

# PROGRAM

*[Oral Presentation]*

**8 December (Thu.)**

## **Opening**

---

- 9:00-9:10 Jun Akedo, Director of Advanced Coating Technology Research Center (ACTRC), AIST, Japan  
Tetsuo Tsuchiya, Deputy Director of ACTRC, AIST, Japan

## **Novel spray coatings I**

**Session Chair: Jun Akedo (AIST)**

---

- 9:10-9:35 **(Invited)** A Study of Suspension Plasma Spray of Thermal Barrier Coatings  
Javad Mostaghimi, University of Toronto, Canada
- 9:35-10:00 **(Invited)** Influences on Coating Quality in Cold Spraying  
Frank Gaertner, Helmut Schmidt University, Germany
- 10:00-10:25 **(Invited)** Influence of the Substrate Temperature and Thickness on the Quality of Cold Gas Sprayed Coating  
Maria Villa Vidaller, Helmut Schmidt University, Germany

**Coffee Break (20min)**

## **Novel spray coatings II**

**Session Chair: Maria Villa Vidaller (HSU)**

---

- 10:45-11:05 **(Invited)** Scratch-Resistant Transparent Sapphire Coating by Aerosol Deposition for Cover Glass Application of Smart Phone  
Jae-Hyuk Park, IONES Co., Ltd., Korea
- 11:05-11:25 **(Invited)** Superconducting MgB<sub>2</sub> films prepared by the Aerosol Deposition Method  
Stefan Denneler, Siemens AG, Germany
- 11:25-11:45 **(Invited)** Assessment of Magnetic Orientation of Barium Hexaferrite Films Formed by Aerosol Deposition  
Scooter Johnson, Naval Research Laboratory, USA

11:45-12:05 Hybrid aerosol deposition (HAD): a new spray regime between thermal spray and aerosol deposition  
Kentaro Shinoda, AIST, Japan

12:05-14:00 **Lunch Break**

12:30-14:00 **Poster Session**  
(core time)

### **Application of computational materials engineering**

**Session Chair: Masahiro Tosa (NIMS)**

---

14:00-14:30 **(Invited)** Multiscale materials modeling of coatings  
Tomi Suhonen, VTT Technical Research Centre of Finland, Finland

14:30-14:55 Intelligent Manufacturing/Maintenance System Using Coating Technique Under Harsh Environment  
Shingo Hirose, AIST, Japan

14:55-15:15 Mechanical Properties of Thermal Spray Cermet coatings  
Makoto Watanabe, NIMS, Japan

**Coffee Break (15min)**

### **Tribology**

**Session Chair: Makoto Watanabe (NIMS)**

---

15:30-15:55 **(Invited)** Coatings of Boron Nitride Films for Vacuum Tribology by Reactive Plasma Assisted Coating (RePAC) Technology  
Masao Noma, SHINKO SEIKI CO., LTD. , Japan

15:55-16:20 **(Invited)** Ceramic Coating and Duplex Treatment Technology  
Atsuo Kawana, Japan Coating Center Co.,Ltd. , Japan

16:20-16:40 Nanostripe Surface Structures: Fabrication of Micro- and Nano-sized Surface Texturing for Improving Tribological Properties  
Koji Miyake, AIST, Japan

16:40-17:00 ZnO Sputter Coating - Application to Ball Bearing System and Development of Gas Turbine Generator  
Masahiro Tosa, NIMS, Japan

18:00-20:00 **Banquet**

## 9 December (Fri.)

### Functional film coatings I

Session Chair: Minoru Osada (NIMS)

---

- 8:30-9:05 **(Keynote)** Advanced Coatings for Win-Win Strategy  
Tomosaburo Yano, Japan Fine Ceramics Association, Japan
- 9:05-9:40 **(Keynote)** Aerosol Deposition of PLZT-based Dielectric Films for Power Electronics in Electric Drive Vehicles  
Balu Balachandran, Argonne National Laboratory, USA
- 9:40-10:05 **(Invited)** Tailoring of orientation distribution of highly transparent conductive n-type ZnO polycrystalline films for a variety of applications  
Tetsuya Yamamoto, Kochi University of Technology, Japan
- 10:05-10:25 Nature of BaTiO<sub>3</sub> Nanocubes for Dielectric Anomaly in The 3D Architectures  
Kazumi Kato, AIST, Japan

**Coffee break (10min)**

### Functional film coatings II

Session Chair: Tetsuo Tsuchiya (AIST)

---

- 10:35-11:00 **(Invited)** Development of Magneto-optic Three-dimensional Display with Sputtered Magneto-photonic Crystal  
Hiroyuki Takagi, Toyohashi University of Technology, Japan
- 11:00-11:25 **(Invited)** Chelate flame method, a new technology for rapid oxide film coatings  
Hidetoshi Saitoh, Nagaoka University of Technology, Japan
- 11:25-11:50 **(Invited)** Photonic Processing of Metal Oxide-Graphene 3D Architectures  
Shiva Adireddy, Tulane University, USA
- 11:50-12:10 Scalable Solution Assembly of 2D Nanosheets for Functional Ceramic Nanocoating  
Minoru Osada, NIMS, Japan

12:10-12:30 Flexible Oxide Films Fabricated by Photo-Assisted Chemical Solution Deposition  
Tomohiko Nakajima, AIST, Japan

12:30-13:30 **Lunch Break**

**Coatings for infrastructure**  
**Session Chair: Seiji Kuroda (NIMS)**

---

13:30-13:55 Coatings for Corrosion Protection  
Tadashi Shinohara, NIMS, Japan

13:55-14:20 **(Invited)** Laser Cleaning System using a kW-Class Fiber Laser for Infrastructures including Decommissioning  
Kazuhiisa Fujita, The Graduate School for the Creation of New Photonics Industries, Japan

14:20-14:40 Long-term Marine Exposure Test of HVOF-sprayed 316L Stainless Steel and Hastelloy C-276 coatings  
Seiji Kuroda, NIMS, Japan

**Coatings for harsh environment I**  
**Session Chair: Hideyuki Murakami (NIMS)**

---

14:40-15:15 **(Keynote)** Development of Environmental Barrier Coatings for All-Oxide CMC Gas Turbine Combustor Liners  
Peter Mechnich, German Aeroresearch Center (DLR), Germany

15:15-15:35 Influence of Isothermal Heat Treatment on Properties of  $Y_2SiO_5$ - $Y_2O_3$  Environmental Barrier Coatings  
Byung-Koog Jang, NIMS, Japan

15:35-15:55 Evaluation technique for interface fracture toughness of environmental barrier coating on ceramics matrix composites  
Hideki Kakisawa, NIMS, Japan

**Coffee break (15min)**

**Coatings for harsh environment II**  
**Session Chair: Hideyuki Murakami (NIMS)**

---

16:10-16:45 **(Keynote)** Design and Development of a Self-Healing Thermal Barrier Coating for Prolonged Lifetime  
Willem G. Sloof, TU Delft, Netherlands

- 16:45-17:10 **(Invited)** Development and application of the advanced TBC for high efficiency gas turbine  
Taiji Torigoe, Mitsubishi Heavy Industry, Japan
- 17:10-17:30 Microstructural optimizations of suspension plasma sprayed yttria partially stabilized zirconia thermal barrier coatings for gas-turbine applications  
Xiaolong Chen, NIMS, Japan
- 17:30-17:50 Determination of the fundamental mechanical properties of conventional and Pt- and Pt/Ir-modified NiAl diffusion coatings after thermocyclic exposure  
Ceyhun Oskay, Dechema Research Institute, Germany
- 17:50-18:10 A critical driving force for the spallation of thermal barrier coatings: chemistry dependent phase transformation of the bond coat  
Liberty Wu, NIMS, Japan

### **Closing**

- 
- 18:10-18:15 Hideyuki Murakami, NIMS, Japan

## **[Poster Presentation]**

- P01** Fine Ceramic Coatings by Novel Suspension Plasma Spray  
Mohammed Shahien *et al.*, AIST, Japan
- P02** Microstructure and Properties of AlN Thermal Spray Coatings  
Mohammed Shahien *et al.*, Toyohashi University of Technology, Japan
- P03** Evaluation of Ti-based alloys with TiAl overlay coatings  
K. Miura *et al.*, Shibaura Institute of Technology, Japan
- P04** Fabrication of Gd(III)-DTPA-nanodiamond Particles by Chemical Modification for Magnetic Resonance Imaging (MRI) Contrast Agents  
Takako Nakamura *et al.*, AIST, Japan
- P05** Preparation of MOD -YBCO films with highly-uniform superconducting properties on CeO<sub>2</sub> buffered LaAlO<sub>3</sub> substrates  
Mitsugu Sohma *et al.*, AIST, Japan
- P06** Enhanced polarization properties for bismuth potassium titanate prepared by utilizing AD method  
Muneyasu Suzuki *et al.*, AIST, Japan
- P07** Development of flexible resistor thin film by using photo-reaction of hybrid solution (PRHS)  
Yuko Uzawa *et al.*, AIST, Japan
- P08** M-I Transition Control of VO<sub>2</sub> Thin Film by Metal Doping and Excimer Laser assisted Metal Organic deposition (ELAMOD)  
Iwao Yamaguchi *et al.*, AIST, Japan
- P09** Evaluation of aluminized Ir and Ir alloys  
M. Yamashita *et al.*, Shibaura Institute of Technology, Japan
- P10** Uniform and dense Al<sub>2</sub>O<sub>3</sub> coating fabricated from fine particles  
Takanori Saeki *et al.*, AIST, Japan

- P11** Surface Temperature Evolution Upon Crystallization of Tin Oxide Films in ELAMOD Process  
Tsukasa Katsuki *et al.*, Shibaura Institute of Technology, Japan
- P12** Formation of Alumina Film on Plastic Substrates by Aerosol Deposition Method at Room Temperature  
Masakazu Mori *et al.*, Ryukoku University, Japan
- P13** Influences of Plasma-Suspension Interaction on Axial Feeding SPS Process  
Takuya Suzuki *et al.*, Tsukuba University, Japan