

ISNNM-2018

The 15th International Symposium on Novel and Nano Materials



- Date : July 1 ~ July 6, 2018
- Venue : Tivoli Oriente Lisboa Hotel, Lisbon, Portugal
- Organized by
 - The Korean Powder Metallurgy Institute
 - Institute of Materials Research, Slovak Academy of Sciences
 - Institute of Metallurgy and Materials Science, Polish Academy of Sciences
 - Cracow University of Technology

Welcome Message

The 15th International Symposium on Novel and Nano Materials (ISNNM) will focus on the overall nanomaterials research such as Advanced Materials Processing, Novel Functional Materials, Advanced Powder Metallurgy, Mechanical Alloying, MIM & Additive Manufacturing (3D Printing), Nanocomposites & Nanoporous Materials, Energy Materials, Rare Earth & Recycling, Refractory Metals & Hard Materials, and Characterization & Modeling. All main aspects of these materials will be covered, including synthesis, mechanism, microstructures, properties and applications. The symposium will provide the latest research results and a state-of-the-art overview of technology in the exciting and rapidly evolving field of nanomaterials. Symposium sessions will also include invited lectures from internationally distinguished scientists discussing topics ranging from the most recent discovered materials to the latest techniques of production. Manufacturer's contributions and exhibits are welcome to promote further interaction between the scientists and the industry. Registration and contributions for the symposium in the form of oral or poster presentations are warmly invited and is open to all. Selected papers will be published in SCI/ SCIE journal after peer review.

Dr. Chang-Kyu RHEE

Dr. Yong-Jin KIM

Prof. Jan DUSZA

Prof. Paweł ZIEBA

Chairmen of Organizing Committee
International Symposium on Novel and Nano Materials

Prof. Jai-Sung LEE
Chair of International Affairs in KPMI

ISNNM-2018

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Organizing Committee

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Secretary General

Sung-Tag OH	Seoul National University of Science and Technology, Republic of Korea
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Dong Gil AHN	TaeguTec Ltd., Republic of Korea
Seong Jin PARK	Pohang University of Science and Technology, Republic of Korea

Symposium List

■ Advanced Materials Processing (AMP)

- Organizer - Prof. Kee-Ahn LEE (Inha University, Republic of Korea)
- Dr. Hwi Jun KIM (Korea Institute of Industrial Technology, Republic of Korea)
- Prof. Hongju RHEE (Mississippi State University, USA)

■ Advanced Powder Metallurgy (APM)

- Organizer - Dr. Sangsun YANG (Korea Institute of Materials Science, Republic of Korea)

■ Additive Manufacturing-3D Printing and MIM (AIM)

- Organizer - Dr. Ji-Hun YU (Korea Institute of Materials Science, Republic of Korea)
- Dr. Suk Hoon KANG (Korea Atomic Energy Research Institute, Republic of Korea)

■ Characterization and Modeling (CAM)

- Organizer - Prof. Hyoing Seop KIM (Pohang University of Science and Technology, Republic of Korea)
- Prof. Seong Jin PARK (Pohang University of Science and Technology, Republic of Korea)

■ Energy and Functional Materials (EFM)

- Organizer - Prof. Woo-Byoung KIM (Dankook University, Republic of Korea)
- Dr. Seong-Ho BAEK (Daegu Gyeongbuk Institute of Science and Technology, Republic of Korea)
- Dr. Chan Gi LEE (Institute for Advanced Engineering, Republic of Korea)

■ Nanocomposites and Nanoporous Materials (NNP)

- Organizer - Prof. Hyo-Jin AHN (Seoul National University of Science and Technology, Republic of Korea)
- Prof. Seung Nam CHA (University of Oxford, United Kingdom)

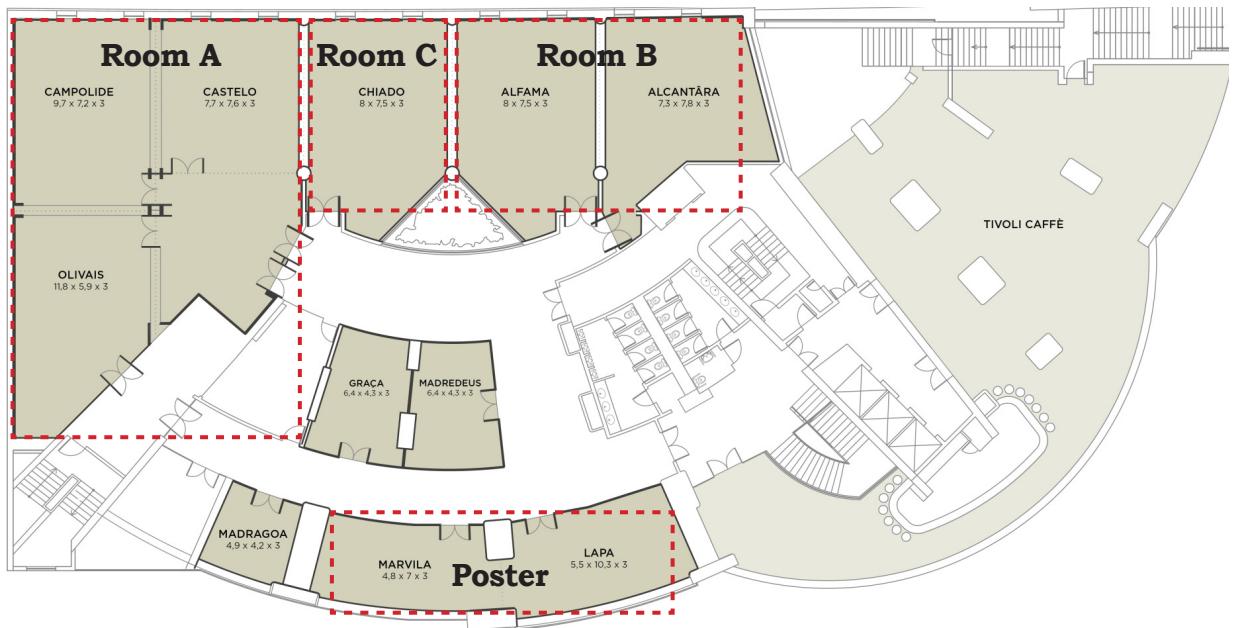
■ Rare Metals and Recycling (RMR)

- Organizer - Dr. Bum Sung KIM (Korea Institute of Industrial Technology, Republic of Korea)
- Dr. Ryan OTT (Ames National Laboratory, USA)

■ Refractory Metals and Hard Materials (RMH)

- Organizer - Dr. Sung-Soo RYU (Korea Institute of Ceramic Engineering and Technology, Republic of Korea)

Venue Layout



- Welcome reception : On the rooftop of the Tivoli Oriente Hotel
- Lunch and Coffee Break : TIVOLI CAFFÉ

Tivoli Oriente Lisboa Hotel
Av. D. João II, n.º 27 Parque das Nações 1990-083 Lisboa, Portugal

Symposium Awards

I. Awards

- Changsung Best Student Presentation Award
- Höganäs Korea Best Student Presentation Award
- Poongsan Best Presentation Award
- Shinhan Diamond Best Presentation Award
- Best Presentation Award

II. Method of Evaluation

1. Abstract evaluation:

Based on the quality of the abstracts, 20% of the total number of abstracts submitted will be selected as potential candidates for the award

2. On-site Evaluation:

- A. For oral presentations, the list of the recipients will be narrowed down by the session chair's evaluation, which is based on the oral presentation performance. The final list will be confirmed by organizing committee.
- B. For poster presentations, reviewers will be evaluating the on-site posters during the poster session. The final list will be confirmed by the organizing committee.

III. Recipient Announcement

- The final recipients will be posted on the symposium official message board.
- All recipients will be given an Award Certificate.
- In addition, the names of the recipients will be posted on the ISNNM-2018 official website.

Symposium Awards supported by

Changsung Corporation, Höganäs Korea, Poongsan Holdings,
Shinhan Diamond Corporation, Korean Powder Metallurgy Institute



Scientific Program

SUN	MON			TUE			WED			THU		FRI
	A	B	C	A	B	C	A	B	C	A	A	
09:00 09:10	Opening Ceremony			Registration			Registration					
09:10 10:00	Plenary Lecture (Prof. José M. Ioriba) Chairman : Prof. Jai-Sung Lee			Plenary Lecture (Prof. Byoung-Kee Kim) Chairman : Prof. Taesuk Jang			Plenary Lecture (Prof. Hidetsu Miura) Chairman : Prof. Hyoung Seop Kim					
10:00 10:20	Coffee Break			Coffee Break			Coffee Break					
10:20 11:10	Plenary Lecture (Prof. Soon-Hyung Hong) Chairman : Prof. Paweł Zięba			Keynote Lecture (Prof. Jean-Michel Massaen and Prof. Paweł Zięba) Chairman : Prof. Jan Dusza			Keynote Lecture (Prof. Jan Dusza, Prof. Hikaru Kobayashi and Prof. Boris Straumal) Chairman : Prof. Tadeusz Pieczonka					
11:10 12:20	Lunch-Tivoli Oriente Hotel			Lunch-Tivoli Oriente Hotel			Lunch-Tivoli Oriente Hotel					
12:20 13:30	Poster Presentation (AMP P1-P35, AIM, AP(M)) Chairman : Prof. Sung-Tag Oh			Poster Presentation (AMP P36-P44, EFM, CAM) Chairman : Prof. Sung-Tag Oh			Poster Presentation (NIP, RMH, RMR) Chairman : Prof. Sung-Tag Oh					
13:30 15:10	Advanced Materials Processing I (AMP1, 01-04) Chairman : Prof. Kee-Ahn Lee and Prof. B. Straumal	Additive Manufacturing and MIM I (AIM1, 01-04) Chairman : Prof. Jin-Chun Kim and Dr. Suk-Hoon Kang	Advanced Powder Metallurgy I (APM1, 01-02) Chairman : Dr. Man-Sik Kong	Advanced Materials Processing III (AMP09,013) Chairman : Dr. Min-Ha Lee and Prof. Yong-Gyu Choi	Nanocomposites and Nanoporous Materials I (NNP1, 01-03) Chairman : Dr. Chan-Gil Lee	Energy and Functional Materials (EFM01-05) Chairman : Dr. Tamas Csanyi	Refractory Metals and Hard Materials I (RMH1, 01-03) Chairman : Prof. Il-Kyu Park	Nanocomposites and Nanoporous Materials III (NIP09-012) Chairman : Dr. Jung-Goo Lee	Rare Metals and Recycling I (RMR1, 01-02) Chairman : Dr. Orlando Rios			
15:10 15:20	Break			Break			Break					
15:20 17:20	Advanced Materials Processing II (AMP2, 05-08) Chairman : Dr. Hyo-Jun Kim and Prof. Hong-Gyu Rhee	Additive Manufacturing and MIM II (AIM2, 05-07) Chairman : Dr. Eugene Marov and Dr. Sang Sun Yang	Advanced Powder Metallurgy II (APM13, 03-06) Chairman : Dr. Yong-Jin Kim	Nanocomposites and Nanoporous Materials II (NIP04-08) Chairman : Dr. Geon-Hyoung An	Characterization and Modeling (CAM01-05) Chairman : Prof. Ho-Seok Nam	Refractory Metals and Hard Materials II (RMH04-07) Chairman : Prof. Seok-Dee Lee	Nanocomposites and Nanoporous Materials IV (NIP013-015) Chairman : Prof. Hong-Baek Cho	Rare Metals and Recycling II (RMR3,04-03) Chairman : Dr. Orlando Rios			Panel Discussion	
19:00 20:30	Welcome Reception-Tivoli Oriente Hotel	Gala Dinner (18:00-21:00) Restaurants Casa Do Alentejo (Rua Portas de Santo Antão, 58, Lisboa)										

Symposium Schedule

2018. 07. 01 (Sun)

- 15:20~19:00 Registration
19:00~20:30 Welcome Reception

2018. 07. 02 (Mon)

Room A

- 09:00~09:10 Opening Ceremony
09:10~10:00 Plenary Lecture
Chairman : Prof. Jai-Sung Lee (Hanyang University)
P-01 Co-W-Al Superalloys by Powder Metallurgy:
A New Approach for Processing Materials for High Temperature Applications
Prof. José M. Torralba
(Universities and Research of Madrid Regional Government)
10:00~10:20 Coffee Break
10:20~11:10 Plenary Lecture
Chairman : Prof. Paweł Zieba (Institute of Metallurgy and Materials Science, Polish Academy of Sciences)
P-02 Status and Prospect on Developments and Applications of High Entropy Alloys
Prof. Soon Hyung Hong (Korea Advanced Institute of Science and Technology)
11:10~12:20 Keynote Lecture
Chairman : Prof. Jan Dusza (Institute of Materials Research, Slovak Academy of Sciences)
APM-K1 Sintering and Grain Growth in Cemented Carbides with Alternative Binders
Prof. Jean-Michel Missiaen (Grenoble INP PHELMA Laboratoire SIMAP)
CAM-K1 Some Technological Aspects of Discontinuous Solid State Reactions
Prof. Paweł Zieba (Institute of Metallurgy and Materials Science, Polish Academy of Sciences)
12:20~13:30 Lunch

2018. 07. 02 (Mon)

Room A

- 13:30~15:10 Advanced Materials Processing I
Chairman: Prof. Kee-Ahn Lee (Inha University)
Chairman: Prof. B. Straumal (Institute of Solid State Physics RAS)
13:30-13:50 [AMP-I1] Surface Modification of Chalcogenide Glass for Diamond-Like Carbon Coating
Prof. Yong Gyu Choi (Korea Aerospace University)
13:50~14:10 [AMP-O1] Ag Dewetting Behavior in an Ag-coated Cu Particle with Thick Ag Shells
Ms. Eun Byeol Choi (Seoul National University of Science and Technology)
14:10~14:30 [AMP-O2] Synthesis of PbS Nanoparticles by the Mechano-Chemical Method for Possible Applications of Infrared Photodetectors
Ms. Hak-Young Ahn (Korea University)
14:30~14:50 [AMP-O3] Role of Reinforcement Surface Treatment on the SnAg₃Cu_{0.5} Microelectronic Joints
Mr. Zoltan Gyoker (University of Miskolc)
14:50~15:10 [AMP-O4] Microstructure and High Temperature Oxidation Properties of Fe-Cr-Ni HK30 Alloy Manufactured by Metal Injection Molding
Mr. Dong-Yeol Wi (Inha University)
15:10~15:20 Break

- 15:20~17:20 **Advanced Materials Processing II**
Chairman : Dr. Hwi-Jun Kim (Korea Institute of Industrial Technology)
Chairman : Prof. Hongju Rhee (Mississippi State University)
- 15:20~15:40 **[AMP-I2] Effect of Critical Cooling Rate during Vitrification on the Magnetic Property of Fe-based Glass-Forming Alloys**
Dr. Min-Ha Lee (Korea Institute of Industrial Technology)
- 15:40~16:00 **[AMP-O5] Significant Coercivity Enhancement of Hot Deformed NdFeB Magnets by Doping (MM)₇₀Cu₃₀ (MM=Misch-Metal) Alloys Powders**
Prof. Wen Cheng Chang (National Chung Cheng University)
- 16:00~16:20 **[AMP-O6] Facile Aerosol Route to Fabricate Metastable Fe-Based Permanent Magnet Particles**
Dr. Youn-Kyoung Baek (Korea Institute of Materials Science)
- 16:20~16:40 **[AMP-O7] Synthesis and Magnetic Properties of Samarium Cobalt Particles using Modified Spray Pyrolysis–Calcination and Reduction-diffusion Process**
Mr. Tae-Yeon Hwang (Hanyang University)
- 16:40~17:00 **[AMP-O8] High Temperature Random Stack Creep Property of Ni-Cr-Al based Powder Porous Metal**
Mr. Tae-Hoon Kang (Inha University)

2018. 07. 02 (Mon)**Room B**

- 13:30~15:10 **Additive Manufacturing and MIM I**
Chairman : Prof. Jin Chun Kim (University of Ulsan)
Chairman : Dr. Suk Hoon Kang (Korea Atomic Energy Research Institute)
- 13:30~13:50 **[AIM-I1] Advanced Alloy Powders and Materials Aspects in Additive Manufacturing**
Dr. Eugene Ivanov (Tosoh SMD)
- 13:50~14:10 **[AIM-O1] Preparation of Fine Metal Powders for 3D Printing Process**
Dr. Sang-Sun Yang (Korea Institute of Materials Science)
- 14:10~14:30 **[AIM-O2] Study on Selective Laser Melting Processing of Fe-based Amorphous soft Magnetic Material Reaching Saturation Magnetization of 1.2T**
Dr. Jae Won Jeong (Korea Institute of Materials Science)
- 14:30~14:50 **[AIM-O3] Characterization of Defects in 3D Printed Titanium Parts**
Dr. Hak-Sung Lee (Korea Institute of Materials Science)
- 14:50~15:10 **[AIM-O4] Two Step 3D Printing for Sensor Embedding in Metal Component**
Dr. Im-Doo Jung (Korea Institute of Materials Science)
- 15:10~15:20 **Break**
- 15:20~17:20 **Additive Manufacturing and MIM II**
Chairman : Dr. Eugene Ivanov (Tosoh SMD)
Chairman : Dr. Sang-Sun Yang (Korea Institute of Materials Science)
- 15:20~15:40 **[AIM-I2] Microstructure and Some Properties of STS316L-Cu Composites Fabricated by Selective Laser Sintering Process with Different Process Conditions**
Prof. Jin-Chun Kim (University of Ulsan)
- 15:40~16:00 **[AIM-I3] Laser Welding of Shape Memory Alloys: Microstructure and Mechanical Properties**
Prof. João Pedro Oliveira (Universidade Nova de Lisboa)
- 16:00~16:20 **[AIM-O5] Additive Manufacture and Ion Irradiation of Nickel Alloys for Nuclear Fuel Supports**
Dr. Suk Hoon Kang (Korea Atomic Energy Research Institute)

- 16:20~16:40 [AIM-O6] Effect of Laser Parameter on Process Defects and Microstructure of Additively Manufactured IN738LC
 Mr. Jungho Choe (Korea Institute of Materials Science)
- 16:40~17:00 [AIM-O7] Post-heat Treatment Design of IN718 Alloy Fabricated by Selective Laser Melting
 Dr. Jeonghyeon Do (Korea Institute of Materials Science)

2018. 07. 02 (Mon)

Room C

- 13:30~15:10 Advanced Powder Metallurgy I
Chairman : Dr. Man-Sik Kong (Institute for Advanced Engineering)
- 13:30~14:00 [APM-I1] Green Density Effect on Sintering Behaviour of Aluminium in Nitrogen
 Dr. Tadeusz Pieczonka (AGH University of Science and Technology)
- 14:00~14:30 [APM-I2] Understanding Sintering Fundamentals
 Prof. Suk-Joong L. Kang (Korea Advanced Institute of Science and Technology)
- 14:30~14:50 [APM-O1] Strain-Induced Martensite Transformation Behavior of Nano Crystalline Fe-based Alloy Fabricated by Spark Plasma Sintering
 Prof. Seok-Jae Lee (Chonbuk National University)
- 14:50~15:10 [APM-O2] Characterization of Rutile Reinforced Titanium Composite Produced Cryomilling and Hot-pressing
 Dr. Tamás Mikó (University of Miskolc)
- 15:10~15:20 Break
- 15:20~17:20 Advanced Powder Metallurgy II
Chairman : Dr. Yong-Jin Kim (Korea Institute of Materials Science)
- 15:20~15:50 [APM-I3] A Design of High Strength Soft Magnetic Material using Iron Nanopowder
 Prof. Jai-Sung Lee (Hanyang University)
- 15:50~16:10 [APM-O3] The Mechanical Alloying Process of Ni-based ODS Alloy with Alloyed Powder
 Dr. Man-Sik Kong (Institute for Advanced Engineering)
- 16:10~16:30 [APM-O4] Microstructural Evolution of Sinter-Forged Fe-Cr-Mo-C Alloy Depending on Alloying Elements
 Dr. Min Chul Oh (Ajou University)
- 16:30~16:50 [APM-O5] Effect of Milling Time on the Thermoelectric Properties of n-type $\text{Bi}_2\text{Te}_{2.7}\text{Se}_{0.3}$
 Ms. Min Soo Park (Korea Institute of Materials Science / Pusan National University)
- 16:50~17:10 [APM-O6] Formation of β Phase in Nanocrystalline Ti-Fe Alloys Fabricated by Cryomilling and Spark Plasma Sintering
 Mr. Min Seok Oh (Ajou University)

2018. 07. 03 (Tue)

Room A

- 09:00~09:10 Registration
- 09:10~10:00 Plenary Lecture
Chairman : Prof. Taesuk Jang (Sunmoon University)
P-03 Application of Nanostructured Powders Synthesized by New Chemical Processes
 Prof. Byoung-Kee Kim (University of Ulsan)
- 10:00~10:20 Coffee Break
- 10:20~12:20 Keynote Lecture
Chairman : Prof. Tadeusz Pieczonka (AGH University of Science and Technology)
NNP-K1 Ceramic – Graphene Nanocomposites
 Prof. Jan Dusza
 (Institute of Materials Research, Slovak Academy of Sciences)

EFM-K1 Si Material for Suppression of Oxidative Stress in Human Body

Prof. Hikaru Kobayashi (Osaka University)

AMP-K1 Diffusive and Displacive Phase Transformations in Nanocomposites under High Pressure Torsion

Prof. Boris Straumal (Institute of Solid State Physics RAS)

12:20~13:30 **Lunch****2018. 07. 03 (Tue)****Room A**13:30~15:10 **Advanced Materials Processing III**

Chairman : Min-Ha Lee (Korea Institute of Industrial Technology)

Chairman : Yong Gyu Choi (Korea Aerospace University)

13:30~13:50 **[AMP-O9] Characterization of Rutile Reinforced Titanium Composite**

Produced via Powder Metallurgy

Mr. David Angel (University of Miskolc)

13:50~14:10 **[AMP-O10] A Comprehensive Analysis of Rolling Behavior and Mechanical Properties of Aluminum Alloy-B₄C Composites**

Mr. Donghyun Lee (Korea Institute of Materials Science)

14:10~14:30 **[AMP-O11] Effect of Deflector Plate for Particle Size Segregation Control**

Mr. Kang Min Kim (Inha University)

14:30~14:50 **[AMP-O12] Study on Oxidation Resistance of TiC Reinforced Stainless Steel**

Mr. Yeong-Hwan Lee (Korea Institute of Materials Science)

14:50~15:10 **[AMP-O13] Grain Boundary Wetting in Industrial Mg-alloy EZ33A**

Dr. Alexander B. Straumal (National University for Science and Technology)

15:10~15:20 **Break****2018. 07. 03 (Tue)****Room B**13:30~15:10 **Nanocomposites and Nanoporous Materials I**

Chairman: Prof. Hyo-Jin Ahn (Seoul National University of Science and Technology)

13:30~13:50 **[NNP-I1] Short Peptide Self-Assembled Hydrogels: Design, Modulation and Bio-applications**

Prof. Bai Shou (Chinese Academy of Sciences)

13:50~14:10 **[NNP-I2] Understanding Charge Transport Dynamics in Solution-Processed Quantum Dot Solar Cells**

Prof. Bo Hou (University of Oxford)

14:10~14:30 **[NNP-O1] Dynamic Digital X-ray Detector Panel based on a-IGZO Thin Film Transistor**

Prof. Duck-Kyun Choi (Hanyang University)

14:30~14:50 **[NNP-O2] High-speed Colloidal Quantum dots Photodiode through**

Enhancing surface Band bending via Defect state of Metal oxide

Ms. Shin Young Jeong (Korea Institute of Science and Technology)

14:50~15:10 **[NNP-O3] Thermoelectric Properties of n-type Bismuth Telluride Matrix**

Nanocomposites with Nanoscale-defects Zones

Dr. Kyung-Tae Kim (Korea Institute of Materials Science)

15:10~15:20 **Break**15:20~17:20 **Nanocomposites and Nanoporous Materials II**

Chairman : Dr. Geon-Hyoung An (University of Oxford)

15:20~15:40 **[NNP-O4] Nanostructuring of Hybrid Materials Based on Metal Oxides and Carbon for Asymmetric Hybrid Capacitors**

Prof. Hyung Mo Jeong (Kangwon National University)

15:40~16:00	[NNP-O5]	Design of Highly Porous SnO₂-CuO Nanotubes for the Enhancing Performance of H₂S Gas Sensor Mr. Kee-Ryung Park (Hanyang University)
16:00~16:20	[NNP-O6]	Crafting of Hybrid Nanocomposites via Chemical Coupling of Conjugated Polymers with Directly Synthesized Functionalities-terminated Nanocrystals Prof. Jae Han Jung (Hongik University)
16:20~16:40	[NNP-O7]	Electromagnetic Wave Absorption Properties of Fe/MgO Composites via a Simple Ultrasonic Pyrolysis Method Ms. Hyo-Ryoung Lim (Hanyang University)
16:40~17:00	[NNP-O8]	Graphene-polymer Nanocomposites as the Barrier of Copper Corrosion Mr. Han Kim (Hanyang University)

2018. 07. 03 (Tue)

Room C

13:30~15:10	Energy and Functional Materials Chairman : Dr. Chan-Gi Lee (Institute for Advanced Engineering)
13:30~13:50	[EFM-O1] Fibrous Electrocatalytic Materials Based on Carbon/Copper/Copper phosphides for Effective Hydrogen Evolution Dr. Magdalena Supicova Streckova (Slovak Academy of Sciences)
13:50~14:10	[EFM-O2] An Alternative Route for Continuous Synthesis of Semiconductor Nanocrystals Dr. Young-Kuk Kim (Korea Institute of Materials Science)
14:10~14:30	[EFM-O3] Effect of Sintering Methods and Heat-Treatment of Aluminum Doped LLZO Powder Fabricated by Modified Sol-gel Process Mr. Sung Gue Heo (Korea Institute of Industrial Technology / Korea University)
14:30~14:50	[EFM-O4] Fabrication of Size-Controlled Hexagonal Boron Nitride Powder by Hetero-Phase Reaction for Thermal Applications Mr. Yoseb Song (Hanyang University)
14:50~15:10	[EFM-O5] Effect of Edge-Oxidized-Graphene on the Improved Power Factors of (Bi,Sb)₂Te₃ Thermoelectric Film Mr. Youngmin Cho (Korea Institute of Materials Science)
15:10~15:20	Break
15:20~17:20	Characterization and Modeling Chairman : Prof. Ho-Seok Nam (Kookmin University)
15:20~15:40	[CAM-O1] Industrial Application of Severe Plastic Deformation for Bulk Nanocrystalline Materials Prof. Hyoung Seop Kim (Pohang University of Science and Technology)
15:40~16:00	[CAM-O2] Film Morphology During the Oscillatory Adsorption of Organosilane Self-Assembled Films on Aluminium Oxide using Auger Electron Spectromicroscopy Ms. Ruby Alice SIMS (Flinders University)
16:00~16:20	[CAM-O3] The Characterization Possibilities of Particle Dispersion In Multiphase Materials Prof. Zoltan Gacsi (University of Miskolc)
16:20~16:40	[CAM-O4] Effects of Atomic Size and Heat of Mixing on Atomic Structures and Properties of Binary Alloys: A Molecular Dynamics Simulation Study Prof. Ho-Seok Nam (Kookmin University)
16:40~17:00	[CAM-O5] Effect of Fractured Microsphere Contents on the Elastic Modulus and Compressive Strength of the Iron/Glass Microsphere Syntactic Foam Mr. Yi Je Cho (Pusan National University)

2018. 07. 04 (Wed)**Room A**

- 09:00~09:10 **Registration**
- 09:10~10:00 **Plenary Lecture**
Chairman : Prof. Hyoung Seop Kim (Pohang University of Science and Technology)
P-04 Development of Innovative Ti Alloy Compacts through MIM Process
 Prof. Hideshi Miura (Kyushu University)
- 10:00~10:20 **Coffee Break**
- 10:20~12:20 **Keynote Lecture**
Chairman : Prof. Boris Straumal (Institute of Solid State Physics RAS)
AIM-K1 Additive Manufacturing Process and Advanced Materials, HKP and Nanotun3D
 Prof. Henning Zoz (Zoz Group)
RMR-K1 Materials Tuning of Titania Nanotubes for Advanced Multifunctionalities
 Prof. Tohru Sekino (Osaka University)
APM-K2 Enhanced Sintering of Stainless Steel Powder by Nanographite Addition
 Prof. Jan Kazior (Cracow University of Technology)
- 12:20~13:30 **Lunch**

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- 13:30~15:10 **Refractory Metals and Hard Materials I**
Chairman : Dr. Tamás Csanádi (Institute of Materials Research - Slovak Academy of Sciences)
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 Dr. Sang-Whan Park (Korea Institute of Science and Technology)
- 14:00~14:20 **[RMH-O1] Characterization of Molybdenum Composites Reinforced with Rutile Produced by Powder Metallurgy Methods**
 Mr. Daniel Petho (University of Miskolc)
- 14:20~14:40 **[RMH-O2] Tantalum-bioglass Porous Composites Prepared in Thermal Dealloying Process**
 Dr. Grzegorz Adamek (Poznan University of Technology)
- 14:40~15:00 **[RMH-O3] Investigation on the Interfacial Reaction of Single Crystal Superalloy, KMXP202, During Cyclic Thermal Fatigue Test**
 Dr. Joong Eun Jung (Korea Institute of Materials Science)
- 15:10~15:20 **Break**
- 15:20~17:20 **Refractory Metals and Hard Materials II**
Chairman : Prof. Seok-Jae Lee (Chonbuk National University)
- 15:20~15:40 **[RMH-O4] Property Control of WC-Co Powder for Selective Laser Melting**
 Mr. Jin Woo Lee (Korea Institute of Materials Science)
- 15:40~16:00 **[RMH-O5] Anisotropic Deformation Behaviour of ZrB₂ Ceramic Grains During In-Situ Micropillar Compression up to 500°C**
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- 16:00~16:20 **[RMH-O6] High Purity Tantalum Powder Manufacturing by External Continuous Na Reductants Feeding**
 Mr. Jae-hong Lim (Korea Institute of Industrial Technology)
- 16:20~16:40 **[RMH-O7] Fabrication of Meso-macro Porous β-SiC Sintered Body**
 Ms. Mirae Youm (Korea Institute of Science and Technology)

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- 13:30~15:10 **Nanocomposites and Nanoporous Materials III**
Chairman : Prof. Il-Kyu Park (Seoul National University of Science and Technology)
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Dr. Wan Young Maeng (Korea Atomic Energy Research Institute)
- 13:50~14:10 **[NNP-O10] Novel Design of Nanoporous Materials for Next-generation Energy Storage**
Dr. Geon-Hyoung An (University of Oxford)
- 14:10~14:30 **[NNP-O11] Facile Synthesis of Highly Magnetic FeCoNi/Graphene Hybrids using a Low Temperature Process**
Dr. Taehoon Kim (Korea Institute of Materials Science)
- 14:30~14:50 **[NNP-O12] Refractory High-entropy Alloys Containing Non-metallic Elements**
Prof. Hyunjoo Choi (Kookmin University)
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- 15:20~15:40 **[NNP-O13] Influence of Ceramic Nanoparticles on the Microstructure and Mechanical Properties of SAC305 & SAC405**
Mr. Manoj Kumar Pal (University of Miskolc)
- 15:40~16:00 **[NNP-O14] Facile Dispersion of Boron Nitride Nanotube through Various Surfactants**
Ms. Mise Chang (Korea Institute of Materials Science)
- 16:00~16:20 **[NNP-O15] Bimetallic Catalysts for Direct H₂O₂ Synthesis**
Ms. Hyobin Nam (Korea Institute of Science and Technology)

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Dr. Orlando Rios (Oak Ridge National Laboratory)
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Mr. Sang Hoon Choi (Korea Institute of Industrial Technology)
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Dr. Ryan T.Ott (Ames Laboratory (USDOE))
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Prof. José M. Torralba (Universities and Research of Madrid Regional Government)

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A New Approach for Processing Materials for High Temperature Applications 03

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Prof. Soon Hyung Hong (Korea Advanced Institute of Science and Technology)

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Prof. Hideshi Miura (Kyushu University)

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Social Program

► WELCOME RECEPTION

The Rooftop of the Tivoli Oriente Lisboa Hotel

From 19:00 to 20:30 on July 1, Sunday

The organizers plan to welcome the attendees of ISNNM 2018 with a welcome reception. The aim of this event is to get known each other, greet old friends and get some new. The tentative duration of this reception is 2 hours.

► GALA DINNER

Restaurants CASA Do ALENTEJO (Rua Portas de Santo Antão, 58, Lisboa)

From 18:30 to 22:00 on July 4, Wednesday

<http://www.casadoalentejo.com.pt/en/restaurant/>



Two beautiful rooms make up the Restaurant Casa do Alentejo. While one of the rooms is ornamented with tile panels created by Jorge Colaço (beginning of the 20th century), the other one is coated with tile panels from a 17th century palace. Both of them provide a peaceful environment, ideal to enjoy the gastronomy of the Alentejo region.

Party Halls

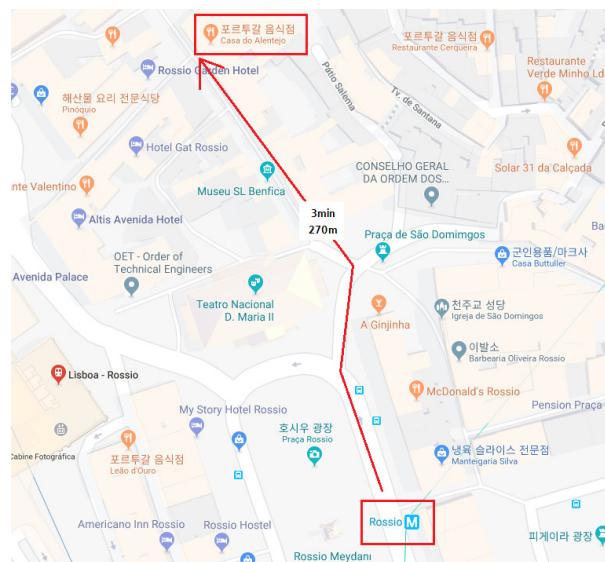
The Palácio Alverca / Casa do Alentejo was granted the classification of "Public Interest Building" assuring that you will have the right ambience for the party you are planning.

We are located at Rua das Portas de Santo Antão, right in the centre of the Lisbon's "Baixa". Step in at number 58, climb up the stone stairs and you will find yourself in an Arab courtyard, ideal for a reception cocktail for your guests. Go to the second floor and be mesmerized by the panel covered corridor that provides the access to our two grand party halls where you can host your event. The "Salão dos Espelhos" hall, decorated in the style of Louis XVI, has decorative stucco and is ornamented by hand-painted panels by Benvindo Ceia. The other room has a neo renaissance ambience and hosts romantic paintings by Alentejo born artist Domingos Costa.

We provide several logistic equipments along with an experienced and well-trained team that guarantees the excellence and success of your party/event.



Take at Oriente station (Red Line) and Transfer to Green line at Alameda station and Get off at Rossio Station



3minutes at Rossio Station on foot

► TECHNICAL TOUR PROGRAM :::::::::::::

SINTRA-CASCAIS-ESTORIL TOUR

From 09:30 to 18:00 on July 5, Thursday



- 09:30 Pick up at the Tivoli Oriente Hotel
- 10:10 - 10:35 Stop in Estoril, quick guided tour
- 10:45 - 11:15 Stop in Cascais, quick guided tour
- 11:20 - 11:35 Stop and pictures at Boca do Inferno, panoramic view
- 12:10 - 13:45 Lunch in Sintra
- 14:10 - 16:30 Guided Tour and Free Time in Sintra Villa
- 17:00 - 17:20 Stop and pictures at Cabo da Roca, panoramic view
- 18:00 Drop off at the Tivoli Oriente Hotel

Lunch at TOCA DO JÚLIO TRADITIONAL RESTAURANT - SINTRA





MEMO



MEMO