Daily Technical Session Schedule (HyMaP 2020 – *Special*)

1. ORAL SESSIONS

1-1. ORAL PRESENTATION TYPE LETTERS

- **PL** : Plenary Lectures
- **KN** : Keynote Lectures
- **IN** : Invited Presentations
- **OR** : Oral Presentations

1-2 SESSION LETTERS

- **A** : Hybrid Interface Materials
- **B** : Hybrid Functional Materials
- **C** : Hybrid Materials & Processing
- **D** : Virtual Symposium: Molecular Level Engineering of Functional Materials– Power of Synthesis

Oral presentation type letters are listed first, the session letter second, and the number of the paper last (i.e., IN-A1 = Invited Speaker, Session A, 1st paper of IN-A papers). For the contributed oral presentation, the presentation type is omitted ((ex)OR-1) except for the symposium D ((ex)OR-D1)

2020-11-25 (Wed)

Room 1	
Time	**Contents**
9:30 - 10:50	**Registration**
10:50-11:00	**Opening**
11:00-11:40	**PL-1: Efficient Photon-harvesting Technologies for Water Splitting Reactions (Prof. Sanjay Mathur, Univ. of Cologne, Germany)** Moderator : (Prof. Chan Park, Seoul, Nat. Univ.)
11:40-13:30	**Lunch**
	Session A. Hybrid Interface Materials (1) Moderator : (Prof. Hyejin Jang, Seoul Nat. Univ.)
13:30-14:00	**KN-1: 2D Graphene Oxide Liquid Crystal for Real-World Applications (Prof. Sang Ouk Kim, KAIST, Korea)**
14:00-14:20	IN-A1: Defect Chemistry in Fluorite-Structure Ferroelectrics for Future Electronic Devices (Prof. Min-Hyuk Park, Pusan National University, Korea)
14:20-14:40	IN-A2: Design and mechanism of ZnFe2O4/BiVo4 nanocomposites with highly enhanced photocatalytic actiity under visible light irradiation, (Prof. Changwei Zou, Lingnan Normal University, China)
14:40-15:00	IN-A3: Surface engineering of 2D materials, (Prof. Gwan-Hyoung Lee, Seoul National University, Korea)
15:00-15:20	OR-1: Discharge behavior of HiPIMS and film structure tailoring, (Prof. Xiao Zuo, Ningbo Institute of Materials Technology and Engineering (NIMTE), Chinese Academy of Sciences, China)
15:20-16:00	Coffee Break
	Session A. Hybrid Interface Materials (2) Moderator : (Prof. Min-Hyuk Park, Pusan Nat. Univ.)
16:00-16:20	IN-A4: Hybrid Multilayer Coatings with Synergistic Photocatalytic and Thermochromic Properties, (Prof. Österlund, Lars, Uppsala University, Sweden)
16:20-16:40	IN-A5: 2D materials showing two extremes of heat transport, (Prof. Hyejin Jang, Seoul National University, Korea)
16:40-17:00	OR-2: Hybrid Seeding Approach for Preparing SnO2 Nanowires on Versatile Conducting Substrates, (Dr. Bera Susanta, Pusan National University, Korea)
17:00-17:20	OR-3: Preparation of corrosion-resistant coatings embedded by zinc phosphate on magnesium alloy (AZ31B) with micro-arc oxidation, (Chao Yang, Peking University Shenzhen Graduate School, China)
17:20-17:40	OR-4: Design and Synthesis of High Efficient Catalytic Materials using Fluidized Bed Reactor, (Dr. Woo Jae Lee, Pusan National University, Korea)

Room 2	
9:30 - 10:50	**Registration**
10:50-11:00	**Opening**
11:00-11:40	**PL-1: Efficient Photon-harvesting Technologies for Water Splitting Reactions** **(Prof. Sanjay Mathur, Univ. of Cologne, Germany)** **Moderator : (Prof. Chan Park, Seoul, Nat. Univ.)**
11:40-13:30	**Lunch**
	Session B. Hybrid Functional Materials (1) **Moderator : (Prof. Oi Lun Helena Li, Pusan Nat. Univ.)**
13:30-14:00	**KN-2: Effect of Grain Refinement on Functional Properties of Metallic Materials** **(Prof. Koichi Tsuchiya, Nat. Inst. of Mater. Sci., Japan)**
14:00-14:20	IN-B1: Wafer-Scale Near Atom-Thickness 2D TMD Heterolayers Integrated on Arbitrary Substrates for Mechanically Reconfigurable Electronic Devices , (Prof. Yeonwoong (Eric) Jung, University of Central Florida, USA)
14:20-14:40	IN-B2: Constructing Core-Shell Nanowire Arrays Photoanodes for Efficient PEC Water Splitting and Sensitive PEC Detection of Small Molecules, (Prof. Yang Yang, Nanjing Tech Univ, China)
14:40-15:00	OR-5: Photoluminescence and photocatalytic properties of Bismuth Vanadate based ferroelectric thin films, (Prof. Wei Xie, Lingnan Normal University, China)
15:00-15:20	OR-6: Influence of Modulation Period on Structure and Properties of CrWN/MoN Coatings, (Prof. Canxin Tian, Lingnan Normal University, China)
15:20-16:00	Coffee Break
	Session B. Hybrid Functional Materials (2) **Moderator : (Prof. Se Hun Kwon, Pusan Nat. Univ.)**
16:00-16:20	IN-B3: Environmental trends in shipping - opportunities for next generation energy storage and conversion technologies, (Prof. Nikola Vladimir, University of Zagreb, Croatia)
16:20-16:40	IN-B4: Rethinking inorganic photochromics, (Prof. Montero Amenedo, José , Uppsala University, Sweden)
16:40-17:00	IN-B5: Sampling of PFAS from potable water: Capacitive and Temperature-responsive approaches, (Prof. Gibum Kwon, University of Kansas, USA)
17:00-17:20	OR-7: Cubic-structure Al-rich TiAlSiN thin films grown by HiPIMS with synchronized Al+ irradiation, (Dr. Zhengtao Wu, Guangdong University of Technology, China)
17:20-17:40	OR-8: Anisotropic response of cold sprayed copper deposits, (Dr. Kang Yang, Anhui Unviersity of Techology, China)

Room 3	
15:50-16:00	**Brief Opening for Virtual Symposium**
	Session D. Virtual Symposium: Molecular Level Engineering of Functional Materials – Power of Synthesis (1) **Moderator : (Prof. Dr. (h.c.) Sanjay Mathur, Univ. of Cologne)**
16:00-16:30	IN-D1: Intrinsic and extrinsic control parameters in chemical vapor deposition: From single source precursors to external fields (Dr. Thomas Fischer, University of Cologne, Germany)
16:30-17:00	IN-D2: Molecular engineering of metal alkoxides for high-tech metal oxide nanomaterials (Prof. Shashank Mishra, University of Lyon, France)
17:00-17:20	OR-D1: Selective Vapor Phase Syntheses of Advanced Metal Chalcogenides for Catalytic Water Splitting (Lasse Jürgensen, Novosibirsk State University, Russia)
17:20-17:40	OR-D2: MOCVD fabrication and medical application of platinum-based films (Dr. Svetlana I. Dorovskikh, Novosibirsk State University, Russia)
17:40-18:00	OR-D3: Charge separation manipulation for 2D/2D heterostructure photocatalyst via interalation-mediated interface electric field control (Dr. Minyeong Je, University of Cologne, Germany)
18:00-18:20	Break
	Session D. Virtual Symposium: Molecular Level Engineering of Functional Materials – Power of Synthesis (2) **Moderator : (Prof. Dr. Shashank Mishra, Univ. of Lyon)**
18:20-18:50	IN-D3: Deposition of MOCVD Film Materials on the Base of Platinum Group Metals superlattices (Prof. Natalya B. Morozova, Novosibirsk State University, Russia)
18:50-19:10	OR-D4:Synthesis of Rhenium Nitride Thin Films via Magnetic Field-Assisted CVD from Volatile Rhenium Precursors (Dr. Michael Frank, University of Cologne, Germany)
19:10-19:30	OR-D5: MOCVD approach to prepare highly emissive oxide films based on MgO (Dr. Evgeniia S. Vikulova, Novosibirsk State University, Russia)
19:30-19:50	OR-D6: Molecular f-Elements Precursors Designed for the Synthesis of (Ln/Ac) binary and ternary oxide Nanomaterials (Dr. Aida Raauf, University of Cologne, Germany)
19:50-20:20	IN-D4: Molecular Architecture Engineering of Metal Precursors and their Applications to Vapor Phase and Solution Routes (Prof. Graziella Malandrino, University of Catania, Italy)

2020-11-26 (Thu)

Room 1	
9:00-9:30	**Registration**
9:30-10:10	**PL-2. New Materials for Futuristic Semiconductor Memory Devices** **(Prof. Cheol Seong Hwang, SNU, Korea)** **Moderator : (Prof. Young Rae Cho, Pusan National Univ.)**
	Session A. Hybrid Interface Materials (3) **Moderator : (Prof. Jung Woo Lee, Pusan Nat. Univ.)**
10:10-10:40	**KN-3: Multi-modal energy harvesting – light, magnetic field and vibrations** **(Prof. Shashank Priya, Penn. State Univ. , USA)**
10:40-11:00	IN-A6: Atomic layer deposition of metal oxide thin films on TNT material aiming to improve the ability to block droplets of respiratory fluid, (Prof. Rodrigo Sávio Pessoa , Instituto Tecnológico de Aeronáutica, Brazil)
11:00-11:20	IN-A7: Additive Nanomanufacturing: Area-Selective ALD Patterned by Electrohydrodynamic Jet Printing for Functional Materials and Devices, (Prof. Neil Dasgupta, University of Michigan, USA)
11:20-11:40	IN-A8: Computational Design of Active Hybrid Interface Energy Materials from the Scratch, (Prof. Byungchan Han, Yonsei University, Korea)
11:40-12:00	IN-A9: Ultrasonic-assisted plasma engineering for single-atom metal carbon electrocatalysts (Prof. Helena Oi Lun Li, Pusan National University, Korea)
12:00-13:30	**Lunch**
	Session B. Hybrid Functional Materials (3) **Moderator : (Prof. Byungchan Han, Yonsei Univ.)**
13:30-14:00	**KN-5: Structure control of hybrid materials using nanosecond pulsed electric field** **(Prof. Tadachika Nakayama, Nagaoka Univ. of Tech., Japan)**
14:00-14:20	IN-B6: Origin and control of orientation of phosphorescent dyes for high-efficiency OLEDs, (Dr. Kwon-Hyeon Kim, Harvard Medical School, Massachusetts General Hospital, USA)
14:20-14:40	IN-B7: Design of synaptic devices using multi-dimensional materials, (Prof. Wentao Xu, Nankai University, China)
14:40-15:00	OR-9: Effect of microstructure related to oxygen-fuel ratio parameters on hot corrosion behavior of NiCrAlY coatings in KCl molten salt, (Kai Hu, Anhui Unviersity of Techology, China)
15:00-15:20	OR-10: Fabrication and characterization of hierarchical porous TiO2-ZnO hybrid film with enhanced photoelectrochemical performance, (Dr. Hasmat Khan, Central Glass & Ceramic Research Institute, India)
15:20-16:00	Coffee Break
	Session B. Hybrid Functional Materials (4) **Moderator : (Prof. Je-In Lee, Pusan National Univ.)**
16:00-16:30	**KN-7: Versatile Nonvolatile Memories enabled by Ferroelectricity in Hafnium Oxide** **(Prof. Thomas Mikolajick, NaMLab gGmBH & Tech. Univ. Dresden, Germany)**
16:30-16:50	IN-B8: Graphene-based chemical sensors, (Prof. Ho Won Jang, Seoul National University, Korea)
16:50-17:10	IN-B9: Harmonized sulfur in disordered carbon structure for high-efficiency sodium-ion battery, (Prof. Nozomi Takeuchi, Tokyo Institute of Technology, Japan)
17:10-17:30	IN-B10: Highly radiative high-transmittance nano-membrane composite for EUV pellicle applications, (Prof. Jinho Ahn, Department of Materials Science and Engineering, Hanyang University, Korea)
17:30-17:50	OR-11: Investigation of top cell for hybrid tandem solar cell application, (Dr. Shin-Ho Kim, Pusan National University, Korea)
17:50-18:20	Break
18:20-20:20	**Banquet (Panel Discussion with Virtual Symposium)**
20:20-20:30	**Closing Remarks**

Room 2	
9:00-9:30	**Registration**
9:30-10:10	**PL-2. New Materials for Futuristic Semiconductor Memory Devices** **(Prof. Cheol Seong Hwang, SNU, Korea)** **Moderator : (Prof. Young Rae Cho, Pusan National Univ.)**
	Session C. Hybrid Materials & Processing (1) **Moderator (Prof. Woon Ik Park, Pukyong National Univ.)**
10:10-10:40	**KN-4: Hybrid PVD Hard Coatings for High-speed Machining** **(Prof. Qimin Wang, Guandong Univ. of Tech., China)**
10:40-11:00	IN-C1: Spectroscopic imaging of atomic reconstruction in twisted bilayer semiconductor, (Dr. Jiho Sung, Harvard Medical School, Massachusetts General Hospital, USA)
11:00-11:20	IN-C2: Development and application of the vacuum equipments based on continous high power discharge, (Prof. Zhongzhen Wu Peking University Shenzhen Graduate School, China)
11:20-11:40	IN-C3: Nonlinear X-ray Spectroscopy: a novel probe for interfacial dynamics, (Prof. Michael Zuerch, UC Berkeley, USA)
11:40-12:00	OR-12: Modern Data Analytics Approach of Melt Pools in Metal Additive Manufacturing, (Dr. Seul-Bi Lee, Pusan National University, Korea)
12:00-13:30	**Lunch**
	Session C. Hybrid Materials & Processing (2) **Moderator (Prof. Jae Hong Lim, Gachon Univ.)**
13:30-14:00	**KN-6 : Surface Modifications of Polymer Substrate for Electronic Device Application** **(Prof. Young Rae Cho, Pusan National University, Korea)**
14:00-14:20	IN-C4: Thermal Radiation Control using Polymer Composites and Stretchable Materials, (Prof. Jaeho Lee, University of California, Irvine, USA)
14:20-14:40	IN-C5: The design of MAX phase coating for high-temperature protection, (Prof. Peiling Ke, Ningbo Institute of Materials Technology and Engineering, Chinese Academy of Sciences, China)
14:40-15:00	IN-C6: Application Research of High-performance Metal and Ceramic Coatings and ISO Works, (Prof. Shihong Zhang, Anhui University of Technology, China)
15:00-15:20	OR-13: Diamond-like/graphite-like carbon composite films deposited by high-power impulse magnetron sputtering, (Prof. Wei Dai, Guangdong University of Technology, China)
15:20-16:00	Coffee Break
	Session C. Hybrid Materials & Processing (3) **Moderator (Dr. Shin Ho Kim, Pusan National Univ.)**
16:00-16:30	**KN-8: Non-hydrolytic sol-gel chemistry to functional hybrid materials** **(Prof. Nicola Pinna , Humboldt-Univ. zu Berlin)**
16:30-16:50	IN-C7: Theoretical model for optimizing doping concentrations for solar energy conversion efficiency, (Dr. Heechae Choi, University of Cologne, Germany)
16:50-17:10	IN-C8: Study on Microstructure Modulation and Performance of the AlCrSiN/Mo Self-lubricating Coatings Prepared by Hybrid Magnetron Sputtering, (Prof. Tiegang Wang, Tianjin University of Technology and Education, China)
17:10-17:30	OR-14: Synthesis of nickel-copper composite with controllable nanostructure through facile solvent control as positive electrode for high-performance supercapacitors, (Dr. Da Min Lee, University of Cologne, Germany)
17:30-17:50	OR-15: Chemically-processed metal oxide nanostructures for supercapacitors, (Dr. Nanasaheb Shinde, NCRC, Korea)
17:50-18:20	Break
18:20-20:20	**Banquet (Panel Discussion with Virtual Symposium)**
20:20-20:30	**Closing Remarks**

Room 3	
	Session D. Virtual Symposium: Molecular Level Engineering of Functional Materials – Power of Synthesis (3) **Moderator (Prof. Dr. Roman A. Surmenev, Tomsk Polytechnic Univ.)**
16:00-16:30	IN-D5: Phthalocyanine-based hybrid materials as active layers of chemical sensors (Prof. Tamara Basova, Novosibirsk State University, Russia)
16:30-17:00	IN-D6: Single-source-precursor synthesis and processing of silicide-containing polymer derived ceramic nanocomposites (Prof. Emanuel Ionescu, TU Darmstadt, Germany)
17:00-17:20	OR-D7: Structural and sensor properties of fluorosubstituted metal phthalocyanines MPcFx (x = 4, 16, M=Co, Cu, Zn, VO, Pb) thin films (Darya D.Klyamer, Novosibirsk State University, Russia)
17:20-17:40	OR-D8: Universal Approach towards 2D Van der Waals Materials of Metal Chalcogenides from Molecular Building Blocks (Dr. Veronika Brune, University of Cologne, Germany)
17:40-18:00	OR-D9: Methoxy-substituted heterometallics for composite materials (Dr. Urkasym K. Samara, Novosibirsk State University, Russia)
18:00-18:20	Break
	Session D. Virtual Symposium: Molecular Level Engineering of Functional Materials – Power of Synthesis (4) **Moderator (Prof. Dr. Natalya B. Morozova, Russian Academy of Sciences)**
18:20-18:50	IN-D7: Hybrid lead-free polymer-based nanocomposites with improved piezoelectric response for biomedical energy-harvesting applications (Prof. Roman A. Surmenev, National Research Tomsk Polytechnic University, Tomsk)
18:50-19:10	OR-D10: Volatile tris(β-diketonato)metal(III): thermochemistry and “structure-property” relationships (Alexander M. Makarenko, University of Cologne, Germany)
19:10-19:30	OR-D11: Construction of Stoichiometric Lithium-Vanadium-Alkoxide Frameworks: Synthesis, Reactivity and Selective Conversion into Oxide Nanostructures (David Graf, University of Cologne, Germany)
19:30-19:50	OR-D12: MOCVD processes of obtaining iridium coating on pacemaker electrode: from synthesis of precursor to electrode testing (Ksenya I. Karakovskaya, Novosibirsk State University, Russia)
19:50-20:20	IN-D8: Synthesis of all-inorganic halide perovskites: from β-diketonate metalorganic compounds to CsPbBr3 and CsPb2Br5 perovskite microcrystals (Dr. Anna L. Pellegrino, University of Catania, Italy)
20:20-20:30	**Closing Remarks**