrays Using Self-limiting Low-energy Glow-discharge Processing: *Dmitri Litvinov*[1]; Zhen Zheng[1]; Long Chang[1]; Paul Ruchhoeft[1]; [1]University of Houston

H18: Optimization of Remanence Temperature Coefficient and Magnetic properties of Sintered 2:17 Type SmCo Magnets Prepared by Strip-casting Technique: *Zhuang Liu*[1]; Lei Liu[1]; Ren Chen[1]; Ying Sun[1]; Xing Liu[1]; Don Lee[1]; A Yan[1]; [1]Ningbo Institute of Materials Technology & Engineering , Chinese Academy of Sciences

H19: Recycle Rare Earth from Waste Phosphor by a Two-step Method: *Hu Liu*[1]; Shengen Zhang[1]; De'an Pan[1]; Jianjun Tian[1]; Min Yang[1]; Bin Li[1]; Bo Liu[1]; [1]University of Science and Technology Beijing

I. Thin Films and Surface Engineering: Poster Session

Program Organizers: Fernand Marquis, Naval Postgraduate School; Chuang Dong, Dalian University of Technology; Takashi Goto, Tohoku University; Kyung-Ho Shin, Korea Institute of Science and Technology; Mingxing Zhang, The University of Queensland; Amit Misra, Los Alamos National Laboratory

Thursday PM
August 8, 2013

Room: Monarchy
Location: Hilton Waikoloa Village

I1: Change in Thermoelectric Property of Bismuth Telluride Thin Films Depending on Crystal Preferred Orientation: *Masahiro Goto*[1]; Michiko Sasaki[1]; Yibin Xu[1]; Tianzhuo Zhan[1]; Akira Kasahara[1]; Masahiro Tosa[1]; Yukihiro Isoda[1]; Yoshikazu Shinohara[1]; [1]National Institute for Materials Science

I2: Characterization and Corrosion Behavior of Oxide Layer on Mg Alloy via Plasma Electrolytic Oxidation in Two Different Electrolytes: *Kang Min Lee*[1]; Eung Seok Lee[1]; Sang Il Yoon[1]; Bongyoung Yoo[1]; Young Gun Ko[2]; Dong Hyuk Shin[1]; [1]Hanyang University; [2]Yeungnam University

I3: Effects of Processing Temperatures on the Characteristics of the Surface Hardened Layer Produced on Duplex Stainless Steel by Low Temperature Plasma Nitrocarburizing: *Insup Lee*[1]; [1]Dongeui University

I4: Effects of the Counterpart Material on Tribological Properties of Carbon Nitride Synthesized Using MWPCVD: *Ippei Tanaka*[1]; Yukihiro Sakamoto[1]; [1]Chiba Institute of Technology

I5: Giant Magnetoresistance of CoNi/Cu Multilayered Nanowires Electrodeposited into Anodized Aluminum Oxide Nanochannels: *Yu Zenimoto*[1]; Takeshi Ohgai[1]; Masumi Nakai[2]; Shunji Hasuo[2]; [1]Nagasaki University; [2]Kyushu Mitsui Aluminium Co. Ltd.

I6: Low-temperature Active-screen Plasma Nitriding of 17-4 PH Stainless Steel: *Akio Nishimoto*[1]; Kimiaki Nagatsuka[1]; Katsuya Akamatsu[1]; [1]Kansai University

I7: Mechanism of Formation of Whisker in Deformed Pure-Sn Thin Film: *Kiyomichi Nakai*[1]; Tatsuaki Sakamoto[1]; Takayuki Notsuda[1]; Masao Takamizawa[2]; Sengo Kobayashi[1]; Koji Murakami[3]; Makoto Hino[3]; [1]Ehime University; [2]OM Sangyo; [3]Industrial Technology Center of Okayama Prefecture

I8: Microstructural and Corrosion Characterizations of Nickel-Titanium Coatings Produced by Electrochemical Codeposition and Heat Treatment: *Pathompong Janetaisong*[1]; Ratchatee Techapiesancharoenkij[1]; Yuttanant Boonyongmaneerat[2]; [1]Kasetsart University; [2]Chulalongkorn University

I9: Novel Carbon and Nitrogen Diffusion Treatment for Anodic Titanium Oxide Film: *Mitsutaka Yoshimoto*[1]; Agawa Shinji[1]; Morizono Yasuhiro[1]; Tsurekawa Sadahiro[1]; [1]Kumamoto University

I10: Preparation of CNx Films by Reactive Sputtering -Effects of Sputtering Gas on the Film Structure and Mechanical Properties-: *Tomoyasu Shiroya*[1]; Yukihiro Sakamoto[2]; [1]Graduate Shool, Chiba Institute of Technology; [2]Chiba Institute of Technology

I11: Prevention of Soot Deposition in Direct Carburizing by Injection of Water Vapor: *Satoshi Sakuda*[1]; Masahiro Okumiya[1]; Jung Hyun Kong[1]; Yoshiki Tsunekawa[1]; Masaki Yamada[2]; Seiya Simizu[2]; [1]Toyota Technological Institute; [2]TOHO GAS CO.,LTD.

I12: Quantum Chemical Molecular Dynamics Simulations on Chemical Reaction Dynamics during the GaN Etching Processes: *Kazuyuki Yanagiya*[1]; Hiroshi Ito[1]; Takuya Kuwahara[1]; Yuji Higuchi[1]; Nobuki Ozawa[1]; Momoji Kubo[1]; [1]Tohoku University

I13: Reaction Kinetics of $SrTiO_3$ Deposition in Supercritical CO_2: *Kyubong Jung*[1]; Yu Zhao[1]; Takeshi Momose[1]; Yukihiro Shimogaki[1]; [1]The University of Tokyo

I14: Stability of Structural Ceramic Materials in Liquid Bismuth Cathode: *Daeyoung Kim*[1]; Junbo Sim[2]; Jonghyeon Lee[3]; [1]Chungnam national university; [2]Korea Atomic Energy Research Institute; [3]Chungnam National University

I15: Strontium Titanate Buffer Layers onCu/33%Ni Substrates Using a Novel Solution Chemistry: *Asanka Pallewatta*[1]; Yue Zhao[1]; Jean-Claude Grivel[1]; [1]Technical University of Denmark

I16: Study on Contact Conditions in the Contact Surfaces between Tool and Workpiece under Lubrication in Material Forming: Qidi Zhang[1]; Tomohiro Nonaka[2]; Yutaka Sakata[2]; *Yasuo Marumo*[1]; Kazuki Gotoh[1]; Liqun Ruan[1]; [1]Kumamoto University; [2]Nishinippon Institute of Technology

I17: Surface Modification of Boron-doped Diamond with H2O Plasma: *Shuji Tamamura*[1]; Hikaru Shimomura[1]; Yukihiro Sakamoto[1]; [1]Chiba Institute of Technology

I18: Synthesis and its Characteristics of Super-hard Amorphous Al-Mg-B Thin Film Prepared by Magnetron Sputtering: *Aimin Wu*[1]; Wenchao Qu[1]; Hanqing Qu[2]; Xin Jiang[3]; [1]Dalian University of Technology; [2]Dalian University; [3]Siegen University

I19: The Effect of Fluorine-based Inductively Coupled Plasma Pre-treatments on Nucleation for Nanocrystalline Diamond Film Growth: Jong Cheon Park[1]; Ok Geun Jeong[1]; Jin Kon Kim[1]; Tae Gyu Kim[1]; Sungu Hwang[1]; Jeong Ho Ryu[2]; Byeong Woo Lee[3]; *Hyun Cho*[1]; [1]Pusan National

University; [2]Korea National University of Transportation; [3]Korea Maritime University

I20: The Surface Area of Alumina and Titania Plasma Electrolytic Oxide Coatings: *Liza Mirelman*[1]; Ming Chung[1]; James Curran[1]; T.W. Clyne[1]; [1]University of Cambridge

I21: ZnTe Compound Semiconductor Thin Films Electrodeposited from Acidic Aqueous Solution: *Jun Ohta*[1]; Yusaku Sugawa[1]; Keizo Takao[1]; Takeshi Ohgai[1]; [1]Nagasaki University

I22: Enhancing the Efficiency of Photocatalytic Film by Applying Elastic Strain on Shape Memory Alloy Substrate: *Liqiang Zhang*[1]; Yang Shao[1]; Yunpeng Guo[1]; Daqiang Jiang[1]; Feng Yang[1]; Minshu Du[1]; Lishan Cui[1]; [1]China University of Petroleum

I23: Improved Electrical Stability Using Multilayer Channels Grown by Atomic Layer Deposition in Oxide Thin-film-transistors: So Hee Kim[1]; *Cheol Hyoun Ahn*[1]; Myung Gu Yun[1]; Sung Woon Cho[1]; Hyung Koun Cho[1]; [1]Sungkyunkwan University

I24: Good Anticorrosion Properties of Micro-arc Oxidation Coating on Ultrafine-grained AZ91D Mg Alloy Fabricated by Multi-pass ECAP Process: *Jinghua Jiang*[1]; Qi Zhou[1]; Ai-bin Ma[1]; Dan Song[1]; Fu-min Lu[1]; Jian-qing Chen[1]; Dong-hui Yang[1]; [1]Hohai University

I25: Densification and Microstructure of the Gas-atomized Cu-In-Ga Alloy Powder by Sintering and Pressing at Low Temperature: *Hyeon-Taek Son*[1]; Hyo-Sang Yu[1]; Jung-Han Kim[1]; [1]Korea Institute of Industrial Technology

I26: Characteristics of Plasma Electrolytic Deposition for Low Carbon Steel: *Eung Seok Lee*[1]; Kang Min Lee[1]; Ki Ryong Shin[1]; Bongyoung Yoo[1]; Young Gun Ko[2]; Dong Hyuk Shin[1]; [1]Hanyang University; [2]Yeungnam University

I27: SAMs on Oxide Surfaces: Growth and Structures: Hans-Georg Steinrück[1]; Moshe Deutsch[2]; Ben Ocko[3]; *Andreas Magerl*[1]; [1]Universität Erlangen Nürnberg; [2]Bar-Ilan University; [3]Brookhaven National Laboratory

I28: Interdiffusion Behavior at Interface Between NiAlHfSi Coatings and Ni3Al Based Superalloy Substrates: Yue Ma[1]; *Xueyuan Gong*[1]; Yanling Pei[1]; Shushuo Li[1]; Shengkai Gong[1]; [1]Beihang University

I29: Influence of Na_2WO_4 in Electrolyte on Mechanical Properties of Al Alloy via Plasma Electrolytic Oxidation Coating: *Young Gun Ko*[1]; Ki Ryong Shin[2]; Bong Kwon Jung[1]; Kang Min Lee[2]; Dong Hyuk Shin[2]; [1]Yeungnam University; [2]Hanyang University

J. Materials and Processes for Enhanced Performance: Poster Session

Program Organizers: Fernand Marquis, Naval Postgraduate School; Jishan Zhang, USTB; Yoshimi Watanabe, Nagoya Institute of Technology; Young-Kook Lee, Yonsei University; Robert O'Donnell, CSIRO; Jie Liu, Duke University

Thursday PM
August 8, 2013

Room: Monarchy
Location: Hilton Waikoloa Village

J1: Effect of Heat Treatment on the Mechanical Properties of HT9 Fuel Cladding Tube for Sodium-cooled Fast Reactor (SFR): *Jun Hwan Kim*[1]; Jong Hyuk Baek[1]; Sung Ho Kim[1]; Chan Bock Lee[1]; [1]Korea Atomic Energy Research Institute

J2: Finite Element Modeling for Rolling of a Multi Layer Plate Composed of Teflon-Cu-SPCC Steel: *Yong-Shin Lee*[1]; Sang-Hun Yoon[1]; [1]Kookmin University

J3: Microstructures and Electrical-Mechanical Properties of Cu–Cr–Zr and Cu–Cr–Zr–Ti Alloys Heat-treated in Hydrogen: *Atsunori Kamegawa*[1]; Yuta Abiko[1]; Takahiro Kuriiwa[1]; Masuo Okada[2]; [1]Tohoku University; [2]Hachinohe National College of Technology

J4: Corrosion Behavior of Ni and Cr Additive Low Alloy Steels during Corrosion Cycle Test: *Akira Sunahara*[1]; Kazuhiko Noda[1]; Hideki Katayama[2]; Hiroyuki Masuda[2]; [1]Shibaura Institute of Technology; [2]National Institute for Materials Science

J5: Corrosion Resistance Enhancement of 304 Stainless Steel under Droplet of Chloride Solution by Mechanical Surface Treatment: *Teguh Widodo*[1]; Kazuhiko Noda[1]; [1]Shibaura Institute of Technology

J6: Electrochemical Characterization of Stainless Steel in Boric-Borate Buffer Solutions: *Akane Moriyasu*[1]; Tomo Saito[2]; Kazuhiko Noda[1]; [1]Shibaura Institute of Technology; [2]Osaka University

J7: Evaluation of Corrosion Protection Effect on Zinc by Using Galvanic Current Measurements: *Kohei Ito*[1]; Kazuhiko Noda[1]; [1]Shibaura Institute of Technology

J8: Large Electron Beam Polishing of the Patterned Al6061/SUS304 Metal Plates: *Hyung Park*[1]; Jisu Kim[1]; [1]Ulsan National Institute of Science and Technology

J9: Localized Corrosion Resistance of Co-Cr Alloy in NaCl Solution: *Ryouji Suzuki*[1]; Kazuhiko Noda[1]; Yusuke Tsutsumi[2]; Takao Hanawa[2]; [1]Shibaura institute of technology; [2]Tokyo Medical and Dental University

J10: Mechanical Properties and Welding Conditions of Monopile and Transition for Offshore Wind Plant: Donghyun Kim[1]; In-Wook Park[1]; *Daegeun Nam*[1]; [1]Korea Institute of Industrial Technology

J11: Microstructure and Mechanical Properties in Mg-3Al-1Zn Alloy Sheet Fabricated by Asymmetric Hot Extrusion: *Yinong Wang*[1]; Ling Wang[1]; [1]Dalian University of Technology

J12: Microstructure and Mechanical Properties of Cu-Sn Alloy with Harmonic Structure: Hiroshi Fujiwara[1]; *Takashi Nishimoto*[1]; Hiroyuki Miyamoto[1]; Kei Ameyama[2]; [1]Doshisha University; [2]Ritsumeikan University

J13: Surface Reaction of High Corrosion Resistance Metals in Atmospheric Corrosion Environment: *Youhei Hirohata*[1]; Kazuhiko Noda[1]; Hideki Katayama[2]; Hiroyuki Masuda[2]; [1]Shibaura Institute of Technology; [2]National Institute for Materials Science

J14: Manufacture of Pure Si Powders from an Al-Si Alloy: *Ki Young Kim*[1]; Jong-Sik Shin[1]; [1]Korea University of Technology and Education

J15: Study of the Effects of the Sintering and Poling Processing on the Phase Structure and Properties of KNNLN Ceramics: *Yongjie Zhao*[1]; Dong Yan[1]; Rongzheng Liu[1]; Yuzhen Zhao[1]; Heping Zhou[1]; Qingfeng Guo[1]; [1]Tsinghua University

J16: Effect of Strain-induced Precipitation on Microstructures and Fatigue Propoerties of AA 7050 Alloy: Yu-Jing Lang[1]; Long-gang Hou[1]; Wang-tu Huo[1]; Hua Cui[1]; Jun-cheng Liu[1]; Lin-zhong Zhuang[1]; *Ji-shan Zhang*[1]; [1]University of Science and Technology Beijing

J17: Effects of B on Both Microstructure and Mechanical Property in Weld Metals in Steels: *Tadahisa Tsuyama*[1]; Kiyomichi Nakai[2]; Bunpei Takahashi[3]; Mei Akiyama[3]; Tatsuaki Sakamoto[2]; Sengo Kobayashi[2]; [1]Kawada Industries Incorporation; [2]Department of Materials Science and Biotechnology, Ehime University; [3]Graduate Student, Ehime University

J18: Optimization and Characterization of Cu-Mn-Ni-P Alloys Synthesized by Horizontal Continuous Casting: *Jaeho Jang*[1]; Jungsoo Kim[1]; Han-Beom Kim[2]; In-Wook Park[1]; Dae-Geun Nam[1]; Hyung-Ho Jo[1]; [1]Korea Institute of Industrial Technology; [2]Min Young Industry Co., Ltd

K. Solidification, Deformation and Related Processing: Poster Session

Program Organizers: Fernand Marquis, Naval Postgraduate School; Wanqi Jie, Northwestern Polytechnical University; Hiroyuki Yasuda, Osaka University; Hyoung Seop Kim, POSTECH; Yinong Liu, The University of Western Australia; Zak Fang, University of Utah

Thursday PM
August 8, 2013

Room: Monarchy
Location: Hilton Waikoloa Village

K1: Effects of Crystallographic Orientation on Fatigue Behavior in Cu Single-Crystal Foils: Masashi Kitamura[1]; *Kazuki Kammuri*[1]; Toshiyuki Fujii[1]; Masaharu Kato[1]; [1]Tokyo Institute of Technology

K2: Microstructural Development of Plutonium Alloys via Cooling Curve Analysis: *Stephen Stout*[1]; William Peach[1]; Nathan Rimkus[1]; [1]Los Alamos National Laboratory

K3: Preparation of High Purity Tellurium by Zone Refining Process: *Wan Gou Kim*[1]; Hong Youl Ryu[1]; Man Sik Kong[2]; Soon Jik Hong[3]; Hwa Young Lee[4]; Joon Chul Choi[5]; Jong Hyeon Lee[1]; [1]Chungnam National University; [2]Institute for Advanced Engineering; [3]Kongju National University; [4]Korea Institute of Science & Technology; [5]Recytec Inc.

K4: The Effect of Cooling Rate on Dendrite Arm Spacing of the Lead Free Bronze with Dispersed Sulfide Particles: *Toru Maruyama*[1]; Kyohei Kondo[1]; Ryoko Yoshida[1]; [1]Kansai University

K5: The Improvement of Tensile Property for Solidified Superalloy Inconel 625: *Peng Jia*[1]; Rui Li[1]; Fei Wang[1]; Engang Wang[1]; Jicheng He[1]; [1]Northeastern University

K6: Transformation Texture of Pure Iron after Cold-rolling and Annealing: *Daisuke Okai*[1]; Toshiya Doi[2]; Atsushi Yamamoto[3]; [1]University of Hyogo/JST-ALCA; [2]Kyoto University/JST-ALCA; [3]University of Hyogo

K7: Solidification of Discontinuous Magnesium Borate Whisker Reinforced AA2024 Matrix Composite: Zhijiang Wang[1]; Xuezhi Zhang[2]; *Henry Hu*[2]; Xueyuan Nie[2]; [1]Harbin Institute of Technology; [2]University of Windsor

K8: Directional Solidification of a Super Duplex Stainless Steel: *Ki Young Kim*[1]; Seong-Woo Kim[1]; Eun-Suk Jang[1]; Byung-Moon Moon[1]; [1]Korea University of Technology and Education

K9: Continuous Columnar Grains-covered Small Grains Microstructure with Many Self-closed Grain Boundaries in Cu-Sn Alloy Obtained by Two-phase Zone Continuous Casting Process: *Xuefeng Liu*[1]; Jihui Luo[1]; Xiaochen Wang[1]; Lin Wang[1]; Li Zhang[1]; Jianxin Xie[1]; [1]University of Science and Technology Beijing

L. Modeling and Simulation of Processes, Microstructures, and Behavior: Poster Session

Program Organizers: Fernand Marquis, Naval Postgraduate School; Dianzhong Li, Institute of Metal Research, Chinese Academy of Sciences; Tetsuo Mohri, Hokkaido University; Won Tae Kim, Cheongju University; Graeme Murch, The University of Newcastle; Alfredo Caro, LANL

Thursday PM
August 8, 2013

Room: Monarchy
Location: Hilton Waikoloa Village

L1: Atomistic Growth Mechanism of Thin-Film Silicon for Solar Cells: Quantum Chemical Molecular Dynamics Simulations: *Takuya Kuwahara*[1]; Hiroshi Ito[1]; Yuji Higuchi[1]; Nobuki Ozawa[1]; Momoji Kubo[1]; [1]Tohoku University

L2: Image-Based Impedance Calculations in Consideration of the Inhomogeneous Morphology of Microstructures: *Kohei Kawai*[1]; Toshiyuki Koyama[1]; Hisatsugu Yamasaki[2]; Shunsuke Yamakawa[3]; Yuhki Tsukada[1]; [1]Nagoya Institute of Technology; [2]Battery Research Division, Toyota Motor Corporation; [3]Toyota Central R&D Labs., Inc.

L3: Lithium Ion Dynamics in Li_4GeS_4 and Li_3PS_4: First Principle Electronic Structure Calculation and Long Time Tight Binding Molecular Dynamics Simulation: *Shinya Nishino*[1]; Takeo Fujiwara[1]; Susumu Yamamoto[2]; Hisatsugu Yamasaki[3]; [1]The University of Tokyo; [2]Tokyo University of Technology; [3]Toyota Motor Corporation

L4: Numerical Analysis of Electrorefiner for Spent Nuclear Fuel and Measuring the Composition of Molten Salt by Using the LIBS: *Seung Hyun Kim*[1]; Sung Bin Park[2]; Sung Jae Lee[2]; Jeong Guk Kim[2]; Han Soo Lee[2]; Jong Hyeon Lee[1]; [1]Chungnam National University; [2]Korea Atomic Energy Research Institute

L5: Numerical Simulations of Non-metallic Inclusions Behavior in Gas-stirred Ladle: *Wentao Lou*[1]; Miaoyong ZHU[1]; [1]Northeastern University

L6: Phase-field Simulation on the Formation of Martensitic Embryo in Low-carbon Steels: *Yasuhiro Kojima*[1]; Yuhki Tsukada[1]; Toshiyuki Koyama[1]; Yoshinori Murata[2]; [1]Nagoya Institute of Technology; [2]Nagoya University

L7: Quantum Chemical Molecular Dynamics Simulations on Etching Processes of Silicon-Dioxide and Theoretical Design of the Etching Processes: *Hiroshi Ito*[1]; Takuya Kuwahara[1]; Yuji Higuchi[1]; Nobuki Ozawa[1]; Seiji Samukawa[2]; Momoji Kubo[1]; [1]Graduate School of Engineering, Tohoku University; [2]Institute of Fluid Science, Tohoku University

L8: The Bustling Nature of Vacancies in Al Alloys: *Peter Lang*[1]; Erwin Povoden-Karadeniz[2]; Walter Mayer[3]; Ahmad Falahati[3]; Ernst Kozeschnik[2]; [1]Materials Center Leoben Forschungs GmbH; [2]Christian Doppler Laboratory for Early Stages of Precipitation; [3]Vienna University of Technology

L9: Molecular Dynamics Study of Zirconium and Zirconium Hydride: Ravi Kiran Siripurapu[1]; Barbara Szpunar[2]; *Jerzy Szpunar*[2]; [1]University of Saskatchewan ; [2]University of Saskatchewan

L10: Optimization of Hot-zone Design through CFD Analysis for Kyropoulos Sapphire Single Crystal Grower: *Jin-Hyung Kim*[1]; Jin-Ho Ryu[2]; Yong-Ho Park[2]; Young-Cheol Lee[1]; [1]Korea Institute of Industrial Technology; [2]Pusan National University

L11: A Parametric Study of Resistance Spot Welding of a Dual-Phase Steel Using Finite Element Analysis: *Mohsen Eshraghi*[1]; Mark Tschopp[2]; Mohsen Asle Zaeem[3]; Sergio Felicelli[1]; [1]Mississippi State University; [2]Oak Ridge Institute for Science & Education; [3]Missouri University of Science and Technology

L12: Thermal Stress Cracking of Sliding Gate Plates in a SEN: *Hyoung Jun Lee*[1]; Seong Mook Cho[1]; Seon Hyo Kim[1]; Brian Thomas[2]; Sang Woo Han[3]; Tae In Chung[3]; Joo Choi[3]; [1]POSTECH; [2]UIUC; [3]POSCO

L13: Physical Modeling on the Mold Flow Field Influenced by Nozzle Clogging: *Liyuan Sun*[1]; Jingshe Li[1]; Lina An[1]; Linzhu Wang[1]; Haiyan Tang[1]; Yawei Gao[1]; [1]USTB

L14: Analysis of Electromagnetic Field and Temperature Field in ESR Process with Three Electrodes: Fang Wang[1]; *Baokuan Li*[1]; Taiyin Gao[1]; [1]Northeastern University

L15: Numerical Analysis of Engineering Scale Cathode Process by Using Phase Change Model: Bung-Uk Yoo[1]; Sang-Woon Kwon[2]; Jeong-Guck Kim[2]; Jong-Hyeon Lee[3]; [1] Chungnam National University(CNU); [2]Korea Atomic Energy Research Insitute(KAERI); [3]Chungnam National University(CNU)

L16: Influence of Different Blast Furnace Dead-Man State to Hot Metal Flow Field in Hearth and Bottom: *Hongwei Guo*[1]; Bingji Yan[1]; Mengyi Zhu[1]; Jianliang Zhang[1]; Yili Liu[1]; Gang-Jiu Shao; [1]University of Science and Technology Beijing

L17: Fuzzy Control Expert System of Hot Blast Stove Based on Simulation and Thermal Balance: Hongwei Guo[1]; Bingji Yan[1]; Jianliang Zhang[1]; Shanshan Chen[1]; *Gang-Jiu Shao*; [1]University of Science and Technology Beijing

M. Bulk Metallic Glasses, Nanocrystalline Materials, and Ultrafine-Grain Materials: Poster Session

Program Organizers: Fernand Marquis, Naval Postgraduate School; Yue Zhang, University of Science and Technology Beijing; Nobuhiro Tsuji, Kyoto Univ; Eun Soo Park, Seoul National University; Michael Ferry, University of New South Wales; Yuntian Zhu, North Carolina State University

Thursday PM
August 8, 2013

Room: Monarchy
Location: Hilton Waikoloa Village

M1: Fabrication of Bulk Nanocrystalline Ni-W with Plastic Deformability Electrodeposited from a Sulfamate Bath: *Isao Matsui*[1]; Yorinobu Takigawa[1]; Tokuteru Uesugi[1]; Kenji Higashi[1]; [1]Osaka Prefecture University

M2: Formation and Mechanical Properties of Bimodal Microstructures in 0.2% Carbon Steel by Heavy-Reduction Hot Compression: *Hyung-Won Park*[1]; Jun Yanagimoto[1]; [1]The University of Tokyo

M3: Influence of Cold Rolling Routes on Mechanical Properties of Copper Subjected to ECAP: *Yao Jiang*[1]; Jingtao Wang[1]; Zefeng Li[1]; Mao Zening[1]; [1]Nanjing University of Science & Technology

M4: Martensitic Transformation from Nanocrystalline Austenite in Fe-Ni alloys Fabricated by Electrodeposition: *Fumitaka Ichikawa*[1]; Akinobu Shibata[1]; Hiroki Adachi[2]; Tohru Yamasaki[2]; Nobuhiro Tsuji[1]; [1]Kyoto University; [2]University of Hyogo

M5: Mechanical Properties and Microstructure of Ultrafine-Grained Copper Fabricated by Accumulative Roll Bonding: *Yoji Miyajima*[1]; Satoshi okubo[1]; Hiroki Abe[1]; Toshiyuki Fujii[1]; Susumu Onaka[1]; Masaharu Kato[1]; [1]Tokyo Institute of Technology

M6: Microhardness Behavior of Nanocrystals Dispensed Al-Ni-Si Amorphous Alloys: *Yi Cao*[1]; Kevin Laws[1]; Michael Ferry[1]; [1]University of New South Wales

M7: Micromechanism and Deformation Behavior of a Ti-based Metallic Glass Composite with Excellent Plasticity: Jie Bai[1]; *Jun Wang*[1]; Hongchao Kou[1]; Jinshan Li[1]; Rui Hu[1]; [1]Northwestern Polytechinal University

M8: In-situ Observation of Transformation-induced Plasticity in Bulk Metallic Glassy Composites: *Yuan Wu*[1]; Dong Ma[2]; Xun-li Wang[3]; Z. P. Lu[1]; [1]University of Science and Technology Beijing; [2]Oak Ridge National Laboratory; [3]City University of Hongkong

M9: Metallic Nanoparticle Dispersions for Interconnect on Flexible Substrate by Ink-Jet Printing: *In-Gann Chen*[1]; Weng-Sing Hwang[1]; [1]National Cheng Kung University

M10: Maximizing Performance of Al-Fe Alloys Processed by High-Pressure Torsion with Optimized Initial Microstructure and Processing Route: *Jorge Cubero-Sesin*[1]; Masashi Watanabe[2]; Zenji Horita[1]; [1]Kyushu University; [2]Lehigh University

N. Advanced Materials Characterization and Evaluation: Poster Session

Program Organizers: Fernand Marquis, Naval Postgraduate School; Xiaodong Han, Beijing University of Technology; Sho Matsumura, Kyushu University; Dong Il Kwon, Seoul National University; Jin Zou, The University of Queensland; Alexis Lewis, Naval Research Laboratory

Thursday PM
August 8, 2013

Room: Monarchy
Location: Hilton Waikoloa Village

N1: Effect of A-site Ions Additions on Electromechanical Properties and Grain Growth Behaviors in NKLNT Ceramics: *Min-Soo Kim*[1]; Sin-Woong Kim[1]; Juhyeong Jo[1]; Soon-Jon Jeong[1]; In-Sung Kim[1]; Jaesung Song[1]; [1]Korea Electrotechnology Research Institute

N2: Fabrication of Uranium Dispersion Targets for Mo-99 Production: *Moonsoo Sim*[1]; Ho-Jin Ryu[2]; Yoon-Sang Lee[2]; Jong-Man Park[2]; Lee Jong-Hyeon[2]; [1]Chungnam National University; [2]Korea Atomic Energy Research Institute

N3: A Study on Hot Rolling and Post-Annealing Treatment of Cu-Mn-Ni-P Alloys Produced by Horizontal Continuous Casting: *Jungsoo Kim*[1]; Jin-Eok Kim[2]; Weontae Oh[3]; In-Wook Park[1]; Daegeun Nam[1]; [1]Korea Institute of Industrial Technology; [2]Min Young Industry Co., Ltd.; [3]Dong-Eui University

N4: Influence of Si Content on Nano-Scale Deformation Behavior of Fe-Si Binary Alloy: *Takuya Suzuki*[1]; Nobuaki Sekido[2]; Ling Zhang[2]; Takahito Ohmura[2]; [1]Kyushu University; [2]National Institute for Materials Science

N5: Influence of TraceSb Addition in Ductile Cast Iron: Takamichi Hara[1]; *Kenta Kuroki*[1]; Takahiro Kitagawa[1]; Susumu Ikeno[2]; Seiji Saikawa[1]; Kiyoshi Terayama[1]; Kenji Matsuda[1]; [1]University of Toyama; [2]Hokuriku Polytechnic College

N6: Quantitative Characterization of Lath Martensite in Japanese Swords: *Hironobu Moriguchi*[1]; Takuya Ohba[1]; Chihiro Matsumoto[1]; Shigekazu Morito[1]; Taisuke Hayashi[1]; Muneo Yaso[2]; [1]Shimane University; [2]Wakoh Museum

N7: Relationship between Fracture Toughness and Microstructures of Simulated Multi-pass Heat Affected Zones in Fe-3Mn Alloys: *Changhee Lee*[1]; Jaehong Yoo[1]; Bongyoon Kim[1]; Younghwan Park[2]; [1]Hanyang University; [2]POSCO

N8: TEM Observation of Spheroidal Graphite in Ductile Cast Iron: Takamichi Hara[1]; *Takahiro Kitagawa*[1]; Susumu Ikeno[2]; Seiji Saikawa[1]; Kiyoshi Terayama[1]; Kenji Mastuda[1]; [1]University of Toyama; [2]Hokuriku Polytechnic College

N9: Sensitivities of Depth Resolution to Sampling Depth and Sputter Ion Energy in XPS Depth Profiling: *JiFeng Ying*[1]; MingSheng Zhang[1]; Ji Rong[1]; Huiqing Xie[1]; Jack Tsai[1]; [1]Data Storage Institute

N10: TEM Observation of Alpha-phase in Sn Added 60/40 Cu-Zn Alloy: Akihiro Maeda[1]; Susumu Ikeno[2]; Yasuhiro Uetani[3]; *Kenji Matsuda*[1]; [1]University of Toyama; [2]Hokuriku Polytechnic College; [3]Toyama Prefectural University

N11: Microbilogically Influenced Corrosion of Pipeline Steels used in Oil & Gas Industry: *Brajendra Mishra*[1]; [1]Colorado School of Mines

N12: High Cycle Fatigue Behavior of PH13-8MO Straight Lugs: *Shizhen Wen*[1]; Cuiyun Liu[1]; Chaoli Ma[1]; [1]Beihang Univercity

N13: Raman Spectroscopy:A New Approach to Measure the Percentage of Anatase TiO2 Exposed (001) Facets: *Chunxu Pan*[1]; Yupeng Zhang[1]; [1]Wuhan University

O. Advanced Neutron and Synchrotron Studies of Materials: Poster Session

Program Organizers: Fernand Marquis, Naval Postgraduate School; Chengjia Shang, University of Sicence and Technology Beijing; Masato Ohnuma, National Institute for Materials Science; Baek Seok Seong, KAERI; Klaus-Dieter Liss, ANSTO; Rozaliya Barabash, Oak Ridge National Laboratory

Thursday PM
August 8, 2013

Room: Monarchy
Location: Hilton Waikoloa Village

O1: Advanced Neutron Monte-Carlo Ray-Tracing Simulations Using McStas: *Peter Willendrup*[1]; Erik Knudsen[1]; Esben Klinkby[2]; Johan Nielsen[1]; Emmanuel Farhi[3]; Uwe Filges[4]; Kim Lefmann[5]; [1]DTU Physics; [2]DTU Nutech; [3]ILL; [4]PSI; [5]NBI KU

O2: Characterization of Nanostructures in Co-Insulator Nanogranular Films Using Small-Angle Neutron and X-ray Scattering: *Yojiro Oba*[1]; Masato Ohnuma[2]; Shigehiro Ohnuma[3]; Kazuki Ohishi[4]; Shin-ichi Takata[5]; Jun-ichi Suzuki[4]; Masaaki Sugiyama[1]; [1]Kyoto University Research Reactor Institute; [2]National Institute for Materials Science; [3]Research Institute for Electromagnetic Materials; [4]Comprehensive Research Organization for Science and Society; [5]Japan Atomic Energy Agency

O3: Quantitative Analysis of Nanometer Precipitates Copper Foil by Using Small-angle X-ray Scattering: *Satoshi Yamazaki*[1]; Hirokazu Sasaki[1]; Yojiro Oba[2]; Masato Ohnuma[3]; [1]Furukawa Electric Co., Ltd; [2]Kyoto University Research Reactor Institute; [3]National Institute for Materials Science

O4: Real Time Synchrotron SAXS Studies for Understanding Nanostructure in Digesting Lipid Systems: *Stephanie Phan*[1]; Xavier Mulet[2]; Adrian Hawley[3]; Lynne Waddington[2]; Ben Boyd[1]; [1]Monash University; [2]CSIRO; [3]Australian Synchrotron

O5: Real-time Investigation of the Structural Evolution of Electrodes in a Lithium-ion Battery Containing V-added LiFePO4 Cathode Using In-situ Synchrotron Radiation X-ray Powder Diffraction: *Chih-Hao Lee*[1]; Chih-Wei Hu[1]; Hui-Chia Su[2]; Ching-Yu Chiang[2]; Bor-Yuan Shew[2]; Kai-Sheng Shih[2]; [1]National Tsing Hua University, Taiwan; [2]National Synchrotron Radiation Research Center, Taiwan

O6: Strain-Induced Precipitates Dissolution in Al Alloys: *Zhenzhen Yu*[1]; *Zhili Feng*[1]; Ken Littrell[1]; Unocic Kinga[1]; Wei Wang[2]; Xun-Li Wang[3]; [1]Oak Ridge National Laboratory; [2]Alcoa Technical Center; [3]City University of Hong Kong

O7: VITESS Software for Neutronic Monte-Carlo Simulations: *Daniil Nekrassov*[1]; Carolin Zendler[1]; Michael Fromme[1]; Andreas Houben[2]; Sergey Manoshin[3]; Klaus Lieutenant[1]; [1]Helmholtz-Zentrum Berlin; [2]Institute of Inorganic Chemistry at RWTH Aachen University; [3]Joint Institue of Nuclear Research, Frank Laboratory of Neutron Physics

O8: Watching ZnO Nanoparticles Nucleate in Solution with In-situ XRD / Pair Distribution Function (PDF) Analysis: *Mirijam Zobel*[1]; [1]University Erlangen

O9: Where Do We Need Virtual Experiments in Neutron Scattering?: *Linda Udby*[1]; Anette Vickery[1]; Pia Jensen[1]; Peter Willendrup[2]; Erik Knudsen[2]; Sonja Holm[1]; Emmanuel Farhi[3]; Kim Lefmann[1]; [1]University of Copenhagen; [2]Technical University of Denmark; [3]Institut Laue-Langevin

O10: Effect of Nickel on the Neutron Irradiation Sensitivity of Nuclear Reactor Pressure Vessel Steels: *Chang-Hoon Lee*[1]; R. Kasada[2]; A. Kimura[2]; Hu-Chul Lee[3]; Bong-Sang Lee[4]; Dong-Woo Suh[5]; Tae-Ho Lee[1]; [1]Korea Institute of Materials Science; [2]Kyoto University; [3]Seoul National University; [4]Korea Atomic Energy Research Institute; [5]POSTECH

O11: Virtual Polarized Neutron Scattering Simulation: *Erik Knudsen*[1]; Peter Willendrup[1]; Linda Udby[2]; Kim Lefmann[2]; [1]Technical University of Denmark; [2]Copenhagen University

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SCHEDULE AT-A-GLANCE

Sunday, August 4	Registration	2:00 p.m. to 8:00 p.m.	Grand Promenade
	Welcome Reception	6:00 p.m. to 8:00 p.m.	
Monday, August 5	Registration	7:00 a.m. to 6:30 p.m.	Grand Promenade
	Plenary Session	8:00 a.m. to 12:20 p.m.	Grand Ballroom
	Morning Coffee Break	10:20 a.m. to 10:40 a.m.	Grand Promenade
	Exhibit Installation	7:00 a.m. to 12:00 p.m.	Grand Promenade
	Exhibit	12:00 p.m. to 2:00 p.m.	Grand Promenade
	Conference Lunch	12:20 p.m. to 2:00 p.m.	Grand Promenade
	Technical Sessions	2:00 p.m. to 6:20 p.m.	All
	Afternoon Coffee Break	4:00 p.m. to 4:35 p.m.	Grand Promenade
	Exhibit	4:00 p.m. to 5:30 p.m.	Grand Promenade
Tuesday, August 6	Registration	7:00 a.m. to 6:30 p.m.	Grand Promenade
	Poster Session Symposia A-G: Poster Installation	7:00 a.m. to 12:00 p.m.	Monarchy Grand Ballroom
	Technical Sessions	8:00 a.m. to 12:20 p.m.	All
	Exhibit	9:30 a.m. to 11:00 a.m.	Grand Promenade
	Morning Coffee Break	10:00 a.m. to 10:35 a.m.	Grand Promenade
	Conference Lunch	12:20 p.m. to 2:00 p.m.	Monarchy Grand Ballroom
	Poster Session Symposia A-G	12:20 p.m. to 2:00 p.m.	Monarchy Grand Ballroom
	Exhibit	12:00 p.m. to 2:00 p.m.	Grand Promenade
	Poster Session Symposia A-G: Poster Dismantle	2:00 p.m. to 4:35 p.m.	Monarchy Grand Ballroom
	Technical Sessions	2:00 p.m. to 6:20 p.m.	All
	Exhibit	3:30 p.m. to 5:00 p.m.	Grand Promenade
	Afternoon Coffee Break	4:00 p.m. to 4:30 p.m.	Grand Promenade
Wednesday, August 7	Submarine Tour	8:00 a.m. to 10:30 a.m.	Depart Lower Level Lobby
	Grand Circle Island Tour	8:50 a.m. to 8:00 p.m.	Depart Lower Level Lobby
	Mauna Kea Summit Tour	3:15 p.m. to 11:00 p.m.	Depart Lower Level Lobby
Thursday, August 8	Registration	7:00 a.m. to 6:30 p.m.	Grand Promenade
	Poster Session Symposia H-O: Poster Installation	7:00 a.m. to 12:00 p.m.	Grand Promenade
	Technical Sessions	8:00 a.m. to 12:20 p.m.	All
	Exhibit	9:30 a.m. to 11:00 a.m.	Grand Promenade
	Morning Coffee Break	10:00 a.m. to 10:35 a.m.	Grand Promenade
	Conference Lunch	12:20 p.m. to 2:00 p.m.	Monarchy Grand Ballroom
	Poster Session Symposia H-O	12:20 p.m. to 2:00 p.m.	Monarchy Grand Ballroom
	Exhibit	12:00 p.m. to 2:00 p.m.	Grand Promenade
	Poster Session Symposia H-O: Poster Dismantle	2:00 p.m. to 4:30 p.m.	Monarchy Grand Ballroom
	Exhibit Dismantle	2:00 p.m. to 4:30 p.m.	Grand Promenade
	Technical Sessions	2:00 p.m. to 6:20 p.m.	All
	Afternoon Coffee Break	4:00 p.m. to 4:35 p.m.	Grand Promenade
	Conference Banquet Reception	7:00 p.m. to 7:30 p.m.	Grand Promenade
	Conference Banquet	7:30 p.m. to 10:00 p.m.	Grand Ballroom
Friday, August 9	Registration	7:00 a.m. to 12:00 p.m.	Grand Promenade
	Technical Sessions	8:00 a.m. to 12:20 p.m.	All
	Morning Coffee Break	10:00 a.m. to 10:35 a.m.	Grand Promenade