

# Plenary Lecture

October 19 (Mon), 11:00-12:00

## DNA-mediated Signaling through Redox Chemistry

Chair : Dongwhan Lee (Seoul National University)



### Jacqueline K. Barton

John G. Kirkwood and Arthur A. Noyes Professor of Chemistry, California Institute of Technology, USA

#### Brief Profiles

\* Present: John G. Kirkwood and Arthur A. Noyes Professor, Division of Chemistry and Chemical Engineering, California Institute of Technology, USA

\* 1979-1980: NIH Postdoctoral Research Fellow in Biophysical Chemistry, Yale University, Bell Laboratories, USA

\* 1978: Ph.D. Department of Chemistry, Columbia University, USA

\* 1974: A.B. Department of Chemistry, Barnard College, USA

Many experiments have now shown that double helical DNA may serve as a conduit for efficient redox chemistry over long molecular distances. This chemistry is exquisitely sensitive to perturbations in the DNA base stack, such as arise with base mismatches, lesions, and protein binding. We have explored how this chemistry may be used within the cell for long range signaling. Increasingly, 4Fe-4S clusters are being found in DNA-binding proteins involved in genome maintenance. These 4Fe-4S clusters, common redox co-factors, are associated not only with repair proteins but also DNA polymerases and primase. Studies are described to characterize DNA-mediated charge transport by these metalloproteins. Experiments indicate that this chemistry is important in the context of oxidative damage and also may provide a first step in how DNA repair proteins may localize in the vicinity of lesions. This redox chemistry at a distance, mediated by the DNA helix, offers a route for long range signaling among DNA-processing proteins across the genome.

# Award Lecture

## 2020 Taikyue Ree Academic Award

October 21 (Wed), 11:30-12:30

## New Methodologies for Construction of Biologically Interesting Aromatics and Heteroaromatics

Chair : Jeung Gon Kim (Jeonbuk National University)



### Yong Rok Lee

School of Chemical Engineering,  
Yeungnam University

#### Brief Profiles

\* Present: Professor, School of Chemical Engineering, Yeungnam University, Korea

\* 1992: PhD, Department of Chemistry, Seoul National University, Korea

\* 1984: M.S, Department of Chemistry, Seoul National University, Korea

\* 1982: B.S, Department of Chemistry, Jeonbuk National University, Korea

The construction of various functionalized aromatic and heteroaromatics via annulation and C-H activation plays a vital role in advanced synthetic organic chemistry. These compounds have shown a lot of biological activities and widely used for the development of new drugs and functional materials. Owing to their importance and usefulness, we have been interested in the synthesis of aromatics and heteroaromatics utilizing new methodologies. In this presentation, we describe a facile and efficient construction of biologically interesting and diverse aromatics and heteroaromatics via annulation and C-H activation developed by our group (Scheme 1).<sup>1-10</sup>

#### <Reference>

01. Shrestha, R.; Lee, Y. R. *Org. Lett.* 2018, 20, 7167.
02. Shrestha, R.; Khanal, H. D.; Rubio, P. Y. M.; Mohandoss, S.; Lee, Y. R. *Org. Lett.* 2020, 22, 7531.
03. Akhtar, M. S.; Thombal, R. S.; Tamargo, R. J. I.; Yang, W.-G.; Kim, S. H.; Lee, Y. R. *Green Chem.* 2020, 22, 4523.
04. Poudel, T. N.; Lee, Y. R. *Chem. Sci.* 2015, 6, 7028.
05. Poudel, T. N.; Karanjit, S.; Khanal, H. D.; Tamargo, R. J. I.; Lee, Y. R. *Org. Lett.* 2018, 20, 5648.
06. Thombal, R. S.; Lee, Y. R. *Org. Lett.* 2018, 20, 4681.
07. Thombal, R. S.; Kim, S.-T.; Baik, M.-H.; Lee, Y. R. *Chem. Commun.* 2019, 55, 2940.
08. Kim, H.; Thombal, R. S.; Khanal, H. D.; Lee, Y. R. *Chem. Commun.* 2019, 55, 13402.
09. Thombal, R. S.; Lee, Y. R. *Org. Lett.* 2020, 22, 3397.
10. Thombal, R. S.; Feoktistova, T.; González-Montiel, G. A.; Cheong, P. H.-Y.; Lee, Y. R. *Chem. Sci.* 2020, 11, 7260.

## Organizer

**Mi Hee Lim**

Present Professor, Department of Chemistry, KAIST, Korea

2018.02-2020.02 Associate Professor, Department of Chemistry, KAIST, Korea

2013.09-2018.01 Associate Professor, Department of Chemistry, UNIST, Korea

## Chair

**Eunsung Lee**

Present Associate Professor, Department of Chemistry, POSTECH, Korea

2013 Postdoc, Department of Chemistry, Harvard University, USA

2009 Ph.D, Department of Chemistry, Stanford University, USA

## Speaker

**Kimoon Kim**

Present Professor, Department of Chemistry, POSTECH, Korea

**Sukbok Chang**

Present Professor, KAIST

Present Director, IBS

**Dongho Kim**

Present Underwood Distinguished Professor, Department of Chemistry, Yonsei University, Korea

1984 Ph. D, Department of Chemistry, Washington University, USA

1980 B.S, Department of Chemistry, Seoul National University, Korea

**Wonwoo Nam**

Present Distinguished Professor, Department of Chemistry and Nano Science, Ewha Womans University, Korea

Present Editor-in-Chief, Bulletin of the Korean Chemical Society

2015 Korea Science Award given by the President of Korea

**Jinwoo Cheon**

2015- Present Director, Center for Nanomedicine, Institute of Basic Science (IBS), Korea

2002- Present Professor, Department of Chemistry, Yonsei University, Korea

2009 - Present Senior Editor, Accounts of Chemical Research (ACS)

### 3. [International Symposium] The Future is Already Here: Advancing Frontiers in Chemical Research

Organizer : Mi Hee Lim (KAIST)

Chair : Eunsung Lee (POSTECH)

- 13:30 **KCS1-1** Sound, Chemistry, and Patterns  
Kimoon Kim  
*Department of Chemistry, Pohang University of Science and Technology, Korea*
- 14:10 **KCS1-2** Mechanism-Driven C-H Amidation: Reaction Development and Asymmetric Catalysis  
Sukbok Chang  
*Department of Chemistry, Institute for Basic Science and Korea Advanced Institute of Science and Technology, Korea*
- 14:50 Break
- 15:00 **KCS1-3** HÜCKEL, MÖBIUS, BAIRD AND 3-DIMENSIONAL AROMATICITY IN VARIOUS EXPANDED PORPHYRINS  
Dongho Kim  
*Department of Chemistry, Yonsei University, Korea*
- 15:40 **KCS1-4** Biomimetic Metal-Oxygen Intermediates in Dioxygen Activation Chemistry  
Wonwoo Nam  
*Department of Chemistry and Nano Science, Ewha Womans University, Korea*
- 16:20 **KCS1-5** Nanomaterials Toolkit for Next Generation Imaging and Cell Manipulations  
Jinwoo Cheon  
*Department of Chemistry, Yonsei University, Korea*

## Organizer

**Kimoon Kim**

Present Professor, Department of Chemistry, POSTECH, Korea

## Chair

**Minyoung Yoon**

Present Assistant Professor, Department of Chemistry, Kyungpook National University, Korea

2011 Ph. D. Department of Chemistry, POSTECH, Korea

2005 B. S. Department of Chemistry, POSTECH, Korea

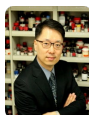
## Speaker

**Young-Tae Chang**

Present Professor, Department of Chemistry, POSTECH, Korea

2007-2017 Professor, Department of Chemistry, NUS, Singapore

2000-2007 Asst/Assoc. Prof. Department of Chemistry, NYU, USA

**Seung Bum Park**

Present Professor, Department of Chemistry, Seoul National University, Korea; Director, CRI Center for Chemical Proteomics, SNU;

2001~2003 Postdoc, Dept. Chemistry & Chemical Biology, Harvard University

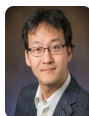
2001 Ph.D, Department of Chemistry, Texas A&M University, USA

**Kyeng Min Park**

Present Research Fellow (Group leader), Center for Self-assembly & Complexity, Institute for Basic Science

2014 Senior Researcher, Semicon. R&D center, Samsung Electronics, Rep. of Korea.

2012 PostDoc., Department of chemistry and chemical biology, Harvard Univ. USA

**Jejoong Yoo**

Present Assistant Professor, Department of Physics, Sungkyunkwan University, Korea

2010 Ph.D, Biophysics Program, University of Wisconsin-Madison, USA

2001 B.S, Department of Physics, Seoul National University, Korea

**Jong-Beom Baek**

Present Professor/Director, School of Energy and Chemical Engineering, UNIST, Korea

1998 Ph.D, Department of Polymer Science, University of Akron, USA

1993 M.S., Department of Polymer Science and Engineering, Kyungpook National University, Korea

## 5. [IBS Symposium] Frontiers in Molecular Recognition and Self-assembly

Organizer : Kimoon Kim (POSTECH)

Chair : Kangkyun Baek (Institute for Basic Science)

- 13:30 **KCS4-1** New Paradigm for Cell Identification  
Young-Tae Chang  
*Department of Chemistry, Pohang University of Science and Technology, Korea*
- 13:55 **KCS4-2** Design and Synthesis of Novel Molecular Diversity for the Study of Protein-Protein Interactions  
Seung Bum Park  
*Division of Chemistry, Seoul National University, Korea*
- 14:20 **KCS4-3** A protocell as a molecular network system mimicking intracellular protein aggregation and its intra- and intercellular effects  
Kyeng Min Park  
*Center for Self-assembly and Complexity, Institute for Basic Science, Korea*
- 14:35 **KCS4-4** Current issues in molecular dynamics simulations of biomolecular self-assembly  
Jejoong Yoo  
*Department of Physics, Sungkyunkwan University, Korea*
- 14:50 Break
- Chair : Minyoung Yoon (Kyungpook National University)
- 15:05 **KCS4-5** Forming Two- and Three-Dimensional Organic Network Structures for Various Applications  
Jong-Beom Baek  
*Division of Energy Engineering, Ulsan National Institute of Science and Technology, Korea*
- 15:30 **KCS4-6** Covalent Self-assembly of Unconventional Nano/microstructures  
Kangkyun Baek  
*Center for Self-assembly and Complexity, Institute for Basic Science, Korea*
- 15:45 **KCS4-7** Sound-controlled Spatiotemporal Patterns in Out-of-equilibrium Systems  
Ilha Hwang  
*Center for Self-assembly and Complexity, Institute for Basic Science, Korea*
- 16:00 **KCS4-8** Chemical Fuel-Driven Transient Crystallization  
Rahul Dev Mukhopadhyay  
*Center for Self-assembly and Complexity (CSC), Institute for Basic Science, Korea*

**Kangkyun Baek**

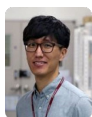
- Present Team leader, Center for Self-assembly and Complexity, Institute for Basic Science, Korea
- 2010 Ph.D, Department of Chemistry, POSTECH, Korea
- 2004 B.S, Department of Chemistry, POSTECH, Korea

**Ilha Hwang**

- Present Research Fellow, Center for Self-assembly and Complexity (CSC), Institute for Basic Science (IBS), South Korea
- 2010 Research assistant professor, Department of Chemistry, POSTECH, South Korea
- 2008 Postdoctoral researcher, Department of Chemistry, Stanford University, USA

**Rahul Dev Mukhopadhyay**

- Present CSC-Research Fellow, Center for Self-assembly and Complexity (CSC), Institute for Basic Science (IBS), Korea
- 2017 Ph.D, AcSIR-Academy of Scientific and Innovative Research, India
- 2010 M.Sc, Department of Chemistry, Ramakrishna Mission Residential College, University of Calcutta, India

**Younghoon Kim**

- Present Research fellow, Center for Self-assembly and Complexity, Institute for Basic Science, Korea
- 2020 Ph.D, Department of Chemistry, POSTECH, Korea
- 2015 M.S, Department of Chemistry, Chungnam Natl. University, Korea

16:15

**KCS4-9** Porphyrin Boxes and BeyondYounghoon Kim*Center for Self-assembly and Complexity, Institute for Basic Science, Korea*

### Speaker



#### Lee Sunggi

Present Assistant Professor, Emerging Materials Science, DGIST, Korea  
2009 Ph.D, Department of Chemistry, KAIST, Korea  
2004 MSc., Department of Chemistry, KAIST, Korea



#### Young soo Kang

Present Professor, Department of Chemistry, Sogang University, Korea  
1992 Ph.D, Department of Chemistry, University of Houston, USA  
1984 B.S, Department of Chemical Education, Pusan National University, Korea

## 7. [KCS-SK innovation Joint Symposium] Green Chemistry for Social Value

Organizer : Taejin Kim (SK Innovation)

Chair : Jongho Lim (SK Innovation)

- 13:00 **KCS5-1** The development of new strong Brønsted acids and their applications  
Lee Sunggi  
*Department of Emerging Material Science, Daegu Gyeongbuk Institute of Science & Technology, Korea*
- 15:00 **KCS5-3** Photoelectrochemical CO<sub>2</sub> Reduction into Liquid Fuels: Thermodynamics and Kinetics Control  
Young soo Kang  
*Department of Chemistry, Sogang University, Korea*

## Organizer

**Minjae Lee**

Present Professor, Department of Chemistry, Kunsan National University, Korea  
 2013 Senior Researcher, Samsung-Total Petrochemicals, Korea  
 2010 PhD, Department of Chemistry Virginia Tech, USA

## Chair

**BongSoo Kim**

Present Associate Professor, Department of Chemistry, UNIST, Korea  
 2008 Ph.D., Department of Chemistry, University of Minnesota, USA  
 2002 B.S., Department of Chemistry, Korea University, Korea

## Speaker

**Dong Ki Yoon**

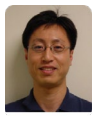
Present Associate Professor, Department of Chemistry, KAIST, Korea  
 2020 Assistant, Associate Professor, Graduate School of Nanoscience and Technology and Department of Chemistry, KAIST, Korea

**Bongjin Moon**

Present Professor, Department of Chemistry, Sogang University, Korea  
 2001 Ph. D. Department of Chemistry, Univ. of Minnesota, USA  
 1992 B.S. and M.S. Department of Chemistry, Seoul National Univ., Korea

**Jong-Man Kim**

2000- Present Professor, Department of Chemical Engineering, Hanyang University, Korea  
 2012- Present Director, Institute of Nano Science and Technology, Hanyang University, Korea  
 1996- 2000 Senior Research Scientist, KIST, Korea

**Wonmok Lee**

Present Professor, Department of Chemistry, Sejong University, Korea  
 2005 Post doc, Department of Materials Engineering, MIT, USA  
 2001 Ph.D. Department of Chemistry, POSTECH, Korea

**Hyunjung Lee**

2010-present Professor, School of Advanced Materials Engineering, Korea Univ. Korea  
 2004- 2010 Senior/Principal Research Scientist, KIST, Korea

## 8. Special Symposium by Mid-career Polymer Synthesis Scientists

Organizer : Minjae Lee (Kunsan National University)

Chair : BongSoo Kim (UNIST)

## &lt; Award Lecture: Award for Advanced Research &gt;

10:40 **POLY1-1** Orientation control of polymeric materials for optical and electronic applications  
Dong Ki Yoon  
*Department of Chemistry, Korea Advanced Institute of Science and Technology, Korea*

Chair : Minjae Lee (Kunsan National University)

11:10 **POLY1-2** Development of Flexible Hard Coating with Anti-fingerprint (AF) Surface  
Bongjin Moon  
*Department of Chemistry, Sogang University, Korea*

11:35 **POLY1-3** Synthesis and Applications of Stimulus-responsive Conjugated Polydiacetylenes  
Jong-Man Kim  
*Department of Chemical Engineering, Hanyang University, Korea*

12:00 **POLY1-4** Artificial Opal Platform Technology for Photonic Gel Sensors  
Wonmok Lee  
*Department of Chemistry, Sejong University, Korea*

12:20 **POLY1-5** Tuning the thermoelectric properties of two dimensional materials using an electrochemical transistor  
Hyunjung Lee  
*School of Advanced Materials Engineering, Kookmin University, Korea*

## Organizer

**Min Sang Kwon**

Present Assistant Professor, Department of Materials Science and Engineering, Seoul National University, Korea

2011 Ph.D., Department of Chemistry, Seoul National University, Korea

2006 B.S., Department of Materials Science and Engineering, Seoul National University, Korea

## Speaker

**Jin Hong Lee**

Present Assistant Professor, School of Chemical Engineering, Pusan National University, Korea

**Changwoo Nam**

2018 PostDoc, Materials Science & Engineering, Penn State University, USA

2019 PostDoc, Department of Chemical Engineering, POSTECH, Korea

2019 Assistant Professor, Jeonbuk National University, Korea

**Jiheong Kang**

present Assistant professor, Department of materials science and engineering, KAIST

**Byungjin Koo**

Present Professor, Department of Polymer Science and Engineering, Dankook University

## 9. Recent Trends in Early-career Polymer Chemists

Organizer : Min Sang Kwon (Seoul National University)

Chair : Min Sang Kwon (Seoul National University)

- 13:30 **POLY2-1** Gel-state Electrolytes for Lithium Batteries  
Jin Hong Lee  
*School of Chemical Engineering, Pusan National University, Korea*
- 13:55 **POLY2-2** Design and Synthesis of Reactive Polyolefin: Enabling Growth and Sustainability  
Changwoo Nam  
*Jeonbuk National University, Korea*
- 14:20 **POLY2-3** Self-healing soft electronics: From materials to devices to system  
Jiheong Kang  
*Department of Materials science and engineering, Korea Advanced Institute of Science and Technology, Korea*
- 14:45 **POLY2-4** Resin Functionalization with Protein N-Termini and Metal-Chelating Ligands  
Byungjin Koo, Matthew Francis<sup>1,\*</sup>  
*Department of Polymer Science and Engineering, Dankook University, Korea*  
<sup>1</sup>*Chemistry, University of California, Berkeley, United States*



## Speaker

**Seung Woo Lee**

Present Professor, School of Chemical Engineering, Yeungnam University, Korea

2006 Postdoc, Department of Chemistry, Northwestern University, USA

2003 Ph. D, Department of Chemistry, POSTECH, Korea

**Nam-ho You**

Present Principal Researcher, Korea Institute of Science and Technology, Korea

2011 Postdoc, Department of material science and engineering, Cornell University, USA

2010 Ph.D, Department of Organic and Polymeric materials, Tokyo Institute of Technology, Japan

**Yun Ho Kim**

Present Principal Researcher, Division of Advanced Materials, KRICT, Korea

2011 Post-doc, Dept. of Biomedical Eng., Washington Univ. in St. Louis, USA

2010 Ph. D., Dept. of Chemical and Biomolecular Eng., KAIST, Korea

**Yongho Joo****10. Recent Trends in the Development of Plastic Substrates**

Organizer : Seokhoon Ahn (KIST)

Chair : Seokhoon Ahn (KIST)

- 15:10 **POLY3-1** Polyimide: Definition and Applications  
Seung Woo Lee  
*School of Chemical Engineering, Yeungnam University, Korea*
- 15:35 **POLY3-2** Development of High performance polymers for plastic substrates  
Nam-ho You  
*탄소융합소재연구센터, Korea Institute of Science and Technology, Korea*
- 16:00 **POLY3-3** Highly Stable Polyimide Dielectrics for High-performance Flexible Electronic Devices  
Yun Ho Kim  
*Center for Advanced Functional Polymers, Korea Research Institute of Chemical Technology, Korea*
- 16:25 **POLY3-4** Mixed Ionic and Electronic Conduction in Radical Polymers  
Yongho Joo  
*Advanced Functional Composite Materials Research Center, Korea Institute of Science and Technology, Korea*

## Speaker

**Bun Yeoul Lee**

- Present Professor, Department of molecular science and technology, Ajou University
- 1995 Ph. D. Department of Chemistry, Seoul National University
- 1990 B.S. Department of Chemistry, Seoul National University

**Sukwon Hong**

- Present Professor, Department of Chemistry, GIST, Korea
- 2005 Assistant Professor, Department of Chemistry, University of Florida, USA
- 2003 Ph.D. Department of Chemistry, Northwestern University, USA

**Eunsung Lee**

- Present Associate Professor, Department of Chemistry, POSTECH, Korea
- 2013 Postdoc, Department of Chemistry, Harvard University, USA
- 2009 Ph.D. Department of Chemistry, Stanford University, USA

**Hyosun Lee**

- Present Professor, Department of Chemistry, Kyungpook National University, Republic of Korea
- 1999 Ph.D., Department of Chemistry, Columbia University, USA
- 1992 B.S., Department of Chemistry, Yeungnam University, Republic of Korea

**Youngmin You**

- Present Associate Professor, Chemical Engineering and Materials Science, Ewha Womans University, Korea
- 2011 Postdoctoral Fellow, Chemistry, Massachusetts Institute of Technology, USA
- 2007 Ph.D., Materials Science and Engineering, Seoul National University, Korea

**Myung Hwan Park**

- Present Associate Professor, Department of Chemistry Education, Chungbuk National University, Korea
- 2012 Manager, LG Chem Research Park, Korea
- 2010 Ph. D. Department of Chemistry, KAIST, Korea

## 11. Organometallic Polymerization Catalysts

Organizer : Junseong Lee (Chonnam National University)

Chair : Junseong Lee (Chonnam National University)

- 09:00 **INOR1-1** MAO-free Catalytic System for Ethylene Tetramerization  
Bun Yeoul Lee  
*Department of Molecular Science and Technology, Ajou University, Korea*
- 09:30 **INOR1-2** Abnormal N-Heterocyclic Carbene Palladium Catalysts for the Copolymerization of Ethylene and Polar Monomers  
Sukwon Hong  
*Department of Chemistry, Gwangju Institute of Science and Technology, Korea*
- 10:00 **INOR1-3** Indol-2-ylidene (INDY): New Generation of N-heterocyclic Carbene with Facile Tunability and Scalability for Organic Synthesis  
Eunsung Lee  
*Department of Chemistry, Pohang University of Science and Technology, Korea*
- 10:30 **INOR1-4** Homogeneous Catalysis for Polymerization of Methyl Methacrylate  
Hyosun Lee  
*Department of Chemistry, Kyungpook National University, Korea*

Chair : Hoi Ri Moon (UNIST)

## &lt; Award Lecture: Young Inorganic Chemist Award 1 &gt;

- 11:00 **INOR1-5** Photofunctionality of Transition Metal Complexes  
Youngmin You  
*Chemical Engineering and Materials Science, Ewha Womans University, Korea*

## &lt;Award Lecture: Young Inorganic Chemist Award 2&gt;

- 11:30 **INOR1-6** Main Group Organometallic Complexes as Potential Optoelectronic Materials  
Myung Hwan Park  
*Department of Chemical Education, Chungbuk National University, Korea*

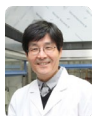
## Organizer



## Youngmin You

Present Associate Professor, Chemical Engineering and Materials Science, Ewha Womans University, Korea  
 2007 Ph.D. Materials Science and Engineering, Seoul National University, Korea  
 2001 B.S. Chemical Engineering, Seoul National University, Korea

## Speaker



## Kwan mook Kim

1989-2004 Researcher, KIST, Korea  
 2004-present Professor, Department of Chemistry and Nanosciences, Ewha Womans University, Korea



## Jwa-Min Nam

Present Professor, Department of Chemistry, Seoul National University



## Mi Hee Lim

Present Professor, Department of Chemistry, KAIST, Korea  
 2018.02-2020.02 Associate Professor, Department of Chemistry, KAIST, Korea  
 2013.09-2018.01 Associate Professor, Department of Chemistry, UNIST, Korea



## In Su Lee

2011-Present Assoc./Full Prof., Dept. of Chem., POSTECH  
 2006-2011 Assist./Assoc. Prof., Dept. of Appl. Chem., Kyung Hee Univ.  
 2003-2005 Post-doc, Dept. of Chem., UC Berkeley



## Ji Ha Lee

Present Assistant Professor, Department of Chemical Engineering, Hiroshima University, Japan  
 2019 Postdoc, Department of Chemistry and Biochemistry, University of Kitakyushu, Japan  
 2015 Ph.D. Department of Chemistry, Gyeongsang National University, S. Korea

## 12. Probing Bioinorganic Chemistry: Imaging Bioinorganic Species

Organizer : Youngmin You (Ewha Womans University)

Chair : Youngmin You (Ewha Womans University)

- 13:00 **INOR2-1** Fluorescent imaging of inorganic Zn(II), biomolecules, and replacement of antibody with small molecules  
Kwan mook Kim  
*Department of Chemistry, Ewha Womans University, Korea*
- 13:25 **INOR2-2** Scalable Surface-Enhanced Raman Scattering Nanoprobes for Biosensing and Bioimaging Applications  
Jwa-Min Nam  
*Department of Chemistry, Seoul National University, Korea*
- 13:50 **INOR2-3** Chemical Tools and Tactics to Study Multiple Facets in Alzheimer's Disease  
Mi Hee Lim  
*Department of Chemistry, Korea Advanced Institute of Science and Technology, Korea*
- 14:15 **INOR2-4** Liver Specific MRI Contrast Agents Based on Mn<sup>2+</sup> Containing Nanoparticles  
In Su Lee  
*Department of Chemistry, Pohang University of Science and Technology, Korea*
- 14:40 **INOR2-5** Development of Self-Assembled Nanostructures and Their Application  
Ji Ha Lee  
*Department of Chemical Engineering, Hiroshima University, Japan*

## Organizer



## Tae-Soo You

Present Professor, Department of Chemistry, Chungbuk National University  
 2008 Ph.D. Department of Chemistry, Iowa State University, USA  
 2003 B.S. Department of Chemistry, Hanyang University, Korea

## Speaker



## G Jeffrey Snyder

Present Professor, Materials Science, Northwestern University, USA



## Won Seok Seo

2007.09 - present Professor, Department of Chemistry, Sogang University, Korea  
 2005.07 - 2007.07 Postdoctoral Research Fellow, Department of Chemistry, Stanford University, USA  
 2003.09 - 2005.06 Postdoctoral Research Fellow, Department of Chemistry, KAIST, Korea



## Jin Seok Lee

2020.03 - present Professor, Department of Chemistry, Hanyang University, Seoul, Korea  
 2009.03 - 2020.02 Assistant/Associate/Full Professor, Department of Chemistry, Sookmyung Women's University, Seoul, Korea  
 2006.11 - Post-doctor, Department of Chemistry and Chemical Biology, Harvard University, MA, USA  
 2009.02 -



## Kang Hyun Park

2008 Assistant Professor, Department of Chemistry, Pusan National University, Korea  
 2012 Associate Professor, Department of Chemistry, Pusan National University, Korea  
 2017 Professor, Department of Chemistry, Pusan National University, Korea



## Jong Wook Hong

2009.09-2015.02 KAIST 화학과, 박사  
 2015.03-2016.02 KAIST 화학과, 박사후 연구원  
 2016.03-현재 울산대학교 화학과, 조교수

## 13. Recent Research Trends in Soli-State Chemistry and Metal Complex Chemistry

Organizer : Tae-Soo You (Chungbuk National University)

Chair : Tae-Soo You (Chungbuk National University)

- 15:00 **INOR3-1** Phase Boundary Mapping Thermoelectric Semiconductors  
G Jeffrey Snyder  
*Materials Science, Northwestern University, United States*
- 15:25 **INOR3-2** Metal Alloy Nanoparticles with Controlled Shell Thickness of Noble Metals for Catalysis  
Won Seok Seo  
*Department of Chemistry, Sogang University, Korea*
- 15:50 **INOR3-3** Chemical Reactions on Surfaces: Fabrication of Nanostructured Surfaces and Their Applications  
Jin Seok Lee  
*Department of Chemistry, Hanyang University, Korea*
- 16:15 **INOR3-4** Multifunctional Core-shell Pd@Cu on MoS<sub>2</sub> as a Visible Light-harvesting Photocatalyst for Synthesis of Disulfide by S-S Coupling  
Kang Hyun Park  
*Department of Chemistry, Pusan National University, Korea*
- 16:40 **INOR3-5** Metal-Ion Doped Semiconductor Photocatalysts for Photocatalytic Hydrogen Evolution Reaction  
Jong Wook Hong  
*Chemistry, University of Ulsan, Korea*
- 17:00 Inorganic Chemistry Division General Meeting

## Organizer

**Jung Ho Lee**

- Present Professor, Department of Chemistry, Seoul National University, Korea
- 2013 Ph.D. Biophysics, University of Wisconsin-Madison, USA
- 2002 B.S. Mechanical Engineering and Physics, Seoul National University, Korea

## Chair

**Han Bin Oh**

- Present Professor, Department of Chemistry, Sogang University, Korea
- 2001 Ph.D. Department of Chemistry, University of Toronto, Canada
- 1993 B.Sc. Department of Chemistry, Seoul National University, Korea

## Speaker

**Tae Kyu Kim**

- Present Associate Professor, Department of Chemistry, Yonsei University, Korea
- 2004 Ph.D. Department of Chemistry, KAIST, Korea
- 1998 B.S. Department of Chemistry, KAIST, Korea

**Woo youn Kim**

- Present Associate Professor, Department of Chemistry, KAIST, Korea

**Hyotcherl Ihee**

- Present Professor, Department of Chemistry, KAIST
- Present Associate Director, Center for Nanomaterials and Chemical Reactions, IBS

**Sang-Hee Shim**

- 2019-Present Associate Professor, Department of Chemistry, Korea University, Korea
- 2016-2019 Assistant Professor, Department of Chemistry, Korea University, Korea
- 2014-2016 Assistant Professor, Department of Biomedical Engineering, Department of Chemistry, UNIST, Korea

**Kiyoung Park**

- Present Associate Professor, Department of Chemistry, KAIST, Korea
- 2014-2020 Assistant Professor, Department of Chemistry, KAIST, Korea
- 2010-2014 Postdoctoral fellow, Department of Chemistry, Stanford University, USA

**Jongcheol Seo**

- Present Assistant Professor, Department of Chemistry, POSTECH, Korea
- 2018 Postdoc, Fritz Haber Institute of the Max Planck Society, Germany

## 14. Recent Methodologies in Biomolecular Spectroscopy

Organizer : Jung Ho Lee (Seoul National University)

Chair : Han Bin Oh (Sogang University)

## &lt;Award Lecture: Young Physical Chemist Award Seminar I&gt;

- 10:40 **PHYS1-1** Reaction Dynamics of Photofunctional Molecules by Ultrafast X-ray Spectroscopy  
Tae Kyu Kim  
*Department of Chemistry, Yonsei University, Korea*

## &lt;Award Lecture: Young Physical Chemist Award Seminar II&gt;

- 11:05 **PHYS1-2** Automated prediction of chemical reactions  
Woo youn Kim  
*Department of Chemistry, Korea Advanced Institute of Science and Technology, Korea*

Chair : Jung Ho Lee (Seoul National University)

- 11:30 **PHYS1-3** Time-Resolved X-ray Tools to Study Protein Dynamics  
Hyotcherl Ihee  
*Department of Chemistry, Korea Advanced Institute of Science and Technology, Korea*

- 11:50 **PHYS1-4** Exchangeable Probes for Bleaching-resistant Single-molecule Localization Microscopy  
Sang-Hee Shim  
*Department of Chemistry, Korea University, Korea*

- 12:10 **PHYS1-5** Binuclear Activation of O<sub>2</sub> – Spectroscopic Elucidation of Intermediates  
Kiyoung Park  
*Department of Chemistry, Korea Advanced Institute of Science and Technology, Korea*

- 12:30 **PHYS1-6** Elucidating Protein Topologies Using Ion Mobility-Mass Spectrometry: From String to Pretzelane  
Jongcheol Seo  
*Department of Chemistry, Pohang University of Science and Technology, Korea*

## Speaker

**Chan Ho Kwon**

Present Professor, Department of Chemistry, Kangwon National University, Korea  
 2006 Research Associate, Department of Chemistry, University of Wisconsin-Madison, USA  
 2004 Ph.D, Department of Chemistry, Seoul National University, Korea

**Tae Joo Shin**

Present Associate Professor, UCRF & Department of Chemistry, UNIST, Korea  
 2015 Principal Researcher, Pohang Accelerator Laboratory, Korea  
 2005 Research Associate, NSLS, Brookhaven National Laboratory, USA

**Junhyeok Bang**

Present Professor, Department of Physics, Chungbuk National University  
 2019 Korea Basic Science Institute  
 2014 Samsung Display

**Hui-Seon Kim**

Present Assistant Professor, Department of Chemistry, Inha University, Korea

**Seog Joon Yoon**

Present Assistant Professor, Department of Chemistry, Yeungnam University, Korea  
 2017-2019 Post-Doc., Institute of Advanced Materials, University of Jaume I, Spain  
 2012-2017 Ph.D. University of Notre Dame, United States

**15. Recent Physical Chemistry Studies on Photovoltaic Materials**

Organizer : Myeongkee Park (Dong-A University)

Chair : Han Bin Oh (Sogang University)

## &lt;Award Lecture: Myungsoo Kim Award Seminar&gt;

13:30 **PHYS2-1** VUV-MATI spectroscopy towards conformational chemistry  
Chan Ho Kwon  
*Department of Chemistry, Kangwon National University, Korea*

Chair : Myeongkee Park (Dong-A University)

14:00 **PHYS2-2** Synchrotron radiation applications to study the structure-property relationship of halide perovskite materials  
Tae Joo Shin  
*UCRF/Chemistry, Ulsan National Institute of Science and Technology, Korea*

14:20 **PHYS2-3** Carrier Multiplication in Carbon-Based Nanosystems  
Junhyeok Bang  
*Department of Physics, Chungbuk National University, Korea*

14:40 **PHYS2-4** A strategy for reducing the trap density in halide perovskite solar cells  
Hui-Seon Kim  
*Department of Chemistry, Inha University, Korea*

15:00 **PHYS2-5** Phase Segregation in Mixed Halide Perovskite: Fundamentals and Strategies to Obtain Photostability  
 ChaeHyun Lee, Soo Jeong Lee<sup>1</sup>, YeJi Shin, YouJeong Lee, Seog Joon Yoon<sup>2,\*</sup>  
*Yeungnam University, Korea*  
<sup>1</sup>*Chemistry, Yeungnam University, Korea*  
<sup>2</sup>*Department of Chemistry, Yeungnam University, Korea*

## Speaker

**Jun Soo Kim**

Present Associate Professor, Department of Chemistry and Nanoscience, Ewha Womans University, Korea

2011 Postdoctoral, Department of Biomedical Engineering, Northwestern University, USA

2009 Ph.D., Department of Chemistry, University of Wisconsin-Madison, USA

**Su-mi Hur**

present Associate Professor, School of Polymer Science and Engineering, Chonnam National University, Korea

2015 Postdoc, Institute for Molecular Engineering, University of Chicago, USA

2012 Ph.D, Chemical Engineering Department, University of California, Santa Barbara, USA

**Kahyun Hur**

Present Principal Research Scientist, Extreme Materials Research Center, Korea Institute of Science and Technology, Korea

2012 Ph.D., Department of Materials Science, Cornell University, USA

2002 BS., Department of Chemistry, Seoul National University, Korea

**Jaeup Kim**

Present Professor, Department of Physics, UNIST, Korea

2005 Ph.D, Department of Physics, Columbia University, USA

1998 B. S., Department of Physics, KAIST, Korea

**16. Recent Theoretical and Computer Simulation Studies of Macromolecules**

Organizer : Sanghun Lee (Gachon University)

Chair : Sanghun Lee (Gachon University)

- 15:30 **PHYS3-1** Competition between electrostatic bending and intrinsic rigidity of DNA in binding with a cationic nanoparticle: towards the development of a Brownian motor  
Jun Soo Kim  
*Department of Chemistry and Nanoscience, Ewha Womans University, Korea*
- 15:50 **PHYS3-2** Efficient simulation approach for prediction of phase separation and shape evolution in polymer solution assembly  
Su-mi Hur  
*Chonnam National University, Korea*
- 16:10 **PHYS3-3** Computational study of self-assembled copper halide polymer nanowires: structure, properties, and applications  
Kahyun Hur  
*Computational Science Research Center, Korea Institute of Science and Technology, Korea*
- 16:30 **PHYS3-4** Order-to-Disorder Transition of Block Copolymers in Thin Film: Self-consistent Field Theory and Langevin Field Theoretic Simulation  
Jaeup Kim  
*Physics, Ulsan National Institute of Science and Technology, Korea*
- 16:50 Physical Chemistry Division General Meeting

## Speaker

**Junho Chung**

Professor Seoul National University,  
College of Medicine

**Youngsoo Kim**

Present Professor, Department of  
Biomedical Sciences, Seoul  
National University College of  
Medicine, Korea

1992 Ph.D, Department of Chemistry  
& Biochemistry, University of  
Texas, USA

1984 M.S, Department of Biological  
Sciences, KAIST, Korea

**Hyun Joo An**

Present Dean, Professor, Graduate  
School of Analytical and Science  
Technology, Chungnam National  
University, Daejeon, Korea

Present Director, Asia-Pacific Glycomics  
Reference Site, Chungnam  
National University, Daejeon,  
Korea

2004 Ph.D., Chemistry, University of  
California, Davis

**Geum-Sook Hwang**

Present Principal Researcher, Korea Basic  
Science Institute

Present Adjunct Professor, Department  
of Chemistry and Nano Science,  
Ewha Womans University

Present Adjunct Professor, Graduate  
School of Analytical Science and  
Technology, Chungnam National  
University

**Hakhyun Nam**

Present Founder/CTO/CEO/President, i-  
SENS, Inc.

1992-  
2015 Asst./Assoc./Full Professor, Dept.  
Chemistry, Kwangwoon Univ.

1982-  
1992 Ph.D Michigan State Univ.,  
Postdoc UC Berkely

## 17. Recent Advances in Mass Spectrometry based on Immunoaffinity

Organizer : Wonryeon Cho (Wonkwang University)

Chair : Wonryeon Cho (Wonkwang University)

13:20 **ANAL1-2** Deciphering human B cell repertoire with next generation sequencing and mass spectrometry

Junho Chung

*Department of Biochemistry and Molecular Biology, College of Medicine, Seoul National University, Korea*

13:40 **ANAL1-3** Clinical application of multiple reaction monitoring-mass spectrometry to HER2 measurements as a potential diagnostic tool for breast cancer therapy

Youngsoo Kim

*Department of Biomedical Engineering, Seoul National University, Korea*

14:00 **ANAL1-4** Diagnosis of gastric cancer by targeted glycoproteomic approach using serum haptoglobin enriched by immunoaffinity chromatography

Hyun Joo An

*Graduate School of Analytical Science and Technology, Chungnam National University, Korea*

14:20 Break

### <Award Lecture: Academic Excellence in Analytical Chemistry>

Chair : Jooheon Kim (Kyung Hee University)

14:30 **ANAL1-5** Metabolomics in human disease : advances and applications

Geum-Sook Hwang

*Korea Basic Science Institute, Korea*

### <Award Lecture: Distinguished Contribution in Analytical Technology>

15:00 **ANAL1-6** R&D on the intravenous diagnostic devices and their commercialization

Hakhyun Nam

*R&D Center, i-SENS, Inc, Korea*



## Organizer

**Min-Sik Kim**

Present Associate Professor, Department of New Biology, DGIST, Korea

2013 Ph.D., Department of Biological Chemistry, Johns Hopkins University School of Medicine, USA

2002 B.Sc., Department of Chemistry, Korea University, Korea

## Speaker

**Jong-Ho Park**

Present Assistant Professor, Department of Science Education, Jeonbuk National University, Korea

2008 Research Scientist, Korea Atomic Energy Research Institute, Korea

2008 Ph.D., Department of Chemistry, Massachusetts Institute of Technology, USA

**Sunghwan Kim**

Present Professor, Department of Chemistry, Kyungpook National University, Korea

2008 Senior Researcher, Korea Basic Science Institute

2004 Post Doc, National High Magnetic Field Laboratory

**Junho Jeon**

Present Associate Professor, Department of Environmental Engineering, Changwon National University, Korea

2010 Ph.D. Department of Environmental Engineering, Gwangju Institute of Science and Technology (GIST), Korea

2003 B.S. Department of Environmental Engineering, Pusan National University, Korea

**Injung Lee**

2007 – Present Senior Researcher/Researcher, National Institute of Environmental Research (NIER)

2014 Ph.D. in Analytical Chemistry, Kyungpook National University

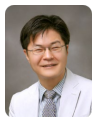
## 18. Recent Advances in Environmental Mass Spectrometry

Organizer : Min-Sik Kim (DGIST)

Chair : Min-Sik Kim (DGIST)

- 15:40 **ANAL2-1** Experimental study on the heterogeneous reaction of HCl with MgCl<sub>2</sub> and sea salt under humid conditions  
Jong-Ho Park<sup>\*</sup>, Andrey V. Ivanov<sup>1</sup>, Mario J. Molina<sup>2</sup>  
*Jeonbuk National University, Korea*  
<sup>1</sup>*Center of Biomedical Engineering, Sechenov University, Russia, Russia*  
<sup>2</sup>*Department of Chemistry and Biochemistry, University of California-San Diego, USA, United States*
- 16:00 **ANAL2-2** Characterization of Chemicals Generated by Plastic Photolysis and Toxicity Evaluation  
Sunghwan Kim  
*Department of Chemistry, Kyungpook National University, Korea*
- 16:20 **ANAL2-3** Application of Suspect/non-target screening to identify transformation products of pesticides formed in a natural wetland  
Junho Jeon  
*Environmental analytical chemistry, Changwon National University, Korea*
- 16:40 **ANAL2-4** Target and non-target analysis of organic micropollutants in surface water using LC-orbitrap MS  
Injung Lee  
*Water Environment Research Department, National Institute of Environmental Research, Korea*
- 17:00 Analytical Chemistry Division General Meeting

## Organizer

**Jiwon Seo**

Present Associate Professor, Department of Chemistry, GIST, Korea  
 2010 Postdoc, Stanford University, USA  
 2006 Ph.D. Department of Chemistry, Northwestern University, USA

## Speaker

**Yongwon Jung**

Present Associate Professor, Department of Chemistry, KAIST, Korea  
 2012 Senior Researcher, BioNanotechnology Research Center, KRIBB, Korea  
 2005 Ph.D. Department of Chemistry, MIT, USA

**Hak Joong Kim**

Present Professor, Department of Chemistry, Korea University, Republic of Korea

**Jiyou Lee**

Present Associate Professor, Department of Global Medical Science, Sungshin Women's University, Korea  
 2010 Postdoc, Department of Pathology, Stanford University School of Medicine, USA  
 2006 Ph.D. Department of Chemistry, Northwestern University, USA

**Jun-Seok Lee**

2013- Present Assistant & Associate Professor, KIST-School UST, Korea  
 2010- Present PI, Molecular Recognition Research Center, KIST, Korea  
 2009 Ph.D. Department of Chemistry, New York University (NYU), USA

## 19. Recent Trends in Chemical Biology Research

Organizer : Jiwon Seo (GIST)

Chair : Eun Gyeong Yang (KIST)

## &lt;Award lecture: Dae-Sill Lee Academic Excellence Prize for Young Researchers&gt;

- 10:00 **LIFE1-1** Engineering artificial protein assemblies to study and use biomolecular assemblages  
Yongwon Jung  
*Department of Chemistry, Korea Advanced Institute of Science and Technology, Korea*
- 10:40 Break

Chair : Jiwon Seo (GIST)

- 11:00 **LIFE1-2** Siderophore-based drug delivery as an effective approach to overcome the antibiotic resistance of the human pathogen, *Acinetobacter baumannii*  
Hak Joong Kim  
*Department of Chemistry, Korea University, Korea*
- 11:20 **LIFE1-3** Reactivity-based fluorescent probes for studying enzyme functions in living systems  
Jiyou Lee  
*Global Medical Science, Sungshin Women's University, Korea*
- 11:40 **LIFE1-4** Photo-activation approach to spatio-temporal mapping for biomolecule interactions in complex biological environment  
Jun-Seok Lee  
*Molecular Recognition Research Center, Korea Institute of Science and Technology, Korea*

## Organizer

**Seokhee Kim**

- Present Assistant Professor, Department of Chemistry, Seoul National University, Korea
- 2008 Ph.D. Chemistry and Chemical Biology, Harvard University, USA
- 2002 B.S. Department of Chemistry, Seoul National University, Korea

## Speaker

**Duyoung Min**

- Present Assistant Professor, Department of Chemistry, UNIST, Korea
- 2019 Postdoc, Department of Chemistry and Biochemistry, UCLA, USA
- 2014 Ph.D., Department of Physics, KAIST, Korea

**Jongmin Park**

- 2018~Present Assistant Professor, Department of Chemistry, Kangwon National University
- 2015~2018 Research Fellow, Massachusetts General Hospital/Harvard Medical School

**Tackhoon Kim**

- 2019 Senior Research Scientist, Chemical Kinomics Research Center, Korea Institute of Science and Technology
- 2016 Postdoc, Research Lab of Electronics, Massachusetts Institute of Technology
- 2015 Ph.D. Department of Biological Sciences, Korea Advanced Institute of Science and Technology

**Doory Kim**

- Present Assistant Professor, Department of Chemistry, Hanyang University, Korea
- 2017 Postdoc, College of Chemistry, UC Berkeley, USA
- 2015 Ph.D. Department of Chemistry and Chemical Biology, Harvard University, USA

**Byungsun Jeon**

- Present Center for Neuro-Medicine, Korea Institute of Science and Technology, Korea
- 2019 Postdoc, Department of Chemistry, University of California, Berkeley, U.S.A.

## 20. Recent Progress in Life Chemistry

Organizer : Seokhee Kim (Seoul National University)

Chair : Seokhee Kim (Seoul National University)

- 13:00 **LIFE2-1** Single-molecule Force Spectroscopy Unfolds Membrane Protein Folding Mystery  
Duyoung Min  
*Department of Chemistry, Ulsan National Institute of Science and Technology, Korea*
- 13:25 **LIFE2-2** Immunomagnetic Electrochemical Sensor for Extracellular Vesicle Analysis and Disease Diagnosis  
Jongmin Park  
*department of Chemistry, Kangwon National University, Korea*
- 13:50 **LIFE2-3** Multiplexed, scalable gene editing platform for modeling cancer and identifying effective cancer therapy  
Tackhoon Kim  
*Chemical Kinomics Research Center, Korea Institute of Science and Technology, Korea*
- 14:15 **LIFE2-4** Quantitative super-resolution microscopy unveils molecular mechanisms of platelet activation and release  
Doory Kim  
*Department of Chemistry, Hanyang University, Korea*
- 14:40 **LIFE2-5** Investigation of the mechanism of the SpnF-catalyzed [4+2]-cycloaddition reaction in the biosynthesis of spinosyn A  
Byungsun Jeon  
*Center for Neuro-Medicine, Korea Institute of Science and Technology, Korea*

## Organizer

**Soo Hyuk Choi**

Present Associate Professor, Department of Chemistry, Yonsei University, Korea  
 2008 Ph.D, Department of Chemistry, University of Wisconsin-Madison, USA  
 1998 B.S, Department of Chemistry, Seoul National University, Korea

## Chair

**Seunghoon Shin**

Present Professor, Department of Chemistry, Hanyang University, Korea  
 2001 Ph.D, Department of Chemistry, The Ohio State University  
 1994 B.S, Department of Chemistry, Seoul National University

## Speaker

**Sukwon Hong**

Present Professor, Department of Chemistry, GIST, Korea  
 2005 Assistant Professor, Department of Chemistry, University of Florida, USA  
 2003 Ph.D, Department of Chemistry, Northwestern University, USA

**Dong-Su Kim**

Present Senior Research Scientist, Korea Research Institute of Chemical Technology, Korea  
 2019 Research Scientist, Daegu Gyeongbuk Medical Innovation Foundation, Korea  
 2015 Ph.D, Department of Chemistry, Yonsei University, Korea

**Jonghoon Kim**

Present Assistant Professor, Department of Chemistry, Soongsil University, Seoul, Korea

**Gyudong Kim**

Present Assistant Professor, College of Pharmacy, Chonnam National University, Korea  
 2017-2018 Post. Doc., College of Pharmacy, Seoul National University, Korea  
 2016-2017 Post. Doc., Department of Chemistry, UCLA, U.S.

**Hee-Kwon Kim**

Present Associate Professor, Department of Nuclear Medicine, Jeonbuk National University  
 2013 Postdoc, Department of Chemistry and Biochemistry, University of California, Los Angeles, USA  
 2011 Ph.D, Department of Purdue University, USA

## 21. Current Trends in Organic Chemistry I: Medicinal Chemistry & Chemical Biology

Organizer : Soo Hyuk Choi (Yonsei University)

Chair : Seunghoon Shin (Hanyang University)

**<Award Lecture: Sehi Jang Award Lecture>**

10:50 **ORGN1-1** Exploring Novel Ligand Designs for Catalytic Organic Synthesis  
Sukwon Hong  
*Department of Chemistry, Gwangju Institute of Science and Technology, Korea*

Chair : Soo Hyuk Choi (Yonsei University)

11:15 **ORGN1-2** Synthesis of Rh(III)-catalyzed N-heterocyclic compounds and their application to inflammation imaging agent  
 Sangbong Lee, Ye Ri Han<sup>1</sup>, Chul-Ho Jun<sup>2</sup>, Sung Jin Cho<sup>1</sup>, Dong-Su Kim<sup>3,\*</sup>  
*Nano-Bio materials lab, Korea Institute of Medical Microrobotics (KIMIRo), Korea*  
<sup>1</sup>*Daegu Gyeongbuk Medical Innovation Foundation, Korea*  
<sup>2</sup>*Department of Chemistry, Yonsei University, Korea*  
<sup>3</sup>*Therapeutics and Biotechnology Division, Korea Research Institute of Chemical Technology, Korea*

11:35 **ORGN1-3** Development of HDAC Inhibitors for Treatment of Inflammatory Bowel Disease  
Jonghoon Kim  
*Department of Chemistry, Soongsil University, Korea*

11:55 **ORGN1-4** Design, Synthesis, and Anti-RNA Virus Activity of 6'-Fluorinated-Aristeromycin Analogues  
Gyudong Kim, Lak Shin Jeong<sup>1,\*</sup>  
*College of Pharmacy, Chonnam National University, Korea*  
<sup>1</sup>*Department of Pharmacy, Seoul National University, Korea*

12:15 **ORGN1-5** Synthesis of Azacycles & Development of Novel Fluorinated Pyrazolopyrimidine Derivatives  
Hee-Kwon Kim  
*Department of Nuclear Medicine, Jeonbuk National University, Korea*

## Organizer

**Cheol-Hong Chen**

- Present Professor, Department of Chemistry, Korea University, Korea
- 2011 Postdoc, Department of Chemistry, University of California, Berkeley, USA
- 2010 Ph.D. Department of Chemistry, University of Chicago, USA

## Speaker

**Ansoo Lee**

- 2019-present Senior Researcher, Center for Neuro-Medicine, KIST, Seoul, Korea
- 2019 Post-doc., Department of Chemistry, KAIST, Korea
- 2017-2019 Post-doc., Department of Chemistry, Northwestern University, USA

**Jaebong Jang**

- Present Assistant Professor, College of Pharmacy, Korea University, Korea
- 2019 Research Fellow, Center for Catalytic Hydrocarbon Functionalizations, Institute for Basic Science, Korea
- 2018 Research Fellow, Department of Cancer Biology, Dana-Farber Cancer Institute / BCMP, Harvard Medical School, USA

**Hyunwoo Kim**

- 2020-Present Assistant Professor, Department of Chemistry and Nanoscience, Ewha Womans University, Korea
- 2019-2020 Postdoctoral Associate, Department of Chemistry and Chemical Biology, Cornell University, USA
- 2018-2019 Postdoctoral Associate, Center for Hydrocarbon Functionalization, Institute for Basic Science (IBS), Korea

**Paul Ha-Yeon Cheong**

- 2016 Bert and Emelyn Christensen Associate Professor of Chemistry, Oregon State University, USA
- 2015 Associate Professor of Chemistry, Oregon State University, USA
- 2009 Assistant Professor of Chemistry, Oregon State University, USA

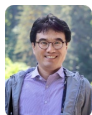
## 22. Current Trends in Organic Chemistry II: Synthetic Methodology and Catalysis

Organizer : Cheol-Hong Chen (Korea University)

Chair : Cheol-Hong Cheon (Korea University)

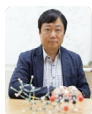
- 13:30 **ORG2-1** An Enantioselective N-Heterocyclic Carbene-Catalyzed Decarboxylative [4+2] Cycloaddition  
Ansoo Lee  
*Center for Neuro-Medicine, Korea Institute of Science and Technology, Korea*
- 13:50 **ORG2-2** Visible-Light Induced Cysteine-Specific Bioconjugation  
Jaebong Jang  
*College of Pharmacy, Korea University, Korea*
- 14:10 **ORG2-3** Modern Electrocatalysis for Sustainable Organic Synthesis: Generation of Exotic Radical Species by Unconventional Means of Single-Electron Transfer Reaction  
Hyunwoo Kim  
*Department of Chemistry and Nanoscience, Ewha Womans University, Korea*
- 14:30 **ORG2-4** Origins of Selectivity and Reactivity in Isothiourea-Catalyzed Asymmetric Transformations: Traditional and New Approaches to Generation of Hypotheses  
Paul Ha-Yeon Cheong  
*Department of Chemistry, Oregon State University, USA, United States*

## Organizer

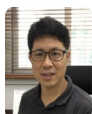
**Jin Kyoong Park**

Present Professor, Department of Chemistry, Pusan National University, Korea  
 2003 Ph.D. Department of Chemistry, Seoul National University, Korea  
 1996 B.S. Department of Chemistry Education, Seoul National University, Korea

## Speaker

**Do Hyun Ryu**

present Professor, Department of chemistry, Sungkyunkwan University  
 2002-2005 Postdoc., Department of Chemistry and Chemical Biology, Harvard University, U.S.A.  
 1993-1997 Ph. D., Department of Chemistry, KAIST

**Hyun-Suk Lim**

Present Associate Professor, Department of Chemistry, POSTECH, Korea  
 2004 Ph.D. Department of Chemistry, POSTECH, Korea  
 1991 B.S. Department of Chemistry, Hanyang University, Korea

**Haesik Yang**

Present Professor, Department of Chemistry, Pusan National University, Korea

**Jung Min Joo**

2013-Present Associate Professor, Department of Chemistry, Pusan National University, Korea  
 2004-2008 Ph.D., Princeton University, Department of Chemistry, Princeton University, USA  
 1997-2003 B.S. & M.S., Department of Chemistry, Seoul National University, Korea

**Eunsung Lee**

Present Associate Professor, Department of Chemistry, POSTECH, Korea  
 2013 Postdoc, Department of Chemistry, Harvard University, USA  
 2009 Ph.D. Department of Chemistry, Stanford University, USA

**Jung Woon Yang**

Present Associate Professor, Department of Energy Science, Sungkyunkwan University, Korea  
 2003-2009 Post-Doc & Group Leader, Max-Planck-Institut für Kohlenforschung, Germany  
 2003 Ph.D., Korea Institute of Science and Technology & Korea University, Korea

## 23. Joint Organic Chemistry Symposium: Basic Research Lab

Organizer : Jin Kyoong Park (Pusan National University)

Chair : Jin Kyoong Park (Pusan National University)

- 15:00 **ORGN3-1** Catalytic Enantioselective Cyclopropanation and Tandem Rearrangement  
Do Hyun Ryu  
*Department of Chemistry, Sungkyunkwan University, Korea*
- 15:20 **ORGN3-2** Towards New Chemical Space and Tools for Creating Bioactive Molecules  
Hyun-Suk Lim\*, Kang Ju Lee  
*Department of Chemistry, Pohang University of Science and Technology, Korea*
- 15:40 **ORGN3-3** Catalytic reactions for signal amplification in biosensors  
Haesik Yang  
*Department of Chemistry, Pusan National University, Korea*
- 16:00 **ORGN3-4** Palladium-Catalyzed C–H Functionalization for the Synthesis of Redox-Active Heteroarenes  
Jung Min Joo  
*Department of Chemistry, Pusan National University, Korea*
- 16:20 **ORGN3-5** A Simple and Practical Cobalt Catalysis Enabling Grignard Reagent Formation of Aryl Fluorides for Various Organic Transformation  
Eunsung Lee  
*Department of Chemistry, Pohang University of Science and Technology, Korea*
- 16:40 **ORGN3-6** Glycerol Conversion to Value-Added Chemicals  
Jung Woon Yang  
*Department of Energy Science, Sungkyunkwan University, Korea*

## Organizer

**Chang-Soo Yun**

Present Head, Infectious Diseases  
Therapeutics Research Center,  
Korea Research Institute of  
Chemical Technology, Korea

## Speaker

**Coomin Chung**

Present Head of Drug Research Center,  
SK biopharmaceuticals

**Kye jung Shin**

1986-2010 Research Scientist, Center  
Head, Korea Institute of  
Science and Technology (KIST)

2011-present Professor, College of  
Pharmacy, The Catholic  
University of Korea

**Jaeuk Jeong**

Present President, Mogam Institute  
for Biomedical Research

05/1998 - 01/2020 GSK Fellow, Scientific  
Leader, GSK

09/1996-04/1998 Postdoctoral fellow, The  
Scripps Research Institute

## 24. The Cutting Edge of Medicinal Chemistry

Organizer : Chang-Soo Yun (KRICT)

Chair : Chang-Soo Yun (KRICT)

- 13:00 **MEDI-1** Development of Cenobamate, new hope for treatment-resistant epilepsy  
Coomin Chung  
*Drug Research Center, SK biopharmaceuticals, Korea*
- 13:40 **MEDI-2** Small molecules can function like antibodies: Discovery of small molecule TNF- $\alpha$  inhibitors  
Kye jung Shin  
*College of Pharmacy, The Catholic University of Korea, Korea*
- 14:20 **MEDI-3** Discovery of a First-in-Class RIP1 Kinase Inhibitor GSK2982772  
Jaeuk Jeong  
*Mogam Institute for Biomedical Research, Korea*

## Organizer

**Sang Hoon Joo**

Present Professor, Department of Chemistry, UNIST, Korea  
 2007-2009 Post-Doctor, Department of Chemistry, Univ. California, Berkeley, USA  
 2004 Ph.D., Department of Chemistry, KAIST, Korea

## Speaker

**Kwangyeol Lee**

Present Professor, Department of Chemistry, Korea University, Korea

**Sang Woo Han**

Present Professor, Department of Chemistry, KAIST

**Sung Jee Kim**

Professor POSTECH

**Jungwon Park**

Present Associate Professor, School of Chemical and Biological Engineering, Seoul National University, Korea  
 2016 Research Associate, Harvard University, USA

**Nam-Gyu Park**

Present Professor, School of Chemical Engineering, Sungkyunkwan University  
 2005-2009 Director of Solar Cell Research Center, KIST

## 25. New Horizons in Materials Chemistry

Organizer : Sang Hoon Joo (UNIST)

Chair : Sang Hoon Joo (UNIST)

- 10:20 **MAT1-1** Crystal engineering of nanocatalysts to achieve both catalyst activity and stability toward water splitting  
Kwangyeol Lee  
*Department of Chemistry, Korea University, Korea*
- 10:40 **MAT1-2** Novel Plasmonic Nanoarchitectures for Efficient Solar Energy Conversion  
Sang Woo Han  
*Department of Chemistry, Korea Advanced Institute of Science and Technology, Korea*

Chair : Hyeon Suk Shin (UNIST)

- 11:00 **MAT1-3** Magic Sized Clusters for Nanocrystal Chemistry  
Sung Jee Kim  
*Department of Chemistry, Pohang University of Science and Technology, Korea*
- 11:20 **MAT1-4** Multi-Dimensional Liquid Phase TEM for Studying Nanomaterials  
Jungwon Park  
*School of Chemical and Biological Engineering, Seoul National University, Korea*

&lt;Award Lecture: Jin-Ho Choy Academic Award &gt;

- 11:40 **MAT1-5** Perovskite Solar Cell: History, Progress and Perspective  
Nam-Gyu Park  
*Division of Chemical Engineering, Sungkyunkwan University, Korea*



## Organizer

**Tea Woo Kim**

Present Senior Researcher, Division of Future Energy Research, Korea Institute of Energy Research (KIER)

2015 Postdoc, Department of Chemistry, University of Wisconsin-Madison, USA

2011 Ph.D, Department of Materials Science and Engineering, Yonsei University, Korea

## Speaker

**Wonyong Choi**

present Professor, Division of Environmental Science and Engineering, POSTECH, Korea

1996 Ph.D, Dept. of Chemistry, CALTECH, USA

1988 B.S, Dept. of Chemical Technology, Seoul National University, Korea

**Jungki Ryu**

Present Associate Professor, School of Energy and Chemical Engineering, UNIST, Korea

2014 Postdoc, Department of Materials Science and Engineering, Massachusetts Institute of Technology, USA

2011 PhD, Department of Materials Science and Engineering, KAIST

**Seunghyun Weon**

2020- Assistant Professor, School of Health and Environmental Science, Korea University

**Sungjin Park**

2019 Professor, Department of Chemistry, Inha University, Korea

2014 Associate Professor, Department of Chemistry, Inha University, Korea

2010 Assistant Professor, Department of Chemistry, Inha University, Korea

## 26. Recent Trends in Photocatalytic Materials

Organizer : Ji-Hyun Jang (UNIST), Tea Woo Kim (KIER)

Chair : Ji-Hyun Jang (UNIST)

13:00 **MAT2-1** Engineering Semiconductor Nanomaterials for Sustainable Photocatalysis

Wonyong Choi

*Division of Environmental Science and Engineering, Pohang University of Science and Technology, Korea*

13:40 **MAT2-2** Interface Engineering of Photoelectrodes with Polymeric Materials for Solar-to-Chemical Energy Conversion

Jungki Ryu

*School of Energy and Chemical Engineering, Ulsan National Institute of Science and Technology, Korea*

Chair : Tae Woo Kim (KIER)

14:00 **MAT2-3** Status and Challenges in Photocatalytic Air Purification: From Material Development to Air Cleaner Application

Seunghyun Weon

*School of Health and Environmental Science, Korea University, Korea*

<Award Lecture: Young Materials Chemist Award>

14:20 **MAT2-4** Molecular designing in carbon-based nanomaterials and their catalytic and optical applications

Sungjin Park

*Department of Chemistry, Inha University, Korea*

## Organizer

**Hyosung Choi**

Present Assistant Professor, Department of Chemistry, Hanyang University, Korea

2013 Ph.D, Department of Energy Engineering, Ulsan National Institute of Science and Technology, Korea

2007 B.S, Department of Organic Material Science and Engineering, Pusan National University, Korea

## Speaker

**Jong Hyun Kim**

Present Associate Professor, Department of Molecular Science and Technology, Ajou University, Korea

**Bo Ram Lee**

2017.9. ~ Present Assistant Professor, Department of Physics, Pukyong National University, Korea

2015.10. ~ 2017.8 Research Associate, Department of Physics, University of Cambridge, UK

2015.3. ~ 2015.8 Post-doctoral researcher, Department of Materials Science and Engineering, UNIST, Korea

**Dong-Won Kang**

2018.03-present (Assistant Professor) School of energy systems engineering, Chung-Ang-University

2015.03-2018.02 (Assistant Professor) Dept. of Solar & Energy Engineering, Cheongju University

2013.04-2015.02 (Postdoc. researcher) Tokyo Institute of Technology, Japan

**Hyeok Kim**

2019-Present Assistant Professor, School of Electrical and Computer Engineering, University of Seoul, Korea

**In Hwan Jung**

2011 Ph.D, Department of Chemistry, Korea Advanced Institute of Science and Technology, Korea

2014 Postdoctoral Fellow, Department of Chemistry, The University of Chicago, USA

Present Associate professor, Department of Applied Chemistry, Kookmin University, Korea

**Jaewon Lee**

Present Professor, Department of Chemical Engineering and Applied Chemistry, Chungnam National University, Korea

2017 Postdoc, Center for Polymers & Organic Solids, UC Santa Barbara, USA

2014 Ph.D, Department of Chemical Engineering, Pohang University of Science and Technology, Korea

## 27. Recent Trend in Next-Generation Optoelectronics

Organizer : Hyosung Choi (Hanyang University)

Chair : Hyosung Choi (Hanyang University)

15:00 **MAT3-1** Strategic Approaches for Efficient Doping of Conjugated Polymers: Catalytic Cascade Doping and Hybrid Doping Processes

Jong Hyun Kim

*Department of Molecular Science and Technology, Ajou University, Korea*

15:20 **MAT3-2** Ligand engineered bandgap stability in mixed-halide perovskite nanocrystals light-emitting diodes

Bo Ram Lee

*Department of Physics, Pukyong National University, Korea*

15:40 **MAT3-3** CNT-incorporated Nickel Oxide hybrid charge collectors for Planar Perovskite Solar Cells

Dong-Won Kang

*Energy Systems Engineering, Chung-Ang University, Korea*

Chair : Jong Hyun Kim (Ajou University)

16:00 **MAT3-4** Internal Quantum Efficiency of Solar Cells with Organic and Quantum Dot Absorbers through Optical Simulation

Hyeok Kim

*University of Seoul, Korea*

16:20 **MAT3-5** Development of conjugated cathode buffer layer materials for photodiode applications.

In Hwan Jung

*Department of Applied Chemistry, Kookmin University, Korea*

16:40 **MAT3-6** Near Infrared Responsive Fullerene-Free Organic Solar Cells and Photodetectors Based on Narrow Bandgap Bulk Heterojunction Blends

Jaewon Lee

*Department of Chemical Engineering and Applied Chemistry, Chungnam National University, Korea*

17:00 Materials Chemistry Division General Meeting

## Organizer

**Byung-Kwon Kim**

Present Associate Professor, Department of Chemistry, Sookmyung Women's University, Korea

2015 Postdoc, Department of Chemistry, University of Texas at Austin, USA

2012 Ph.D, Department of Chemistry, KAIST, Koera

**Hyungjun Kim**

Present Associate Professor, Department of Chemistry, KAIST

2009 Ph.D, Department of Chemistry, Caltech

2004 B.S, Department of Chemistry, KAIST

## Speaker

**Hye Ryung Byon**

Present Associate Professor, Department of Chemistry, KAIST

2011~2016 Principal Investigator, Byon Initiative Research Unit, RIKEN, Japan

2008~2010 Postdoctoral Associate, Mechanical Engineering, MIT, USA

**Jeong Woo Han**

2010 Ph.D, School of Chemical and Biomolecular Engineering, Georgia Tech, USA

2012 Postdoc, Department of Nuclear Science and Engineering, MIT, USA

Present Department of Chemical Engineering, POSTECH, Korea

**Hyung-Kyu Lim**

Present Assistant Professor, Department of Chemical Engineering, Kangwon National University, Korea

2017 Ph.d., Graduate School of EEWS, KAIST, Korea

2012 Researcher, LG Chem R&D Center, Korea

**Dong-Hwa Seo**

2019 Assistant Professor, School of Energy and Chemical Engineering, UNIST, Korea

2017 Senior Engineer, Samsung Research America, USA

**Stefan Ringe**

Present Assistant Professor, DGIST, Korea

2019 Postdoc, Department of Chemistry, KAIST

2017 Postdoc, Department of Chemical Engineering, Stanford University

## 28. Computational Electrochemistry

Organizer : Byung-Kwon Kim (Sookmyung Women's University), Hyungjun Kim (KAIST)

Chair : Byung-Kwon Kim (Sookmyung Women's University)

## &lt;Award Lecture : i-SENS Young Electrochemist Award&gt;

11:00 **ELEC1-1** Controls the electrolyte-water interaction for LiCoO<sub>2</sub> to improve the performance of aqueous lithium-ion batteries and oxygen evolution catalysts  
Hye Ryung Byon  
*Department of Chemistry, Korea Advanced Institute of Science and Technology, Korea*

12:00 Lunch Break

Chair : Hyungjun Kim (KAIST)

13:00 **ELEC1-2** Engineering of cation stability for highly stable and active perovskite-based SOFC electrode materials  
Jeong Woo Han  
*Department of Chemical Engineering, Pohang University of Science and Technology, Korea*

13:25 **ELEC1-3** An in-depth understanding of electrochemical interfaces through multiscale modeling approach.  
Hyung-Kyu Lim<sup>\*</sup>, Hyungjun Kim<sup>1,\*</sup>  
*Division of Chemical Engineering and Bioengineering, Kangwon National University, Korea*  
<sup>1</sup>*Department of Chemistry, Korea Advanced Institute of Science and Technology, Korea*

13:50 **ELEC1-4** Computational study on the materials for rechargeable batteries using first-principles calculation  
Dong-Hwa Seo  
*School of Energy and Chemical Engineering, Ulsan National Institute of Science and Technology, Korea*

14:15 **ELEC1-5** First-Principles Catalyst Design at Electrified Solid-Liquid Interfaces  
Stefan Ringe  
*Energy Science & Engineering, DGIST, Korea*

## Organizer

**Chang Hyuck Choi**

- Present Associate Professor, Materials Science and Engineering, GIST, Korea
- 2012 Ph.D, Chemical and Biomolecular Engineering, KAIST, Korea
- 2007 B.S, Chemical and Biomolecular Engineering, KAIST, Korea

## Speaker

**Sang Hoon Joo**

- Present Professor, Department of Chemistry, UNIST, Korea
- 2007-2009 Post-Doctor, Department of Chemistry, Univ. California, Berkeley, USA
- 2004 Ph.D., Department of Chemistry, KAIST, Korea

**Junhyeok Seo**

- Present Assistant Professor, Department of Chemistry, Gwangju Institute of Science and Technology, Korea
- 2017 Postdoc, Department of Chemistry, The University of Texas at Austin, USA
- 2013 Ph.D. Department of Chemistry, Brown University, USA

**Sang-Il Choi**

- 2015 Associate Professor, Department of Chemistry, Kyungpook National University, Korea
- 2012 Postdoc., Georgia Tech, USA
- 2011 Postdoc., KAIST, Korea

**Dae-Hyun Nam**

- Present Assistant Professor, Department of Energy Science and Engineering, DGIST, Korea
- 2020 Postdoc, Department of Electrical and Computer Engineering, University of Toronto, Canada
- 2017 Ph.D, Department of Materials Science and Engineering, Seoul National University, Korea

## 29. Electrocatalysis for energy conversions

Organizer : Chang Hyuck Choi (GIST)

Chair : Chang Hyuck Choi (GIST)

- 15:00 **ELEC2-1** Designing Atomically Dispersed Electrocatalysts for Controlling Catalytic Selectivity  
Sang Hoon Joo  
*Department of Chemistry, Ulsan National Institute of Science and Technology, Korea*
- 15:25 **ELEC2-2** I. Bio-inspired Molecular Electrocatalysts and II. Hetero-Metal Oxides Electrocatalysts  
Junhyeok Seo  
*Department of Chemistry, Gwangju Institute of Science and Technology, Korea*
- 15:50 **ELEC2-3** Surface Engineering to Improve Electrocatalytic Performances of Nanocatalysts  
Sang-Il Choi  
*Department of Chemistry, Kyungpook National University, Korea*
- 16:15 **ELEC2-4** Electrocatalytic CO<sub>2</sub> Reduction for Value-added Chemical Production  
Dae-Hyun Nam  
*Department of Energy Science and Engineering, Daegu Gyeongbuk Institute of Science & Technology, Korea*
- 16:40 Electrochemistry Division General Meeting

## Chair

**Wooyul Kim**

- Present Assistant Professor, Department of Chemical and Biological Engineering, Sookmyung Women's University
- 2016 Postdoc, Lawrence Berkeley National Laboratory
- 2012 Ph.D, Division of Environmental Science and Engineering, POSTECH

## Speaker

**Youngkook Kwon**

- Present Assistant Professor, School of Energy and Chemical Engineering, UNIST, Korea
- 2016 Postdoc, Joint Center for Artificial Photosynthesis, Lawrence Berkeley National Lab, USA
- 2013 Ph.D, Leiden Institute of Chemistry, Leiden University, the Netherlands

**HyungKuk Ju**

- 2017-2020 Project Leader/Research Scientist, CSIRO Energy, Australia
- 2014-2017 OCE Postdoctoral Fellowship, CSIRO Energy, Australia
- 2013 Ph.D, Gwangju Institute of Science and Technology (GIST), South Korea

**Sungyool Bong**

- Present Research Associate Professor, School of Earth Sciences and Environmental Engineering, GIST
- 2019~2020 Research Fellow, Department of Mechanical Engineering, Worcester Polytechnic Institute
- 2013~2019 Chief Researcher, Material Evaluation Team, Korea Testing and Research Institute

**Jung-Je Woo**

- Present Korea Institute of Energy Research
- 2014 Postdoc, Chemical Science and Engineering Division, Argonne National Laboratory, USA
- 2011 Ph.D, Department of Environmental Science and Engineering, GIST, Korea

**Hyo Won Kim**

- Present Assistant Professor, Department of Advanced Materials Engineering, Kangwon National University, Korea
- 2018 Postdoc, Department of Chemical and Biomolecular Engineering, University of California, Berkeley, US
- 2015 Ph.D, Department of Energy Engineering, Hanyang University, Korea

## 30. Electrode and Energy Storage Technology

Organizer : Jung-Je Woo (KIER)

Chair : Wooyul Kim (Sookmyung Women's University)

- 10:20 **ENVR-1** Electrocatalytic Hydrogen Cycle for Energy and Environment  
Youngkook Kwon  
*School of Energy and Chemical Engineering, Ulsan National Institute of Science and Technology, Korea*
- 10:50 **ENVR-2** Advanced green ammonia synthesis for renewable hydrogen energy storage and carrier by ambient electrochemical route  
HyungKuk Ju  
*Energy, CSIRO, Australia*
- 11:10 **ENVR-3** Recycling spent lithium ion batteries and their impurity effects  
Sungyool Bong  
*School of Earth Sciences and Environmental Engineering, Gwangju Institute of Science and Technology, Korea*
- 11:30 **ENVR-4** Inactivation induced degradation of a Li-metal electrode for next generation batteries  
Jung-Je Woo  
*Gwangju Bio/Energy R&D Center, Korea Institute of Energy Research, Korea*
- 11:50 **ENVR-5** Exploring selective, efficient 2 e- electrochemical oxygen reduction at reduced graphene oxide electrocatalysts  
Hyo Won Kim  
*Department of Advanced Materials Engineering, Kangwon National University, Korea*

## Speaker

**Insuk Kim**

2007 Ph.D. Research, Evaluation, Measurement, & Statistics, University of Georgia, USA

2007-2009 Research Professional u2162, Georgia Center for Assessment, USA

Present Researcher and Director, Center for Student Assessment, Korea Institute for Curriculum and Evaluation, Korea

**Hyun jung Kim**

Present Associate Professor, Department of Chemistry Education, Kongju National University, Korea

**Jeonghee Nam**

Present Professor, Department of Chemistry Education, Pusan National University, Korea

**HyunJu Park**

Present Professor, Department of Chemistry Education, Chosun University

1995 Ph.D. Department of Curriculum Instruction, University of Wisconsin-Madison

**Seounghey Paik**

1995 Professor, Department of Chemistry Education, Korea National University of Education, Korea

## 31. Current Issues and Research in Chemistry Education

Organizer : Seounghey Paik (Korea National University of Education)

Chair : Seounghey Paik (Korea National University of Education)

15:00 **EDU-1** Development of Computer-Based Evaluation System(KICE-eAssessment) for Core Competency Evaluation

Insuk Kim<sup>\*</sup>, Hyun Jung Kim<sup>1</sup>, Sungki Kim

*Korea Institute for Curriculum and Evaluation, Korea*

<sup>1</sup>*Chemistry Education, Kongju National University, Korea*

15:20 **EDU-2** Implementation of Process-Fortified Assessment in Chemistry Classes

Hyun jung Kim

*Chemistry Education, Kongju National University, Korea*

15:40 **EDU-3** Argument-based Inquiry in Chemistry Education

Jeonghee Nam

*Department of Chemical Education, Pusan National University, Korea*

16:00 Break

16:10 **EDU-4** Hybrid models of learning and Teaching

HyunJu Park

*Faculty of Science Education, Chosun University, Korea*

16:30 **EDU-5** Search for new strategies to strengthen the ability of pre-service chemistry teachers to conduct practical experiment

Jaehyeok Lee, Seounghey Paik<sup>1,\*</sup>

*Chemistry Education, Korea National University of Education, Korea*

<sup>1</sup>*Department of Chemical Education, Korea National University of Education, Korea*

### Organizer



#### Seung Goo Lee

Present Assistant Professor, Department of Chemistry, University of Ulsan, Korea

2016 Postdoc, Department of Chemical Engineering, MIT, USA

2012 Ph.D, Department of Chemical Engineering, POSTECH, Korea

## 32. Oral Presentation for Young Polymer Scientists

Organizer : Seung Goo Lee (University of Ulsan)

Chair : Seung Goo Lee (University of Ulsan)

- 09:00 **POLY.O-1** Incorporating smart manufacturing in polymer extrusion process  
Sunyong Kwon<sup>\*</sup>, Jungup Park, Tae-Jin An, SungHwan Cho  
*Chemicals R&D Center, Samyang Corporation, Korea*
- 09:20 **POLY.O-2** Ionic conductors using chemically linked ionic side chains and applications to thermally stable actuators and sensors  
Junwoo Lee, Taehyun Kim, Dasol Chung<sup>1</sup>, Dohyun Kim<sup>2</sup>, Taiho Park  
*Department of Chemical Engineering, Pohang University of Science and Technology, Korea*  
<sup>1</sup> *Pohang University of Science and Technology, Korea*  
<sup>2</sup> *chemical engineering, Pohang University of Science and Technology, Korea*
- 09:40 **POLY.O-3** Glutathione-sensitive peptide amphiphile vesicles designed for efficient drug transport controlled by positionable disulfide-bridges  
Hayeon Kim, Eunji Lee  
*School of Materials Science and Engineering, Gwangju Institute of Science and Technology, Korea*
- 10:00 **POLY.O-4** Reversibly cross-linkable block copolymer for self-healing polymer materials to enhance thermomechanical property  
Hyangmoo Lee, In Woo Cheong<sup>1,\*</sup>  
*School of chemical engineering, Kyungpook National University, Korea*  
<sup>1</sup> *Department of Applied Chemistry, Kyungpook National University, Korea*
- 10:20 **POLY.O-5** Improving Solid-State Emission of Flat Aromatic Molecules by Edge-Functionalization with Picket-Fence Groups  
Hye Jin Cho, Changsik Song  
*Department of Chemistry, Sungkyunkwan University, Korea*

Organizer



**Namdoo Kim**

Present Assistant Professor, Department of Chemistry, Kongju National University, Korea

2019 Postdoc, Department of Neurobiology, Stanford University, USA

2014 Ph.D., Department of Chemistry, Seoul National University, Korea

### 33. Oral Presentation for Young Physical Chemists

Organizer : Namdoo Kim (Kongju National University)

Chair : Namdoo Kim (Kongju National University)

- 09:00 **PHYS.O-1** Modeling a Non-Electrochemical Reaction Electrochemically: DFT study of Hydrogen Peroxide Direct Synthesis on Palladium Surfaces  
Min-Cheol Kim  
*Computational Science Research Center, Korea Institute of Science and Technology, Korea*
- 09:15 **PHYS.O-2** Highly Efficient Single-Colloid Heat Engine with Active Noises  
Taejin Kwon, Bong June Sung  
*Department of Chemistry, Sogang University, Korea*
- 09:30 **PHYS.O-3** Polarized Raman Spectra and Complex Raman Tensors of Antiferromagnetic Semiconductor CrPS<sub>4</sub>  
Sujin Kim, Sunmin Ryu  
*Department of Chemistry, Pohang University of Science and Technology, Korea*
- 09:45 **PHYS.O-4** Replica ensemble enabled uncertainty estimation of neural network potentials with atomic-level resolution  
Wonseok Jeong  
*Materials Science & Engineering, Seoul National University, Korea*
- 10:00 **PHYS.O-5** Discrimination of Degradation Mechanism for OLED by Noninvasive, Layer-selective Analysis  
Jung Bae Son, Seong Keun Kim  
*Division of Chemistry, Seoul National University, Korea*
- 10:15 **PHYS.O-6** Development of Ultra-low Frequency (<sup>-1</sup>) Raman Spectroscopy and Studies of Absolute Raman Cross-sections of Sulfur Film  
Mingyeong Shin, Juwon Kim, Yeonsu Jeong, Myeongkee Park<sup>1,\*</sup>  
*Chemistry, Dong-A University, Korea*  
<sup>1</sup>*Department of Chemistry, Dong-A University, Korea*



Organizer



Young-Kwan Kim

Present Assistant Professor, Department of Chemistry, Dongguk University, Korea

2019 Senior Research, Korea Institute of Science and Technology, Korea

2012 Ph. D, Department of Chemistry, KAIST, Korea

## 34. Oral Presentation of Young Analytical Chemists I

Organizer : Young-Kwan Kim (Dongguk University)

Chair : Young-Kwan Kim (Dongguk University)

- 09:00 **ANAL1.O-1** All electronic, single-molecule bioassay by carbon-nanotube field effect transistor arrays  
Yoonhee Lee, Kenneth L. Shepard<sup>1,\*</sup>  
*Division of Electronics and Information System, Daegu Gyeongbuk Institute of Science & Technology, Korea*  
<sup>1</sup>*Department of Electrical Engineering, Columbia University, New York, US, United States*
- 09:04 **ANAL1.O-2** Effective determination of chiral nicotine using Dispersive Liquid-Liquid Microextraction HPLC/UV-vis  
Seung Hoon Song, Seung Woon Myung  
*Department of Chemistry, Kyonggi University, Korea*
- 09:08 **ANAL1.O-3** Flow field-flow fractionation with thickness tapered channel  
Jaewon Seo, Myeong Hee Moon  
*Department of Chemistry, Yonsei University, Korea*
- 09:12 **ANAL1.O-4** Effect of reduced Graphene oxide and MnFe<sub>2</sub>O<sub>4</sub> nanoparticles on Carbonyl Iron for Magnetorheological Fluids  
Hyungyoon Choi, Jin-Yeong Choi, Chang-Seop Lee  
*Department of Chemistry, Keimyung University, Korea*
- 09:16 **ANAL1.O-5** SERS-based immunoassay of thyroid-stimulating hormone (TSH) using silver-encapsulated gold nanoparticles and fabrication of 3D paper fluidic chips  
Kyeongnyeon Kim, Jaebum Choo  
*Department of Chemistry, Chung-Ang University, Korea*
- 09:20 **ANAL1.O-6** SERS-PCR assays of SARS-CoV-2 using three-dimensional plasmonic nanodimple substrates.  
Yixuan Wu, Jaebum Choo  
*Department of Chemistry, Chung-Ang University, Korea*
- 09:24 **ANAL1.O-7** Identification of cervicovaginal fluid metabolites associated with preterm birth  
Heeyeon Lee, Geum-Sook Hwang  
*Western Seoul Center, Korea Basic Science Institute, Korea*
- 09:28 **ANAL1.O-8** An Untargeted Analysis of Metabolite Biomarkers in Urine for Miscarriage/Pre-term Birth using LC-MS/MS  
Sae Yoon Oh, Han Bin Oh

- 09:32 **ANAL1.O-9** Synthesis and structural studies of  $\text{LiFe}_{1-x}\text{Mn}_x\text{BO}_3$  and  $\text{LiFe}_{1-x}\text{Co}_x\text{BO}_3$  as a cathode material for Li-ion battery  
Inyoung Lee, Youngil Lee<sup>1,\*</sup>  
*University of Ulsan, Korea*  
<sup>1</sup>*Department of Chemistry, University of Ulsan, Korea*
- 09:36 **ANAL1.O-10** Synthesis and Electrochemical Properties of Sulfate-based Yavapaiite-like Structure for Promising Polyanionic Cathode Material  
Reyhan Puji Putranto, Youngil Lee  
*Department of Chemistry, University of Ulsan, Korea*
- 09:40 **ANAL1.O-11** Kinetic modulation of Amyloid- $\beta$  through its point mutation by structure-based design  
Dongjoon Im, Chae Eun Heo, MyungKook Son, Chae Ri Park, Sooyeon Chae, Min Ji Kim<sup>1</sup>, Hugh I. Kim  
*Department of Chemistry, Korea University, Korea*  
<sup>1</sup>*Chemistry, Korea University, Korea*
- 09:44 **ANAL1.O-12** Influence of the Preferred Orientation of Pyridine Derivatives with Donor Substituents on Chemical Interface Damping Induced in Silver-Coated Gold Nanorods with Different Shell Thicknesses  
Kyeong Rim Ryu, Ji Won Ha<sup>1,\*</sup>  
*Chemistry, University of Ulsan, Korea*  
<sup>1</sup>*Department of Chemistry, University of Ulsan, Korea*
- 09:48 **ANAL1.O-13** Tunable Chirality in Two Thumbs film  
Juyong Gwak  
*Department of Biomaterials Science, Pusan National University, Korea*
- 09:52 **ANAL1.O-14** Comparison of Fibrillation Kinetics of Amyloid Proteins in H<sub>2</sub>O and D<sub>2</sub>O  
MyungKook Son, Chae Ri Park, Chae Eun Heo, Dongjoon Im, Min Ji Kim, Sooyeon Chae, Hugh I. Kim  
*Department of Chemistry, Korea University, Korea*
- 09:56 **ANAL1.O-15** Photothermal effect analysis of Bi-Te covered nanorods on 3D spheroid neuroblastoma cells  
Chae ri Park, Chae Eun Heo, MyungKook Son, Dongjoon Im, Min Ji Kim, Sooyeon Chae, Hugh I. Kim  
*Department of Chemistry, Korea University, Korea*

## 35. Oral Presentation of Young Analytical Chemists II

Organizer : Jongcheol Seo (POSTECH)

Chair : Jongcheol Seo (POSTECH)

- 10:00 **ANAL2.O-1** Amplification-free detection of COVID-19 target genes using a SERS-based microdroplet chip  
Sohyun Park, Jaebum Choo<sup>1,\*</sup>  
*Chemistry, Chung-Ang University, Korea*  
<sup>1</sup>*Department of Chemistry, Chung-Ang University, Korea*
- 10:04 **ANAL2.O-2** Size sorting of extracellular vesicles from cell using frit-inlet asymmetrical flow field-flow fractionation with multi-angle light scattering  
Young Beom Kim, Myeong Hee Moon  
*Department of Chemistry, Yonsei University, Korea*
- 10:08 **ANAL2.O-3** Microfluidic analytical device for Nucleic Acids Amplification and Detection  
Nguyet mai Ly, Veasna Soum, Nayoon Pyun, Oh-Sun Kwon, Kwanwoo Shin  
*Department of Chemistry, Sogang University, Korea*
- 10:12 **ANAL2.O-4** Synthesis and application of CNFs/GQD/SiNPs and CNT/GQD/SiNPs composites as anodes for Lithium-ion batteries  
Sera Kwon, Jin-Yeong Choi, Jong-Ha Choi<sup>1</sup>, Chang-Seop Lee  
*Department of Chemistry, Keimyung University, Korea*  
<sup>1</sup>*Department of Applied Chemistry, Andong National University, Korea*
- 10:16 **ANAL2.O-5** Synthesis of Red Luminescence Carbon dot by Eu<sup>3+</sup> and Detect Method  
Ji won Park, Weeklyung Kang<sup>1,\*</sup>  
*Department of Chemistry, Soongsil university, Korea*  
<sup>1</sup>*Department of Chemistry, Soongsil University, Korea*
- 10:20 **ANAL2.O-6** Method Validation of N-nitrosodimethylamine in Diltiazem by UPLC-ESI-SRM/MS  
Keewon Yang, Jae-ung Lee<sup>1</sup>, Han Bin Oh<sup>1</sup>  
*Chemistry, Sogang University, Korea*  
<sup>1</sup>*Department of Chemistry, Sogang University, Korea*
- 10:24 **ANAL2.O-7** Serum metabolic profiling in morbid obese patients after bariatric surgery using NMR and LC/MS  
Yeeyoung Han, Do Hyun Ryu<sup>1,\*</sup>, Geum-Sook Hwang  
*Korea Basic Science Institute, Korea*  
<sup>1</sup>*Department of Chemistry, Sungkyunkwan University, Korea*
- 10:28 **ANAL2.O-8** Combined Exposure Assessment of Quaternary Ammonium

Compounds (QACs) in Various Consumer Chemical Products (CCPs)

Hyeri Kim, Han Bin Oh<sup>1,\*</sup>

*Chemistry, Sogang University, Korea*

<sup>1</sup>*Department of Chemistry, Sogang University, Korea*

- 10:32 **ANAL2.O-9** Structural and electrochemical studies of LiFeBO<sub>3</sub> as a cathode material for lithium-ion battery  
Yujin Son, Youngil Lee<sup>1,\*</sup>  
*chemistry, University of Ulsan, Korea*  
<sup>1</sup>*Department of Chemistry, University of Ulsan, Korea*
- 10:36 **ANAL2.O-10** Characteristics and Electrochemical Performance of Silicon/Carbon nanofibers/Graphene Composite films as Anode Material for Binder-Free Lithium ion Secondary Batteries  
Ruye Cong, Jin-Yeong Choi<sup>1</sup>, Chang-Seop Lee<sup>1</sup>  
*Analytical chemistry, Keimyung University, Korea*  
<sup>1</sup>*Department of Chemistry, Keimyung University, Korea*
- 10:40 **ANAL2.O-11** Serum exosomes analysis differentiating patients of alcoholic and nonalcoholic fatty liver diseases  
Huu-Quang Nguyen, Jaebeom Lee, Jeongkwon Kim  
*Department of Chemistry, Chungnam National University, Korea*
- 10:44 **ANAL2.O-12** Homologous recombination repair and cholesterol-mediated drug efflux induce dose-dependent chemoresistance in nutrient-deprived neuroblastoma  
Sooyeon Chae, Chae Eun Heo, Min Ji Kim, Chae Ri Park, MyungKook Son, Dongjoon Im, Hugh I. Kim  
*Department of Chemistry, Korea University, Korea*
- 10:48 **ANAL2.O-13** An integrated approach for probing quaternary structure change of protein induced by ligand using SAXS and cross-linking/MS  
Chae Eun Heo, Chae Ri Park, MyungKook Son, Dongjoon Im, Sooyeon Chae, Minji Kim<sup>1</sup>, Hugh I. Kim  
*Department of Chemistry, Korea University, Korea*  
<sup>1</sup>*Chemistry Department of Nano-Science, Ewha Womans University, Korea*
- 10:52 **ANAL2.O-14** Proteomic analysis of environmental stress in correlation with physiological changes in *Haliotis discus hannai*  
Miseon Jeong, Junghoon Kang, Wonryeon Cho  
*Department of Chemistry, Wonkwang University, Korea*
- 10:56 **ANAL2.O-15** Limit of Detection for HPLC-Photodiode Array Detection is Comparable to the Refractive Index Detection for Monosaccharide Analysis.  
Iqbal Jalaludin, Jeongkwon Kim  
*Department of Chemistry, Chungnam National University, Korea*

Organizer



**Hyunsoo Lee**

Present Professor, Department of Chemistry, Sogang University, Korea

2009 Ph D, Department of Chemistry, The Scripps Research Institute, USA

2003 BS, Department of Chemistry, POSTECH, Korea

## 36. Oral Presentations by Young Life Chemists

Organizer : Hyunsoo Lee (Sogang University)

Chair : Hyunsoo Lee (Sogang University)

- 09:00 **LIFE.O-1** Detection and screening of biologically active small molecules using a genetically encoded cell-based biosensors  
Euiyeon Lee, Youngeun Kwon<sup>1,\*</sup>  
*Department of Biomedical Engineering (BK21 plus), Dongguk University, Korea*  
<sup>1</sup>*Department of Biomedical Science and Engineering, Dongguk University, Korea*
- 09:10 **LIFE.O-2** Structural and biochemical studies of ClpL, an active tetradecameric AAA+ family chaperone  
Gyuhee Kim, Sangho Lee  
*Department of Biological Sciences, Sungkyunkwan University, Korea*
- 09:20 **LIFE.O-3** Bioinformatic expansion and characterization of Omega-Ester-containing Peptides (OEPs)  
Hyunbin Lee, Seokhee Kim<sup>1,\*</sup>  
*Chemistry, Seoul National University, Korea*  
<sup>1</sup>*Division of Chemistry, Seoul National University, Korea*
- 09:30 **LIFE.O-4** Nanoparticle-Based DNA-Encoded Libraries as a Novel High-Throughput Screening Method for Rapid Discovery of Potent Protein Binding Ligands  
Kang ju Lee, Hyun-Suk Lim  
*Department of Chemistry, Pohang University of Science and Technology, Korea*
- 09:40 **LIFE.O-5** Enhancing effects of negative-charged liposomes on fibronectin functions in acceleration of wound healing  
Huong Thanh Nguyen, Kwanwoo Shin<sup>1,\*</sup>, Agustina Setiawati<sup>2</sup>, Kiyong Lee<sup>3</sup>  
*Chemistry, Sogang University, Vietnam*  
<sup>1</sup>*Department of Chemistry, Sogang University, Korea*  
<sup>2</sup>*Department of Life Science, Sogang University, Korea*  
<sup>3</sup>*Disease Biophysics Group, John A. Paulson School of Engineering and Applied Sciences, United States*
- 09:50 **LIFE.O-6** Solubilizing and Loading of 1,3-Dicarbonyl Contained Drugs Driven by A Coordinate Interaction  
Sungjin Jung, Won jong Kim<sup>1,\*</sup>  
*Interdisciplinary Biosciences and Bioengineering, Pohang University of Science and Technology, Korea*  
<sup>1</sup>*Department of Chemistry, Pohang University of Science and Technology, Korea*

Organizer



Hong Geun Lee

Present Assistant Professor, Department of Chemistry, Seoul National University

2012 Ph.D, Harvard University

2002 B.s., Seoul National University

## 37. Oral Presentations for Young Scholars in Organic Division

Organizer : Hong Geun Lee (Seoul National University)

Chair : Hong Geun Lee (Seoul National University)

- 09:00 **ORGN.O-1** Atroposelective Total Syntheses of *M*- and *P*-Naphthylisoquinoline Alkaloids Using an Internal Central Chirality  
Young-In Jo, Cheol-Hong Cheon  
*Department of Chemistry, Korea University, Korea*
- 09:12 **ORGN.O-2** Catalytic Enantioselective Synthesis of Tetrasubstituted Chromanones via Palladium-Catalyzed Asymmetric Conjugate Arylation Using Chiral Pyridine-Dihydroisoquinoline Ligands  
Doohyun Baek, Sukwon Hong<sup>1,\*</sup>  
*Department of chemistry, Gwangju Institute of Science and Technology, Korea*  
<sup>1</sup>*Department of Chemistry, Gwangju Institute of Science and Technology, Korea*
- 09:24 **ORGN.O-3** Molecular Mechanism of Viscosity Sensitivity in Motion-Based BODIPY Rotors  
Xiao Liu, Young-Tae Chang<sup>1,\*</sup>  
*Chemistry, Pohang University of Science and Technology, Korea*  
<sup>1</sup>*Department of Chemistry, Pohang University of Science and Technology, Korea*
- 09:36 **ORGN.O-4** Palladium-Catalyzed C-H Functionalization of Acetanilides  
Raju Sitaram Thombal, Yong Rok Lee  
*Chemical Engineering, Yeungnam University, Korea*
- 09:48 **ORGN.O-5** HARNESSING THE C-N BONDS OF TERTIARY AMINES/AMIDES IN AMINOCARBONYLATION AND TRANSAMIDATION REACTIONS  
Muhammad Aliyu Idris, Sunwoo Lee<sup>1,\*</sup>  
*Chemistry, Chonnam National University, Korea*  
<sup>1</sup>*Department of Chemistry, Chonnam National University, Korea*
- 10:00 **ORGN.O-6** Synthesis of 9-Membered 1,4-Oxazonines via Synergistic Rh(II)/Pd(0) Dual Catalysis  
Kyu Ree Lee, Subin Ahn, Sang-gi Lee<sup>1,\*</sup>  
*Department of Chemistry and Nanoscience, Ewha Womans University, Korea*  
<sup>1</sup>*Chemistry Department of Nano-Science, Ewha Womans University, Korea*
- 10:12 **ORGN.O-7** Lewis Acid Catalyzed Tandem Reactions Using ortho-Quinone methides.  
Seung Tae Kim, Do Hyun Ryu  
*Department of Chemistry, Sungkyunkwan University, Korea*

10:24 **ORGN.O-8** Full-color tunable aggregation-induced emission fluorophore based on indolizine

Sang-Kee Choi, Hyungi Kim, Jun-Sik Min<sup>1</sup>, Seulbi Lee<sup>1</sup>, Eunha Kim

*Department of Molecular Science and Technology, Ajou University, Korea*

<sup>1</sup>*Molecular science and technology, Ajou University, Korea*

Organizer



**Soo Min Kim**

Present Professor, Department of Chemistry, Sookmyung Women's University, Korea  
 2020 Senior Researcher, KIST, Korea  
 2011 Ph.D, Department of SAINT, SKKU, Korea

### 38. Oral Presentation for Young Material Chemists

Organizer : Soo Min Kim (Sookmyung Women's University)

Chair : Soo Min Kim (Sookmyung Women's University)

- 09:00 **MAT.O-1** Near-Infrared Emissive Iridium(III) Complexes with Aggregation-Induced Phosphorescence Enhancement  
Hae Un Kim, Kyoungwon Choi, Taehyun Kim, Dohyun Kim, Taiho Park  
*Department of Chemical Engineering, Pohang University of Science and Technology, Korea*
  
- 09:15 **MAT.O-2** Fate of Photoinduced Halide Ion Segregation and Iodide Expulsion: Thermodynamic and Kinetic Aspects  
Junsang Cho  
*Department of Chemistry, Duksung Women's University, Korea*
  
- 09:30 **MAT.O-3** Facile and high-throughput screening of direct-acting antiviral drug with graphene oxide-based fluorescent biosensor  
Se-Jin Park, Dal-Hee Min  
*Department of Chemistry, Seoul National University, Korea*
  
- 09:45 **MAT.O-4** Reduced graphene oxide-based composites toward attenuation of high frequency range electromagnetic wave  
Quyen Vu thi, Daewon Sohn  
*Department of Chemistry, Hanyang University, Korea*
  
- 10:00 **MAT.O-5** Specific detection of Zika and dengue viruses with graphene oxide-based biosensor  
Ji-Seon Lee, Dal-Hee Min  
*Department of Chemistry, Seoul National University, Korea*



Organizer



**Chang Hyuck Choi**

Present Associate Professor, Materials Science and Engineering, GIST, Korea  
 2016 Postdoc, Electrocatalysis Group, Max-Planck-Institut für Eisenforschung, Germany  
 2012 Ph.D, Chemical and Biomolecular Engineering, KAIST, Korea

## 39. Oral Presentation of Young Scholars in Electrochemistry

Organizer : Chang Hyuck Choi (GIST)

Chair : Chang Hyuck Choi (GIST)

- 09:00 **ELEC.O-1** Electrochemical Analysis of Single Water Droplets using Outer Sphere Reaction  
Heekyung Park, Jun Hui Park  
*Department of Chemistry, Chungbuk National University, Korea*
- 09:15 **ELEC.O-2** Electrochemical detection of redox-free single water droplets in organic solvent  
Hyeong kwon Moon, Jun Hui Park  
*Department of Chemistry, Chungbuk National University, Korea*
- 09:30 **ELEC.O-3** In Situ Real-time Monitoring of Chemical Etching Process of ITO Film via Fourier-transform Electrochemical Impedance Spectroscopy  
Seok Hee Han, Taek dong Chung  
*Department of Chemistry, Seoul National University, Korea*
- 09:45 **ELEC.O-4** Semiconductor electrochemistry: Application to ultrasensitive acetone gas sensor.  
Ahyeon Ma, Ki Min Nam  
*Department of Chemistry, Pusan National University, Korea*
- 10:00 **ELEC.O-5** Monitoring the respiration activity of single neural stem cells using scanning electrochemical microscopy (SECM)  
Dong Hoon Im, Hyun Seo Ahn<sup>1,\*</sup>  
*Chemistry, Yonsei University, Korea*  
<sup>1</sup>*Department of Chemistry, Yonsei University, Korea*
- 10:15 **ELEC.O-6** Capping-ligand effect of copper nanoparticles for electrochemical reduction of carbon dioxide  
Yusik Oh, Hye Ryung Byon  
*Department of Chemistry, Korea Advanced Institute of Science and Technology, Korea*
- 10:30 **ELEC.O-7** Nano-confinement effects on enhanced reversibility of redox reactions coupled with an irreversible chemical process by electrolysis acceleration in nanoporous carbon electrodes for redox-enhanced electrochemical capacitor  
Jaehyun Jeon, Jinho Chang  
*Department of Chemistry, Hanyang University, Korea*
- 10:45 **ELEC.O-8** Nanoporous Ta<sub>3</sub>N<sub>5</sub> via Electrochemical Anodization Followed by Nitridation for Solar Water Oxidation  
Pran Krisna Das, Soon Hyung Kang<sup>1,\*</sup>  
*Advanced Chemicals & Engineering, Chonnam National University, Bangladesh*  
<sup>1</sup>*Department of Chemical Education, Chonnam National University, Korea*

### Organizer



#### Sae Yun Kwon

- Present Assistant Professor, Division of Environmental Science and Engineering, Pohang University of Science and Technology
- 2017 Postdoctoral Associate, Institute for Data, Systems, and Society, Massachusetts Institute of Technology
- 2015 Ph.D, Earth and Environmental Science, University of Michigan

## 40. General Student Session

Organizer : Sae Yun Kwon (POSTECH)

Chair : Sungjun Bae (Konkuk University)

- 09:00 **ENVR.O-1** Mercury co-benefits of climate policies on rice mercury concentration and exposure in China  
Ju Hyeon Lee, Sae Yun Kwon  
*Division of Environmental Science & Engineering, Pohang University of Science and Technology, Korea*
- 09:20 **ENVR.O-2** Enhanced Ammonia Synthesis under Neutral pH Condition using Rh-based Nitrogen Reduction Catalysts  
Sunki Chung, Minjun Choi, Kahyun Ham, HyungKuk Ju<sup>1,\*</sup>, Jaeyoung Lee  
*School of Earth Sciences and Environmental Engineering, Gwangju Institute of Science and Technology, Korea*  
<sup>1</sup>CSIRO Energy, Australia, Australia
- 09:40 **ENVR.O-3** Non-noble Metal Oxygen Evolution Electrocatalyst for Anion Exchange Membrane Water Electrolysis  
Sinwoo Kang, Kahyun Ham, Jaeyoung Lee  
*School of Earth Sciences and Environmental Engineering, Gwangju Institute of Science and Technology, Korea*
- 10:00 **ENVR.O-4** Assessment of microplastic removal in drinking water treatment process  
SangHeon Na, EunJu Kim<sup>1,\*</sup>  
*Division of Energy & Environment Technology, KIST School, Korea*  
<sup>1</sup>Center for Water Resource Cycle Research, Korea Institute of Science and Technology, Korea

POLY.P-1

Catalysis for ATRP using organic photo-catalysts and visible-light irradiation

Minki Cho, Eunsung Lee<sup>1</sup>, Kyung-sun Son<sup>2,\*</sup>

*Chungnam National University, Korea*

<sup>1</sup>*Department of Chemistry, Pohang University of Science and Technology, Korea*

<sup>2</sup>*Department of Chemistry, Chungnam National University, Korea*

POLY.P-2

Alternating ring-opening copolymerization of epoxide and anhydride using a chromium complex with a sterically demanding amino triphenolate ligand

Ho Kyun Ryu, Eunsung Lee<sup>1,\*</sup>, Kyung-sun Son<sup>2,\*</sup>

*Chemistry, Chungnam National University, Korea*

<sup>1</sup>*Department of Chemistry, Pohang University of Science and Technology, Korea*

<sup>2</sup>*Department of Chemistry, Chungnam National University, Korea*

POLY.P-3

Open-to-air RAFT polymerization on surface under ambient conditions

Ji Hoon Lee, Woo Kyung Cho, Kyung-sun Son

*Department of Chemistry, Chungnam National University, Korea*

POLY.P-4

Light-Mediated Control of Interfacial Behavior for Thin-Film Block Copolymer Wetting

SoI An, Sangwon Kim<sup>1,\*</sup>, Myungwoong Kim

*Department of Chemistry, Inha University, Korea*

<sup>1</sup>*Dept. of Polymer Sci Eng, Inha University, Korea*

POLY.P-5

Cathepsin B-responsive smart liposomes for doxorubicin delivery

Seulgi Lee, Joon Sig Choi

*Department of Biochemistry, Chungnam National University, Korea*

POLY.P-6

Mechanochemical Post-Polymerization Modification of Ammonium-Functionalized Polyethers

Joo Won Lee, Jeung Gon Kim<sup>1,\*</sup>, Byeong-Su Kim

*Department of Chemistry, Yonsei University, Korea*

<sup>1</sup>*Department of Chemistry, Jeonbuk National University, Korea*

POLY.P-7

Improved network formation in polyelectrolyte complex hydrogels via suppression of micellization

Jihoon Han, Younsoo Kim<sup>1,\*</sup>

*Materials Science and Engineering, Pohang University of Science and Technology, Korea*

<sup>1</sup>*Department of Materials Science and Engineering, Pohang University of Science and Technology, Korea*

POLY.P-8

Synthesis of Core-Crosslinked Star Polymer via

Single Chain Collapse of Graft Copolymer Precursor

Jiyun Nam, Jae suk Lee<sup>1</sup>, Myungeun Seo<sup>2,\*</sup>

*Department of Chemistry, Korea Advanced Institute of Science and Technology, Korea*

<sup>1</sup>*Department of Advanced Materials Engineering, Gwangju Institute of Science and Technology, Korea*

<sup>2</sup>*Graduate School of Nano Science Technology, Korea Advanced Institute of Science and Technology, Korea*

POLY.P-9

Fabrication of Cation- $\pi$  Interacted Graphene Hydrogels for Highly Robust Supercapacitors

Im Kyung Han, Younsoo Kim

*Department of Materials Science and Engineering, Pohang University of Science and Technology, Korea*

POLY.P-10

Phase Separated Hydrogels with Embedded Microgels to Improve Shrinking and Re-swelling

Taehun Chung, Younsoo Kim

*Department of Materials Science and Engineering, Pohang University of Science and Technology, Korea*

POLY.P-11

Fe(III) Assisted Layer-by-Layer Assembly of Pullulan and Tannic acid

Hyunjung Lee, Ji Hun Park<sup>1,\*</sup>

*Science Education, Ewha Womans University, Korea*

<sup>1</sup>*Department of Science Education, Ewha Womans University, Korea*

POLY.P-12

Influence of water absorption on chemical properties of epoxy composites

Hyun Deung Park

*Hyundai Motor Group- Hyundai KEFICO, Korea*

POLY.P-13

The Effect of NLS Peptides on Transfection Efficiency of Low Generation PAMAM Dendrimer

Jeil Lee, Younjin Kim, Joon Sig Choi

*Department of Biochemistry, Chungnam National University, Korea*

POLY.P-14

High temperature curable and nanoporous substrates for printed electronics

Veasna Soum, Nguyet Mai Ly, Nayoon Pyun, Oh-Sun Kwon, Kwanwoo Shin

*Department of Chemistry, Sogang University, Korea*

POLY.P-15

Effect of circularly polarized light on amplification of supramolecular chirality

Jun Su Kang, Myungeun Seo<sup>1,\*</sup>

*Department of Chemistry, Korea Advanced Institute of Science and Technology, Korea*

<sup>1</sup>*Graduate School of Nano Science Technology, Korea Advanced Institute of Science and Technology, Korea*

POLY.P-16

Selective Permeable Polymer Coating on Metal-Organic Framework

Nam Young Ahn, Jooyeon Lee<sup>1</sup>, Min Kim<sup>1</sup>,  
Myungeun Seo<sup>2,\*</sup>  
*Department of Chemistry, Korea Advanced Institute of  
Science and Technology, Korea*  
<sup>1</sup>*Department of Chemistry, Chungbuk National University,  
Korea*  
<sup>2</sup>*Graduate School of Nano Science Technology, Korea  
Advanced Institute of Science and Technology, Korea*

POLY.P-17

Development of PEGylated rosmarinic acid  
liposome for anti-inflammation effect  
Seulgi Lee, Joon Sig Choi, Juye Ro<sup>1,\*</sup>  
*Department of Biochemistry, Chungnam National  
University, Korea*  
<sup>1</sup>*Chungnam National University, Korea*

POLY.P-18

Ring-opening copolymerization of cyclic anhydride  
and epoxide using a chromium complex based on a  
pentapyridine ligand  
Namsik Yu, Ho Kyun Ryu<sup>1</sup>, Eunsung Lee<sup>2,\*</sup>, Kyung-  
sun Son<sup>3,\*</sup>  
*Department of chemistry, Chungnam National University,  
Korea*  
<sup>1</sup>*Chungnam National University, Korea*  
<sup>2</sup>*Department of Chemistry, Pohang University of Science  
and Technology, Korea*  
<sup>3</sup>*Department of Chemistry, Chungnam National University,  
Korea*

POLY.P-19

Polyethyleneamine-MoS<sub>2</sub>-epoxy composites with  
improved thermal and mechanical properties  
Shahina Riaz, Soo-Jin Park<sup>1,\*</sup>  
*Chemistry, Inha University, Pakistan*  
<sup>1</sup>*Department of Chemistry, Inha University, Korea*

POLY.P-20

A comparative study on the nano-inclusion effect of  
MoS<sub>2</sub> nanosheets and MoS<sub>2</sub> quantum dots on the  
fracture toughness and interfacial properties of  
epoxy composites.  
Shahina Riaz, Soo-Jin Park<sup>1,\*</sup>  
*Chemistry, Inha University, Pakistan*  
<sup>1</sup>*Department of Chemistry, Inha University, Korea*

POLY.P-21

WS<sub>2</sub> nanoplatelets: an advanced reinforcement for  
epoxy composites  
Shahina Riaz, Soo-Jin Park<sup>1,\*</sup>  
*Chemistry, Inha University, Pakistan*  
<sup>1</sup>*Department of Chemistry, Inha University, Korea*

POLY.P-22

Surface-initiated RAFT polymerization of  
methacrylic acid under ambient conditions  
Ji Hoon Lee, Seung-yeon Lee<sup>1</sup>, Kyung-sun Son  
*Department of Chemistry, Chungnam National University,  
Korea*  
<sup>1</sup>*Chemistry, Chungnam National University, Korea*

POLY.P-23

Well-Defined Norbornenyl-Terminated Poly(alkyl  
methacrylate)s: Their Synthesis by Group Transfer  
Polymerization and Graft-through Ring-Opening  
Metathesis Polymerization

Gue Seon Lee, Jeung Gon Kim<sup>1,\*</sup>  
*Chemistry, Jeonbuk National University, Korea*  
<sup>1</sup>*Department of Chemistry, Jeonbuk National University,  
Korea*

POLY.P-24

Burn-In Loss Study in UV-Crosslink of Conjugated  
Polymers and Nonfullerene Acceptors Using Green  
Solvent Processing in Ternary Blended Organic  
Photovoltaics.  
Dasol Chung, Junwoo Lee, Hae Un Kim, Taehyun  
Kim, Dohyun Kim, Taiho Park  
*Department of Chemical Engineering, Pohang University of  
Science and Technology, Korea*

POLY.P-25

Oil/water interface stabilized by amphiphilic  
heteroarm core cross-linked star polymer  
Yunji Jung, Myungeun Seo<sup>1,\*</sup>  
*Chemistry, Korea Advanced Institute of Science and  
Technology, Korea*  
<sup>1</sup>*Graduate School of Nano Science Technology, Chemistry,  
Korea*

POLY.P-26

Synthesis of Functional Polyethylene Block  
Copolymers via Post-polymerization Deoxygenation  
Taeseok Oh, Myungeun Seo<sup>1,\*</sup>  
*Department of Chemistry, Korea Advanced Institute of  
Science and Technology, Korea*  
<sup>1</sup>*Graduate School of Nano Science Technology, Korea  
Advanced Institute of Science and Technology, Korea*

POLY.P-27

Multiblock Copolymerization-induced self-assembly  
Suchan Cho, Myungeun Seo<sup>1,\*</sup>  
*Department of Chemistry, Korea Advanced Institute of  
Science and Technology, Korea*  
<sup>1</sup>*Graduate School of Nano Science Technology, Korea  
Advanced Institute of Science and Technology, Korea*

POLY.P-28

Post-polymerization modification of aldehyde  
polymers: functionalization of aldehyde polymers  
HyoWon Lee, Jeung Gon Kim<sup>1,\*</sup>  
*chemistry department, Jeonbuk National University, Korea*  
<sup>1</sup>*Department of Chemistry, Jeonbuk National University,  
Korea*

POLY.P-29

Preparation of porous polymeric particles by  $\gamma$ -ray  
radiation and solvent extraction  
Yoolee Lee, Daewon Sohn  
*Department of Chemistry, Hanyang University, Korea*

POLY.P-30

Electropolymerization of thiophene and  
selenophene derivatives and their application in  
capacitors.  
Eunsang Yu, Intae Kim, Yang-Rae Kim  
*Department of Chemistry, Kwangwoon University, Korea*

POLY.P-31

Fabrication of acrylic based polymer resin for  
Thermochromic material  
Munseok Choi, Hoyoul Kong  
*Korea Research Institute of Chemical Technology, Korea*

POLY.P-32 Formulation of Nanocomposite Hydrogel for Heat Responsive Waterless Soft Actuator  
Monica cahyaning Ratri, Veasna Soum, Kwanwoo Shin  
*Department of Chemistry, Sogang University, Korea*

POLY.P-33 Development of hydrogel based lateral flow diagnostic devices  
Nayoon Pyun, Kwanwoo Shin<sup>1,\*</sup>, Oh-Sun Kwon<sup>1</sup>, Nguyet Mai Ly<sup>1</sup>, Veasna Soum<sup>1</sup>  
*Sogang University, Korea*  
<sup>1</sup>*Department of Chemistry, Sogang University, Korea*

POLY.P-34 Zr(IV) Coordination Chemistry for Antiplatelet Alginate Coatings: The Effect of Surface Functional Groups  
Yeonwoo Jeong, Sung Min Kang  
*Department of Chemistry, Chungbuk National University, Korea*

POLY.P-35 Surface/interface controls of piezo-resistive flexible pressure sensors for improving linearity and robustness  
Hyeon Ju Ko, Seung Goo Lee  
*Department of Chemistry, University of Ulsan, Korea*

POLY.P-36 Antifouling Multi-Loop Copolyethers  
Suebin Park, Minseong Kim<sup>1</sup>, Byeong-Su Kim  
*Department of Chemistry, Yonsei University, Korea*  
<sup>1</sup>*Department of Chemistry, Ulsan National Institute of Science and Technology, Korea*

POLY.P-37 Grafting of poly(acrylic acid) from silica particles in gelation process  
Jungju Ryu, Daewon Sohn  
*Department of Chemistry, Hanyang University, Korea*

POLY.P-38 Main Chain Conjugated Copolymer Having Donor-Acceptor Heterojunctions for Versatile Outdoor and Indoor Photovoltaic Power Generation  
Nayeon Kwon, Su Hong Park, Hun Gu Kang, Young Un Kim, Hyung Jong Kim, Jinhyo Hwang, Hyo Jae Yoon, Dong Hoon Choi  
*Department of Chemistry, Korea University, Korea*

POLY.P-39 High Performance Solution-Processable Thermally Activated Delayed Fluorescent OLEDs with Organoboron Acceptor Monomer in Copolymer Host Materials  
Jinhyo Hwang, Hyung Jong Kim, Young Un Kim, Nayeon Kwon, Chai Won Kim, Dong Hoon Choi  
*Department of Chemistry, Korea University, Korea*

POLY.P-40 Flexible Polymer Solar Cells based on Sandwich Type Silver Nanowire Electrodes Between PEDOT:PSS Layers  
Young un Kim, Nayeon Kwon, Su Hong Park, Chai Won Kim, Jinhyo Hwang, Hyung Jong Kim, Dong Hoon Choi  
*Department of Chemistry, Korea University, Korea*

IND.P-41

Development of Technology for Recovering Valuable Metals in Detoxified Waste Asbestos-Containing Waste  
Dong Nyeon Kim, Donghyeon Yang<sup>1</sup>, Seok-Chan Kim  
*Department of Chemistry, Kookmin University, Korea*  
<sup>1</sup>*chemistry, Kookmin University, Korea*

IND.P-42

The Substituent-Effect of Deep-Blue Phosphorescent N-Heterocyclic Carbene (NHC) Ir(III) Complexes and The Application in OLED Devices  
Changhyun Back, Su-Won Na, Daehan Lee, Sang Ook Kang, Ho-Jin Son  
*Department of Advanced Materials Chemistry, Korea University, Korea*

IND.P-43

Influence of bulky substituents on the photophysical properties of homoleptic iridium(III) complexes  
Su-Won Na, Changhyun Back, Daehan Lee, Dae won Cho, Sang Ook Kang, Ho-Jin Son  
*Department of Advanced Materials Chemistry, Korea University, Korea*

IND.P-44

Photophysical properties of structural isomers of homoleptic Ir-complexes derived from xylenyl-substituted N-heterocyclic carbene ligands  
Su-Won Na, Changhyun Back, Min Su Choe, Sang Ook Kang, Ho-Jin Son  
*Department of Advanced Materials Chemistry, Korea University, Korea*

IND.P-45

Facile preparation of starch-based activated carbons for methane storage  
Jong-Hoon Lee, Soo-Jin Park  
*Department of Chemistry, Inha University, Korea*

IND.P-46

A Effect of TiO<sub>2</sub>/reduced graphene oxide composites Prepared by hydrothermal for photocatalytic degradation  
Seong-Jun Mun, Soo-Jin Park<sup>1,\*</sup>  
*Inha University, Korea*  
<sup>1</sup>*Department of Chemistry, Inha University, Korea*

IND.P-47

A study on polysaccharide based porous carbons for high-pressure methane adsorption  
Jong-Hoon Lee, Soo-Jin Park  
*Department of Chemistry, Inha University, Korea*

IND.P-48

Preparation and characterization of porous carbons via hydrothermal synthesis for gas adsorption  
Jong-Hoon Lee, Soo-Jin Park

*Department of Chemistry, Inha University, Korea*

IND.P-49

Fabrication of TiO<sub>2</sub>/g-C<sub>3</sub>N<sub>4</sub> nanocomposites for photocatalytic degradation of RhB  
Seong-Jun Mun, Soo-Jin Park<sup>1,\*</sup>  
*Inha University, Korea*  
<sup>1</sup>*Department of Chemistry, Inha University, Korea*

IND.P-50

Fabrication of N-doped TiO<sub>2</sub> nanotubes/reduced graphene oxide nanocomposites for photocatalytic activity  
Seong-Jun Mun, Soo-Jin Park<sup>1,\*</sup>  
*Inha University, Korea*  
<sup>1</sup>*Department of Chemistry, Inha University, Korea*

IND.P-51

Effect of tetraethylenepentamine-impregnated zeolite templated carbon for CO<sub>2</sub> capture  
Choong-Hee Kim, Soo-Jin Park  
*Department of Chemistry, Inha University, Korea*

IND.P-52

A study of activated carbons from Pine cones for CO<sub>2</sub> capture  
Choong-Hee Kim, Soo-Jin Park  
*Department of Chemistry, Inha University, Korea*

IND.P-53

Development of Stable and Reproducible Liposome Formation for Diacetylene Derivatives via Continuous-Flow Methods  
Se Won Bae  
*Department of Chemistry, Jeju National University, Korea*

IND.P-54

Preparation and characterization of activated carbons derived from coffee wastes for hydrogen storage  
Ji-Hye Park, Soo-Jin Park<sup>1,\*</sup>  
*Inha University, Korea*  
<sup>1</sup>*Department of Chemistry, Inha University, Korea*

IND.P-55

Effect of cigarette filters-derived activated carbons on enhanced hydrogen storage  
Ji-Hye Park, Soo-Jin Park<sup>1,\*</sup>  
*Inha University, Korea*  
<sup>1</sup>*Department of Chemistry, Inha University, Korea*

IND.P-56

The effective pore sizes of activated carbons from biomass materials for high-pressure hydrogen storage  
Ji-Hye Park, Soo-Jin Park<sup>1,\*</sup>  
*Inha University, Korea*  
<sup>1</sup>*Department of Chemistry, Inha University, Korea*

IND.P-57

Ultrafast Rolled-up Production of Graphene Fibers-inserted High-Performance Yarn Type Electrodes  
Young-Jung Heo, Soo-Jin Park  
*Department of Chemistry, Inha University, Korea*



INOR.P-58

Hybridizing of metal organic framework in clay nanotube for enhanced gas adsorption capacity

Sooji Park  
Chemistry, Hanyang University, Korea

INOR.P-59

Crystal Structure, Molecular Spectroscopy and Ligand Field Analysis of *trans*-[Cr(Me<sub>2</sub>tn)<sub>2</sub>Br<sub>2</sub>]<sub>2</sub>ZnBr<sub>4</sub>

Jong-Ha Choi, Keon Sang Ryoo, Chang-Seop Lee<sup>1</sup>  
Department of Applied Chemistry, Andong National University, Korea  
<sup>1</sup>Department of Chemistry, Keimyung University, Korea

INOR.P-60

Molecular Structure, Spectroscopic Properties and Ligand Field Analysis of *cis*-[Cr(NCS)<sub>2</sub>(cyclam)]<sub>2</sub>Cr<sub>2</sub>O<sub>7</sub>

Jong-Ha Choi, Keon Sang Ryoo, Chang-Seop Lee<sup>1</sup>  
Department of Applied Chemistry, Andong National University, Korea  
<sup>1</sup>Department of Chemistry, Keimyung University, Korea

INOR.P-61

Preparation of Porous Carbon-Based Composite Incorporated with Cu and Co Nanoparticles

Heewoong Shin, Sojin Oh, Hyeji Jun, Moonhyun Oh  
Department of Chemistry, Yonsei University, Korea

INOR.P-62

Size-Controlled Construction of Porous UiO-66 and UiO-67 using Modulators

In-Seop Jang, Sujeong Lee, Moonhyun Oh  
Department of Chemistry, Yonsei University, Korea

INOR.P-63

Construction of Hybrid MOFs of Fe,Cr-MIL-101 and Cr-MIL-101@Fe-MIL-101

Junha Song, Moonhyun Oh  
Department of Chemistry, Yonsei University, Korea

INOR.P-64

Synthesis and Structural Characterization of Zinc(II) and Cadmium(II), Complexes for The Polymerization of *rac*-Lactide

Hyosun Lee\*, Kyeonghun Kim  
Department of Chemistry, Kyungpook National University, Korea

INOR.P-65

Polymerization of *rac*-Lactide by Precatalyst Zinc(II) and Cadmium(II) Complexes

Solhye Choe, Hyosun Lee  
Department of Chemistry, Kyungpook National University, Korea

INOR.P-66

Synthesis and Characterizations of 1,1-Diisopropyl(or Dihexyl)-2,5-bis(trimethylsilylethynyl)-3,4-diphenyl-siloles

Se yeon Park, Young Tae Park, Ji Hun Lee  
Department of Chemistry, Keimyung University, Korea

INOR.P-67

Synthesis and their Electrochemical Properties of

1,1-Diisopropyl(or 1,1-Dihexyl or 1,1-Diethyl)-3,4-diphenyl-2,5-bis(trimethylsilyl)silole

Ji hun Lee, Young Tae Park, Se Yeon Park  
Department of Chemistry, Keimyung University, Korea

INOR.P-68

Concerted Catalysis via Geometrical Matching Interaction of Trinuclear Palladium(II) Catalyst

Dongwon Kim, Ok-Sang Jung  
Department of Chemistry, Pusan National University, Korea

INOR.P-69

Supramolecular Isomers of Ag(I) Complexes Based on a Silane Derivative

Heehun Moon, Seok Kyun Jeong, Ok-Sang Jung  
Department of Chemistry, Pusan National University, Korea

INOR.P-70

Porous 2D sheets via interlocked 1D ladders: adsorption of xylene isomers by temperature and mixture effects in SCSC mode

Soojin Lee, Junhee Kim, In-Hyeok Park<sup>1</sup>, Ok-Sang Jung  
Department of Chemistry, Pusan National University, Korea  
<sup>1</sup>Graduate School of Analytical Science and Technology, Chungnam National University, Korea

INOR.P-71

Syntheses and Properties of Ruthenium Nitrosyl Complexes with Schiff base ligands

Minyeong Kim, Hong In Lee  
Department of Chemistry, Kyungpook National University, Korea

INOR.P-72

Structural difference depending on the solvent : Heterogenization of supramolecular homogeneous catalyst

Junmyeong Park, Do Heon Kim, Ok-Sang Jung  
Department of Chemistry, Pusan National University, Korea

INOR.P-73

Nucleophilic reactivity of a mononuclear cobalt(III)-bis(*tert*-butylperoxy) complex

Younwoo Park, Jaeheung Cho<sup>1,\*</sup>  
Department of Emerging Materials Science, Daegu Gyeongbuk Institute of Science & Technology, Korea  
<sup>1</sup>Department of Chemistry, Ulsan National Institute of Science and Technology, Korea

INOR.P-74

Synthesis of Perovskite Quantum Dots by Z-type ligand and Fabrication of Light-Emitting-Diodes Application

SeungMin Baek, Sangwook Kim<sup>1,\*</sup>  
Department of Molecular Science and Technology, Ajou University, Korea  
<sup>1</sup>Division of Applied Chemistry & Biological Enginee, Ajou University, Korea

INOR.P-75

Mechanistic insight into hydroxamate transfer reaction mimicking the inhibition of zinc-containing enzymes

Nam Kwon, Jaeheung Cho<sup>1,\*</sup>  
*Emerging Materials Science, Daegu Gyeongbuk Institute of Science & Technology, Korea*  
<sup>1</sup>*Department of Chemistry, Ulsan National Institute of Science and Technology, Korea*

INOR.P-76

Highly durable covalent-organic framework for the simultaneous ultrasensitive detection and removal of noxious Hg<sup>2+</sup>

Younghu Son, Yang Yanqin<sup>1</sup>, Minyoung Yoon, Taehyun Bae<sup>2,\*</sup>  
*Department of Chemistry, Kyungpook National University, Korea*  
<sup>1</sup>*School of Chemical Engineering and Technology, Hebei University of Technology, China*  
<sup>2</sup>*School of Chemical and Biomedical Engineering, Nanyang Technological University, Singapore*

INOR.P-77

Reversible Single-crystal-to-single-crystal (SCSC) Transformation in Aza-macrocyclic Copper(II) Complex

Ahrim Jeong, Hyosun Lee  
*Department of Chemistry, Kyungpook National University, Korea*

INOR.P-78

Stable Cu(II) and Cu(I) complexes with a same ligand

Eun su Chae, Jang Hoon Cho, Hong In Lee  
*Department of Chemistry, Kyungpook National University, Korea*

INOR.P-79

Redox-Inactive Metal Ions Enhance the Nucleophilic Reactivity of an Alkylperoxocopper(II) Complex

Seonghan Kim, Jaeheung Cho<sup>1,\*</sup>  
*Emerging Materials Science, Daegu Gyeongbuk Institute of Science & Technology, Korea*  
<sup>1</sup>*Department of Chemistry, Ulsan National Institute of Science and Technology, Korea*

INOR.P-80

Hybridizing of metal organic framework in selectively modified clay nanotube for enhanced gas adsorption capacity

Sooji Park, Daewon Sohn<sup>1,\*</sup>  
*Chemistry, Hanyang University, Korea*  
<sup>1</sup>*Department of Chemistry, Hanyang University, Korea*

INOR.P-81

Assembled nanoparticles on the polymeric template for enhancement of physical properties

Daye Lee  
*Department of chemistry, Yonsei University, Korea*

INOR.P-82

Various pathways for synthesis of BaSi<sub>2</sub>O<sub>2</sub>N<sub>2</sub>:Eu<sup>2+</sup> phosphors from silicate phosphors

Kangsik Choi, Younbong Park  
*Department of Chemistry, Chungnam National University, Korea*

INOR.P-83

Electron Injection Process of Porphyrin Dye into Heterogeneous TiO<sub>2</sub>/Re(I) Photocatalyst  
Daehan Lee, Min Su Choe, Changhyun Back, Chul Hoon Kim, Sang Ook Kang, Ho-Jin Son  
*Department of Advanced Materials Chemistry, Korea University, Korea*

INOR.P-84

High Selective and Efficient Photoconversion of Carbon Dioxide to Formate by New Mononuclear Nickel Complexes

Jinheung Kim<sup>\*</sup>, Youngmee Kim<sup>1</sup>, Sung-Jin Kim<sup>2</sup>  
*Chemistry Department of Nano-Science, Ewha Womans University, Korea*  
<sup>1</sup>*Department of Chemistry and Nano Science, Ewha Womans University, Korea*  
<sup>2</sup>*Department of Chemistry, Ewha Womans University, Korea*

INOR.P-85

Photochemical CO<sub>2</sub> to CO/HCOO<sup>-</sup> Conversion by TiO<sub>2</sub>-Immobilized [Ru(bpy)(CO)<sub>2</sub>Cl<sub>2</sub>]<sup>2+</sup> Catalyst  
Min Su Choe, Daehan Lee, Su-Won Na, Chul Hoon Kim, Dae won Cho, Sang Ook Kang, Ho-Jin Son  
*Department of Advanced Materials Chemistry, Korea University, Korea*

INOR.P-86

Rhodamine-based Near-Infrared Probe for Fluorescent Detection of ATP and Staining Lysosomes in Living Cells

Jinheung Kim  
*Chemistry Department of Nano-Science, Ewha Womans University, Korea*

INOR.P-87

Highly Efficient Porphyrin-Driven CO<sub>2</sub> Reduction via Hetero-Collisional Electron Transfer Route between Homogeneous Porphyrin and TiO<sub>2</sub> Semiconductor.

Min Su Choe, Daehan Lee, Changhyun Back, Chul Hoon Kim, Sang Ook Kang, Ho-Jin Son  
*Department of Advanced Materials Chemistry, Korea University, Korea*

INOR.P-88

Visible-light-driven cleavage of the lignin β-O-4 bond using silver ion-exchanged zinc indium sulfide

SungGyu Lee, Hyun Sung Kim<sup>1,\*</sup>  
*Chemistry, Pukyong National University, Korea*  
<sup>1</sup>*Department of Chemistry, Pukyong National University, Korea*

INOR.P-89

The Effective Strategy of Encapsulating Metal-Sulfide Quantum Dot into Zeolitic Imidazolate Framework by Modification of QD with Identical Ligand

Yerim Son<sup>\*</sup>, Hyun Sung Kim<sup>1,\*</sup>  
*Chemistry, Pukyong National University, Korea*  
<sup>1</sup>*Department of Chemistry, Pukyong National University, Korea*

INOR.P-90

Effective amine-functionalization of a MOF without solvent exchange

Doo San Choi, Yun Seok Chae, Chang Seop Hong



*Department of Chemistry, Korea University, Korea*

INOR.P-91

Fabrication and CO<sub>2</sub> adsorption properties of water-stable MOF-membrane  
Yun Seok Chae, Doo San Choi, Chang Seop Hong  
*Department of Chemistry, Korea University, Korea*

INOR.P-92

Control of degree of photocatalytic lignin  $\beta$ -O-4 bond cleavage using silver ion-exchanged Zinc Cadmium Sulfide  
SungGyu Lee, Hyun Sung Kim<sup>1,\*</sup>  
*chemistry, Pukyong National University, Korea*  
<sup>1</sup>*Department of Chemistry, Pukyong National University, Korea*

INOR.P-93

Ortho-Donor-Appended Doubly Boron-doped TADF Emitters for Highly Efficient Green to Red OLEDs  
Ajay Kumar, Hanif Mubarak, Kihoon Shin, Min Hyung Lee  
*Department of Chemistry, University of Ulsan, Korea*

INOR.P-94

Coordination cage compounds using a hexafluorosilicate anion; Competition between some polyatomic anions  
Jeyeong Lee, Sangwoo Lim, Ok-Sang Jung  
*Department of Chemistry, Pusan National University, Korea*

INOR.P-95

Titanium(IV) catalyst synthesis for Cycloaddition of CO<sub>2</sub> to epoxides by using ligand in various forms of nitrogen  
Junseong Lee\*, Jung Seung hoo<sup>1</sup>, Guitae Park<sup>2</sup>, Jungwi Mok<sup>2</sup>  
*Department of Chemistry, Chonnam National University, Korea*  
<sup>1</sup>*chemistry, Chonnam National University, Korea*  
<sup>2</sup>*chemistry, Chonnam National University, Korea*

INOR.P-96

Directed synthesis of hollow gold-silver nanocatalysts for the active and efficient electroreduction of CO<sub>2</sub>  
Joon Woo Park, Hyunjoon Song  
*Department of Chemistry, Korea Advanced Institute of Science and Technology, Korea*

INOR.P-97

Post-Synthetic Anion-Regulation toward Phosphosulfide Materials in Unique Hollow Toroidal Shape  
Yongju Hong, Taekyung Kim, Jinhyoung Jo, Kwangyeol Lee  
*Department of Chemistry, Korea University, Korea*

INOR.P-98

The doping effect of noble metal in ruthenium oxide nanoparticles for oxygen evolution reaction in acidic media  
Chung man Yu, Yongju Hong, Jinhyoung Jo, Kwangyeol Lee  
*Department of Chemistry, Korea University, Korea*

INOR.P-99

PdPb nanosponge-embedded RuO<sub>2</sub> as highly active

and stable electrocatalyst toward the oxygen evolution reaction

Heesu Yang, Minki Jun, Kwangyeol Lee  
*Department of Chemistry, Korea University, Korea*

INOR.P-100

Pseudo-Epitaxial Growth of CdTe/CdS Nanoplate via Intraparticle Migration of CdTe  
Seokpyo Jeon, Kwangyeol Lee  
*Department of Chemistry, Korea University, Korea*

INOR.P-101

Rh-doped IrO<sub>x</sub> to enhance the activity in acidic oxygen evolution reaction via mild annealing  
Jinhyoung Jo, Taekyung Kim, Kwangyeol Lee  
*Department of Chemistry, Korea University, Korea*

INOR.P-102

Correlation between the Matrix Metalloproteinases and Biomolecules in Alzheimer's Disease  
Eungchan Kim, Dong Woo Son, Hyuck Jin Lee  
*Department of Chemistry Education, Kongju National University, Korea*

INOR.P-103

The Planarity Difference of 1,2,4-Triazole-based *o*-Carboranyl Luminophores: Basis to Control Intramolecular Charge Transfer  
Mingi Kim, Kang Mun Lee  
*Department of Chemistry, Kangwon National University, Korea*

INOR.P-104

Dipyrrromethene Chelating-based Triarylboron-Iridium(III) Complexes and their 'Turn-on' Phosphorescent Features via Fluoride Binding  
Ju Hyun Hong, Kang Mun Lee  
*Department of Chemistry, Kangwon National University, Korea*

INOR.P-105

Photophysical Properties of Spiro[acridine-fluorene]-based *o*-Carboranyl Compounds and Potential as a Color-Tunable Sensor  
Min Sik Mun, Kang Mun Lee  
*Department of Chemistry, Kangwon National University, Korea*

INOR.P-106

Synthesis of Monodentate Benzo[*d*]imidazole-based Iridium Complexes and Their Dual Emission Property  
Chan Hee Ryu, Kang Mun Lee  
*Department of Chemistry, Kangwon National University, Korea*

INOR.P-107

The other usage of vermicide as a regulator of neprilysin related to Alzheimer's disease and heart failure.  
Choi Jae Yoon, Hang Choi, Hyuck Jin Lee  
*Department of Chemistry Education, Kongju National University, Korea*

INOR.P-108

Pyrene-based linear [2] Catenated Metalla-Rectangles with Arene Ruthenium Corners  
Gajendra Gupta, Miyeon Kim, Chang Yeon Lee  
*Department of Energy and Chemical Engineering, Incheon*

National University, Korea

INOR.P-109

*closo-o*-Carborane-Functionalised Pyrenes and their Substituted Position Effect for Photophysical Properties

Hyunhee So, Kang Mun Lee  
*Department of Chemistry, Kangwon National University, Korea*

INOR.P-110

New Copper Methyl Thiolate Halides by DMSO Solvothermal Reactions

Jiehye Shin, Junghwan Do<sup>1,\*</sup>  
*Chemistry, Konkuk University, Korea*  
<sup>1</sup>*Department of Chemistry, Konkuk University, Korea*

INOR.P-111

Interfacial strain induced by the lattice distortion in the Cu<sub>1.81</sub>S/CuCrS<sub>2</sub> hetero-nanostructure

Ye Ji Park, Taehyun Kwon<sup>1</sup>, Kwangyeol Lee<sup>1</sup>  
*Korea University, Korea*  
<sup>1</sup>*Department of Chemistry, Korea University, Korea*

INOR.P-112

Supramolecular Nanostructure of Pt(II)-Terpyridine-Based Complex

Seok gyu Kang, Jong Hwa Jung<sup>1,\*</sup>  
*Chemistry, Gyeongsang National University, Korea*  
<sup>1</sup>*Department of Chemistry, Gyeongsang National University, Korea*

INOR.P-113

Ir/Ru-based nanoparticles grown on metal sulfides as efficient electrocatalysts for oxygen evolution reaction

YunChang Son, Kwangyeol Lee  
*Department of Chemistry, Korea University, Korea*

INOR.P-114

Degradation of PET into terephthalic acid catalyzed by the solid acid

Hyejin Yu, Hyun Sung Kim  
*Department of Chemistry, Pukyong National University, Korea*

INOR.P-115

Porous 2D Organic Templates via Cocrystallization of Melamine with Disulfonic Acids: Adsorption of Diverse Alcohols in SCSC Mode

KangSan Hong, In-Hyeok Park<sup>1</sup>, Ok-Sang Jung<sup>2,\*</sup>  
*화학고분자분자재료, Pusan National University, Korea*  
<sup>1</sup>*Graduate School of Analytical Science and Technology, Chungnam National University, Korea*  
<sup>2</sup>*Department of Chemistry, Pusan National University, Korea*

INOR.P-116

Effect of Transition Metal for Determining Crystal Structure and Electronic Properties on the Zintl phase BaZn<sub>1-x</sub>Cd<sub>x</sub>Sb<sub>2</sub> System.

Seongbeom Yeon, Tae-Soo You  
*Department of Chemistry, Chungbuk National University, Korea*

INOR.P-117

Ammonia uptake of a metal organic framework adsorbent from ultralow to ambient pressure  
Daewon Kim, Yun Seok Chae<sup>1</sup>, Doo San Choi<sup>2</sup>,

Chang Seop Hong<sup>1</sup>

*Department of chemistry, Korea University, Korea*  
<sup>1</sup>*Department of Chemistry, Korea University, Korea*  
<sup>2</sup>*Korea University, Korea*

INOR.P-118

Experimental and Theoretical Studies for the Zintl Thermoelectric (Ca<sub>3-x</sub>M<sub>x</sub>)AlSb<sub>3</sub> (M = Yb, Na, Nd) system

Yeongjin Hong, JunSu Lee, Tae-Soo You  
*Department of Chemistry, Chungbuk National University, Korea*

INOR.P-119

Two Steps to Improve the Thermoelectric Performance of the Ca<sub>5-x</sub>Yb<sub>x</sub>Al<sub>2-y</sub>In<sub>y</sub>Sb<sub>6</sub> System

Junsu Lee, Tae-Soo You  
*Department of Chemistry, Chungbuk National University, Korea*

INOR.P-120

Influence of the *p*-type Double Dopants for the Thermoelectric Properties of Zintl Phase and Crystal Growth of Ca<sub>11-x</sub>A<sub>x</sub>Sb<sub>10-y</sub>Ge<sub>z</sub> (0 ≤ *x* ≤ 9; 0 ≤ *y* ≤ 3; 0 ≤ *z* ≤ 3)

Hayeon Sa, Tae-Soo You<sup>1,\*</sup>  
*Department of chemistry, Chungbuk National University, Korea*  
<sup>1</sup>*Department of Chemistry, Chungbuk National University, Korea*

INOR.P-121

Noble Metal Nanoparticle@Hollow Mesoporous Carbon with FeCo/Graphitic Shell Nanoparticles as Magnetically Recyclable Yolk-Shell Nanocatalysts

Eunseo Hong, Won Seok Seo  
*Department of Chemistry, Sogang University, Korea*

INOR.P-122

Mesoporous Silica Nanospheres Embedded with FeCo/Graphitic Shell Nanoparticles as Magnetically Recyclable Adsorbents

Eunseo Hong, Won Seok Seo  
*Department of Chemistry, Sogang University, Korea*

INOR.P-123

Compilation of Kinetic and Thermodynamic Structures of Zn-based Metal-Organic Frameworks

Junsu Ha, Jaehwa Lee, Jaehui Kim<sup>1</sup>, Hoi Ri Moon  
*Department of Chemistry, Ulsan National Institute of Science and Technology, Korea*  
<sup>1</sup>*Chemistry, Ulsan National Institute of Science and Technology, Korea*

INOR.P-124

Synthesis of Heterometallic Supramolecular Assembly with Pyridyl functionalized β-Diketonate Metalloligands

Neetu Singh, Junseong Lee<sup>1,\*</sup>  
*department of chemistry, Chonnam National University, Korea*  
<sup>1</sup>*Department of Chemistry, Chonnam National University, Korea*

INOR.P-125

Mechanism study of directed C-H arylation using heterogeneous aryl-Pd(II)-oxo clusters

Minjun Kim, Hyunjoon Song

Department of Chemistry, Korea Advanced Institute of Science and Technology, Korea

INOR.P-126

Interaction studies between ConA and N-linked glycans

Seung Jae Lee\*, Yung Min Lee  
Department of Chemistry and Institute for Molecular Biology and Genetics, Jeonbuk National University, Korea

INOR.P-127

C-H and O<sub>2</sub> activation through component interactions based on the ratio of substrates in hydroxylase

Seung Jae Lee\*, Yunha Hwang, Dong-Heon Lee  
Department of Chemistry and Institute for Molecular Biology and Genetics, Jeonbuk National University, Korea

INOR.P-128

Electron transfer and its functional effects by MMOR in FAD binding domain from *M. sporium* 5

Seung Jae Lee\*, Chungwoon Yoon, Dong-Heon Lee  
Department of Chemistry and Institute for Molecular Biology and Genetics, Jeonbuk National University, Korea

INOR.P-129

Mutational studies of MMOR and their influences of binding affinity to hydroxylase in reduced and oxidized states

Seung Jae Lee\*, Chae Min Lee  
Department of Chemistry and Institute for Molecular Biology and Genetics, Jeonbuk National University, Korea

INOR.P-130

Influence of chaperone protein, MMOG, to hydroxylase for the conformational changes to MMOH

Seung Jae Lee\*, Chae Min Lee, Ka Young Son, Dong-Heon Lee  
Department of Chemistry and Institute for Molecular Biology and Genetics, Jeonbuk National University, Korea

INOR.P-131

Coordinative Linking of rac-A1/A2-Difunctionalized Pillar[5]arene: Heterochiral Cyclic Dimer and Homochiral Poly-pseudo-rotaxanes

Seulgi Kim, Eunji Lee<sup>1</sup>, In-Hyeok Park<sup>2</sup>, Shim Sung Lee  
Department of Chemistry, Gyeongsang National University, Korea  
<sup>1</sup>Department of Chemistry, Gangneung-Wonju National University, Korea  
<sup>2</sup>Graduate School of Analytical Science and Technology, Chungnam National University, Korea

INOR.P-132

1,2-Dicarbonyl Radicals with Remarkable Physiological and Chemical Stability

Youngsuk Kim, Eunsung Lee  
Department of Chemistry, Pohang University of Science and Technology, Korea

INOR.P-133

Hexagonal Tungsten Oxides with Very Large Bandgaps Designed by a Chemical Substitution-Oriented Method

Geonju Park, Kang Min Ok

Department of Chemistry, Sogang University, Korea

INOR.P-134

Influence of Host-Guest Interactions on the Coordination Networking of Pillar[5]-bis-trithiacrown: 1D and 2D Poly-pseudo-rotaxanes

Mingyeong Shin, In-Hyeok Park<sup>1</sup>, Eunji Lee<sup>2</sup>, Shim Sung Lee

Department of Chemistry, Gyeongsang National University, Korea  
<sup>1</sup>Graduate School of Analytical Science and Technology, Chungnam National University, Korea  
<sup>2</sup>Department of Chemistry, Gangneung-Wonju National University, Korea

INOR.P-135

Formation of a Pillar[5]arene-Based Two-Dimensional Poly-Pseudo-Rotaxane where the Same Guest "Threads and Crosslinks"

Eunji Lee, Yoichi Habata<sup>1</sup>, Shim Sung Lee<sup>2,\*</sup>  
Department of Chemistry, Gangneung-Wonju National University, Korea  
<sup>1</sup>Department of Chemistry, Toho University, Japan  
<sup>2</sup>Department of Chemistry, Gyeongsang National University, Korea

INOR.P-136

Nanoscale-confined shape transformation of gold nanorods inside ZIF-8

Cheongwon Bae, Juyeong Kim  
Department of Chemistry and Research Institute of Natural Sciences, Gyeongsang National University, Jinju 52828, Korea

INOR.P-137

Lewis-Base Characteristics of Chloroform and Its Coordination Ability at Metal Center of Paddlewheel Metal-Organic Framework

Sun Ho Park, Nak Cheon Jeong<sup>1,\*</sup>  
Department of Emerging Materials science, Daegu Gyeongbuk Institute of Science & Technology, Korea  
<sup>1</sup>Department of Emerging Materials Science, Daegu Gyeongbuk Institute of Science & Technology, Korea

INOR.P-138

**[Withdrawal]** Development of ZIF-encapsulated gold nanorod assembly for molecular selective sensing

Suhyeon Park, Juyeong Kim  
Department of Chemistry and Research Institute of Natural Sciences, Gyeongsang National University, Korea

INOR.P-139

A Polar Lead Mixed Oxyhalide with Unprecedented Architecture and Excellent Overall Nonlinear Optical Properties

Xinglong Chen, Qun Jing<sup>1,\*</sup>, Kang Min Ok  
Department of Chemistry, Sogang University, Korea  
<sup>1</sup>College of Physical Science and Technology, Xinjiang University, China

INOR.P-140

Synthesis of Stability Enhanced Multi-Shelled InP/ZnSeS/ZnS Quantum Dots through Surface Treatment with Hafnium Butoxide

Seonwoo Ahn, Hyeongjin Lee<sup>1</sup>, Young rag Do<sup>2,\*</sup>  
Department of chemistry, Kookmin University, Korea

<sup>1</sup>Department of Applied Chemistry, Kookmin University, Korea

<sup>2</sup>Department of Bionano Chemistry, Kookmin University, Korea

INOR.P-141

Regioisomerism of Functional Groups in Metal-Organic Frameworks

Dopil Kim, Hyeon Bin Ha, Min Kim

Department of Chemistry, Chungbuk National University, Korea

INOR.P-142

Removing MOF Oxidation Catalysts from the Reaction Media for the Further Oxidation Reactions

Ha-Eun Lee, Seongwoo Kim, Mi Hee Lim<sup>1</sup>, Min Kim

Department of Chemistry, Chungbuk National University, Korea

<sup>1</sup>Department of Chemistry, Korea Advanced Institute of Science and Technology, Korea

INOR.P-143

Thiol-Ene Click Chemistry for Efficient Methods for MOF-MMM Composite Preparation with Controlled Functionalities

Jooyeon Lee, Min Kim

Department of Chemistry, Chungbuk National University, Korea

INOR.P-144

Enhanced Stability of Copper Indium Sulfide Quantum Dots by Doping Aluminum into the ZnS Shell

Seo yeon Shin, Minji Ko, Young rag Do

Department of Chemistry, Kookmin University, Korea

INOR.P-145

Variation of Optical Characteristic and Diameter of InGaN/GaN Nanorods by KOH Treatment Time

Selim Yun, Gang Yeol Yoo<sup>1</sup>, Woong Kim<sup>2,\*</sup>, Young rag Do<sup>3,\*</sup>

Department of Chemistry, Kookmin University, Korea

<sup>1</sup>Department of Advanced Materials Engineering, Korea University, Korea

<sup>2</sup>Division of Advanced Materials Engineering, Korea University, Korea

<sup>3</sup>Department of Bionano Chemistry, Kookmin University, Korea

INOR.P-146

Fabrication of Patterned Molybdenum via Nanoimprint Lithography using Spin-on-Glass as Imprint Resin

Hyengjin Kim, Minji Ko<sup>1</sup>, Young rag Do<sup>2,\*</sup>

applied chemistry, Kookmin University, Korea

<sup>1</sup>Department of Chemistry, Kookmin University, Korea

<sup>2</sup>Department of Bionano Chemistry, Kookmin University, Korea

INOR.P-147

Conjugated microporous polymer synthesized by one building block: Enhancement of catalytic performance for biomass conversion

Kyoungil Cho, Seung Uk Son

Department of Chemistry, Sungkyunkwan University, Korea

INOR.P-148

Surface Engineering of Pt Nanocubes towards the Ammonia Electrooxidation Reaction

Hye Jin Lee, Kumar Siddharth<sup>1</sup>, Xueping Qin<sup>1</sup>, Sang-Il Choi, Minhua Shao<sup>1</sup>

Department of Chemistry, Kyungpook National University, Korea

<sup>1</sup>Department of Chemical and Biological Engineering, The Hong Kong University of Science and Technology, Hong Kong, Hong Kong

INOR.P-149

Microporous Organic Polymer Bearing Fe<sub>3</sub>O<sub>4</sub> Nanoparticles: Multi-Functional Drug Delivery Systems with Targeting, Imaging, and Magneto-Thermal Behaviors

June Young Jang, Seung Uk Son

Department of Chemistry, Sungkyunkwan University, Korea

INOR.P-150

Dynamic Self-Assembly of Sublimable Caffeine in the Covalent Formation of Microporous Organic Polymer for Morphology Evolution and Enhanced Performance

Chang Wan Kang, Seung Uk Son

Department of Chemistry, Sungkyunkwan University, Korea

INOR.P-151

**N**Self-Supported Pd Nanocatalysts in the Formation of Stille Coupling-Based Microporous Organic Polymers for Visible Light-Driven Suzuki Reactions

Sang Hyun Ryu, Seung Uk Son

Department of Chemistry, Sungkyunkwan University, Korea

INOR.P-152

Comparison of Breakdown Voltage Point According to Atomic-Layer-Deposited Passivation Materials and Optimization of Size and Thickness of the Passivation Area

Soomin Ahn, Selim Yun, Young rag Do<sup>1,\*</sup>

Department of Chemistry, Kookmin University, Korea

<sup>1</sup>Department of Bionano Chemistry, Kookmin University, Korea

INOR.P-153

Investigation of Li<sup>+</sup>/H<sup>+</sup> Ion Exchange on the Fast Lithium Ion Conductor, LiTa<sub>2</sub>PO<sub>8</sub>

Gunwoo Yoo, Jaegyem Kim, Seung-Joo Kim

Department of Energy System, Ajou University, Korea

INOR.P-154

Synthesis, structure determination, and characterization of a new centrosymmetric strontium niobium oxyfluoride

Euna Ko, Kang Min Ok<sup>1,\*</sup>

Chemistry, Sogang University, Korea

<sup>1</sup>Department of Chemistry, Sogang University, Korea

INOR.P-155

Nanoparticulate Conjugated Microporous Polymer with Post-Modified Benzils for Enhanced Pseudocapacitor Performance

So Young Park, Seung Uk Son

Department of Chemistry, Sungkyunkwan University, Korea

INOR.P-156

PET@microporous organic polymer@Cu films: flexible and metal-economical electromagnetic



interference shielding materials

Seong In Park, Seung Uk Son  
*Department of Chemistry, Sungkyunkwan University, Korea*

INOR.P-157

Development of Simple Non-Visual Illuminance to Estimate Melatonin Suppression

Yun Jae Eo, Keyong Nam Lee, Young rag Do  
*Department of Chemistry, Kookmin University, Korea*

INOR.P-158

Enhancement of Efficiency of InP/ZnSeS/ZnS Quantum Dots using Bidentate Ligands

Hyeongjin Lee, Sang Wook Park<sup>1</sup>, Young rag Do<sup>2,\*</sup>  
*Department of Applied Chemistry, Kookmin University, Korea*  
<sup>1</sup>*Department of Chemistry, Kookmin University, Korea*  
<sup>2</sup>*Department of Bionano Chemistry, Kookmin University, Korea*

INOR.P-159

**[Withdrawal]** Patterned electric field induced poly( $\epsilon$ -caprolactone) nanofiber alignment using electrospinning

Cheolbae Lee, Yoobeen Lee<sup>1</sup>, Jin Seok Lee<sup>1</sup>  
*Department of chemistry, Hanyang University, Korea*  
<sup>1</sup>*Department of Chemistry, Hanyang University, Korea*

INOR.P-160

Development of nanodiamonds based multifunctional biosensors

Yoobeen Lee, Jin Seok Lee  
*Department of Chemistry, Hanyang University, Korea*

INOR.P-161

Synthesis, Crystal Structures, and Characterization of Novel Enantiomorphous Lanthanide-based Metal-Organic Frameworks

Yunseung Kuk, Kang Min Ok  
*Department of Chemistry, Sogang University, Korea*

INOR.P-162

Synthesis and NMR Spectroscopy of Tellurium CF<sub>3</sub> Compounds Isolobal to Iodine(III) Reagents

Ewa Pietrasiak, Antonio Togni<sup>1,\*</sup>  
*Department of Chemistry and Applied Biosciences, ETH Zurich, Poland*  
<sup>1</sup>*Department of Chemistry and Applied Biosciences, ETH Zurich, Switzerland*

INOR.P-163

Chemical Patterning in Single Crystals of Metal-Organic Frameworks by Photo-Cycloaddition Reaction in a Single-Crystal-to-Single-Crystal manner

In-Hyeok Park, Eunji Lee<sup>1</sup>, Shim Sung Lee<sup>2,\*</sup>, Jagadese J. Vittal<sup>3,\*</sup>  
*Graduate School of Analytical Science and Technology, Chungnam National University, Korea*  
<sup>1</sup>*Department of Chemistry, Gangneung-Wonju National University, Korea*  
<sup>2</sup>*Department of Chemistry, Gyeongsang National University, Korea*  
<sup>3</sup>*Department of Chemistry, National University of Singapore, Singapore*

INOR.P-164

Indol-2-ylidene (IdY): New Generation of N-

heterocyclic Carbene – Ambiphilicity, Simple Preparation, Scalability and Tunability

Hyunho Kim, Minseop Kim, Eunsung Lee  
*Department of Chemistry, Pohang University of Science and Technology, Korea*

INOR.P-165

Kinetic study of molybdenum oxyfluorides polymorphs

Hongil Jo, Kang Min Ok  
*Department of Chemistry, Sogang University, Korea*

INOR.P-166

Synthesis, Crystal Structures, and Characterization of a Series of Aurivillius-type Perovskites

Kisung Kim, Kang Min Ok  
*Department of Chemistry, Sogang University, Korea*

INOR.P-167

Synthesis and Characterization of a New Bismuth Tellurite

Jee Yoon Chung, Kang Min Ok  
*Department of Chemistry, Sogang University, Korea*

INOR.P-168

Metal-based complexes for multidrug-resistant pathogens: Synthesis, characterization and biological applications

Getinet Tamiru\*, Atakilt Abebe<sup>1</sup>, Moges Abebe<sup>1</sup>, Misganaw Liyew<sup>1</sup>  
*Chemistry Department, Science College, Bahir Dar University, Ethiopia*  
<sup>1</sup>*Bioinorganic Chemistry, Science College, Bahir Dar University, Ethiopia*

INOR.P-169

Synthesis, crystal structures, and characterization of the new noncentrosymmetric histidinium tantalumfluoride

Heejung Choi, Kang Min Ok  
*Department of Chemistry, Sogang University, Korea*

INOR.P-170

First-row early transition metal complexes with a highly sterically demanding triisopropylphenyl amino triphenolate ligand: synthesis and applications

Dae Young Bae, Kyung-sun Son<sup>1,\*</sup>, Eunsung Lee  
*Department of Chemistry, Pohang University of Science and Technology, Korea*  
<sup>1</sup>*Department of Chemistry, Chungnam National University, Korea*

INOR.P-171

The control of hydrophobicity upon the uptake of the surfactant into the supramolecular inner cavity

Haeri Lee\*, Ok-Sang Jung<sup>1</sup>  
*Department of Chemistry, Hannam University, Korea*  
<sup>1</sup>*Department of Chemistry, Pusan National University, Korea*

INOR.P-172

Understanding the adsorption mechanism of methyl iodide on functionalized Ag nanoparticle-embedded and Ag<sup>+</sup> ion coated silica gels

Jeong Woo Hong, Hee-Jung Im  
*Department of Chemistry, Jeju National University, Korea*

INOR.P-173

SuFEx-based Post-synthetic Modification of Metal-organic Frameworks

Seungjae Park, Eunsung Lee

*Department of Chemistry, Pohang University of Science and Technology, Korea*

INOR.P-174

Symmetry-guided evolution of *de novo* metallo- $\beta$ -

lactamases

Jaeseung Yu, Woon Ju Song<sup>1,\*</sup>

*Division of Chemistry, Seoul National University, Korea*

<sup>1</sup>*Department of Chemistry, Seoul National University, Korea*

- PHYS.P-175 Behaviors of halloysite nanotubes in polymer electrolytes: poly(styrene sulfonate) and poly(allylamine)  
Jungju Ryu, Daewon Sohn<sup>1,\*</sup>  
*Department of Chemistry and Research Institute for Convergence of Basic Sciences, Hanyang University, Korea*  
<sup>1</sup>*Department of Chemistry, Hanyang University, Korea*
- PHYS.P-176 Simulation of the Magnetic Weight Increase by Agglomeration Dynamics of Magnetic Nanoparticles under Magnetic Field using Boltzmann Distribution Function  
Hackjin Kim  
*Department of Chemistry, Chungnam National University, Korea*
- PHYS.P-177 Effects of alkali ion-doping on diffusion mechanisms and thermal stabilities of imidazolium-based organic ionic plastic crystal  
Chung Bin Park, Bong June Sung  
*Department of Chemistry, Sogang University, Korea*
- PHYS.P-178 Formation of Quantum Antidot Superlattices  
Gbenga Oyeniyi  
*chemistry, kyungpook national university, Nigeria*
- PHYS.P-179 Development of a new approach for ultralow-laser-power STORM imaging  
Jin Kyoung Chung, Doory Kim  
*Department of Chemistry, Hanyang University, Korea*
- PHYS.P-180 Spectroscopic identification of the p-ethylbenzyl radical in a corona-excited supersonic expansion  
Changsoon Huh\*, Yu Jin Song  
*Department of Applied Chemistry, Dong-Eui University, Korea*
- PHYS.P-181 Evolutionary Conservation of Amino Acids Contributing to the Dynamic Cooperativity in Protein Folding  
Song-Ho Chong, Sihyun Ham  
*Department of Chemistry, Sookmyung Women's University, Korea*
- PHYS.P-182 Structural and thermodynamic factors responsible for early inherent aggregation tendency of monomeric Tau43  
Prathit Chatterjee, Sihyun Ham  
*Department of Chemistry, Sookmyung Women's University, Korea*
- PHYS.P-183 Orbital asymmetry in dissociative electron attachment to several trihalobenzenes using effective core potential  
Jangho Park, Namdo Kim  
*Chemistry, Kongju National University, Korea*
- PHYS.P-184 The effect of surface roughness and heating treatment on sputtering yield  
Tae Hyun Kwon, Sangjune Park, Young-Sang Youn  
*Department of Chemistry, Yeungnam University, Korea*
- PHYS.P-185 The effect of chemical reagent on photo-switching property of fluorescent organic dyes for super-resolution imaging  
Seokran Go, Hyunbum Park, Doory Kim  
*Department of Chemistry, Hanyang University, Korea*
- PHYS.P-186 D-glucuronic acid-coated mixed Zn(II)/Gd(III) oxide nanoparticles for T<sub>1</sub> MRI Contrasting Agent  
Tirusew Tegafaw, Gang Ho Lee  
*Department of Chemistry, Kyungpook National University, Korea*
- PHYS.P-187 Unveiling Interfacial Charge Recombination Dynamics in Colloidal Quantum Dot Photovoltaics with Polymeric Hole Transport Layers  
Jonghee Yang, Whikun Yi  
*Department of Chemistry, Hanyang University, Korea*
- PHYS.P-188 Single-molecule spectroscopic study of solvatochromic molecules using spectral STORM  
Hyunbum Park, Geun-ho Kim, Doory Kim  
*Department of Chemistry, Hanyang University, Korea*
- PHYS.P-189 Construction of 1D TiO<sub>2</sub> nanotube on ultrathin 2D ZnIn<sub>2</sub>S<sub>4</sub> nanosheets Heterostructure for Photocatalytic CO<sub>2</sub> Reduction  
Kim Eunhyo, Hoang Khai Do<sup>1</sup>, Yul Hong<sup>2</sup>, Putta Rangappa<sup>3</sup>, Praveen Kumar Dharani<sup>1</sup>, Tae Kyu Kim<sup>1</sup>  
*chemistry, Yonsei University, Korea*  
<sup>1</sup>*Department of Chemistry, Yonsei University, Korea*  
<sup>2</sup>*Department of chemistry, Yonsei University, Korea*  
<sup>3</sup>*Chemistry, Yonsei University, Korea*
- PHYS.P-190 A comparative study of various spectral STORM spectroscopy techniques  
Geun-ho Kim, Hyunbum Park, Doory Kim  
*Department of Chemistry, Hanyang University, Korea*
- PHYS.P-191 Fe<sub>3</sub>O<sub>4</sub>@TiO<sub>2</sub>-Au Heterostructure as a SERS-active Reusable Photocatalyst  
Sila Jin, Lei Chen<sup>1</sup>, Young Mee Jung  
*Department of Chemistry, Kangwon National University, Korea*  
<sup>1</sup>*College of Chemistry, Jilin Normal University, China*

- PHYS.P-192 Local Environment Effects on Enhanced Solubility of Single-Domain Antibodies with Charged Mutations  
Jihyeon Lee, Song-Ho Chong<sup>1</sup>, Sihyun Ham<sup>1</sup>  
*department of chemistry, Sookmyung Women's University, Korea*  
<sup>1</sup>*Department of Chemistry, Sookmyung Women's University, Korea*
- PHYS.P-193 Study on Mechanism of Photo-induced Charge Transfer Using rGO-based Materials as SERS Substrate  
Shuang Guo, Lei Chen<sup>1</sup>, Sila Jin, Eungyeong Park, Young Mee Jung  
*Department of Chemistry, Kangwon National University, Korea*  
<sup>1</sup>*College of Chemistry, Jilin Normal University, China*
- PHYS.P-194 Poly (acrylic acid) and D-glucosamine-conjugated functionalized gadolinium oxide for highly efficient T<sub>1</sub> magnetic resonance imaging contrast agent  
Gang Ho Lee\*, Shuwen Liu<sup>1</sup>  
*Department of Chemistry, Kyungpook National University, Korea*  
<sup>1</sup>*Department of chemistry, Kyungpook National University, China*
- PHYS.P-195 Ultrasmall gadolinium oxide nanoparticles with cancer targeting ability and its application in *in vivo* neutron capture therapy of cancer.  
Son-Long Ho, Gang Ho Lee  
*Department of Chemistry, Kyungpook National University, Korea*
- PHYS.P-196 Synthesis, characterization and cellular toxicity of Chitosan Oligosaccharide Lactate-coated Gadolinium Oxide Nanoparticles  
Mohammad Yaseen Ahmad, Gang Ho Lee<sup>1\*</sup>  
*Kyungpook National University, India*  
<sup>1</sup>*Department of Chemistry, Kyungpook National University, Korea*
- PHYS.P-197 Development of Synthetic and Post-synthetic Processes for better Photophysical Properties of Perovskite Quantum dots: Strategies to Improve Photoluminescence Quantum Yield  
YeJi Shin, ChaeHyun Lee, Seog Joon Yoon  
*Department of Chemistry, Yeungnam University, Korea*
- PHYS.P-198 Alternative Synthetic Strategy of Water Stable Perovskite Quantum Dots in SiO<sub>x</sub> under ambient condition at room temperature  
Soo Jeong Lee, YouJeong Lee, Seog Joon Yoon<sup>1,\*</sup>  
*Chemistry, Yeungnam University, Korea*  
<sup>1</sup>*Department of Chemistry, Yeungnam University, Korea*
- PHYS.P-199 Ultrasmall Gd<sub>2</sub>O<sub>3</sub> nanoparticles surface-coated by three different polyacrylic acids (PAA) and measurement of relaxation properties which  
Abdullah Al saidi, Gang Ho Lee<sup>1,\*</sup>  
*Chemistry, Kyungpook national university, Korea*  
<sup>1</sup>*Department of Chemistry, Kyungpook National University, Korea*
- PHYS.P-200 Carbon coated paramagnetic dysprosium oxide nanoparticles used as a new class of efficient T<sub>2</sub> MRI contrast agent  
Huan Yue, Gang Ho Lee  
*Department of Chemistry, Kyungpook National University, Korea*
- PHYS.P-201 Room Temperature Quantum Dot Synthesis and its Optimization Process: Formation Mechanism Observed through in-situ Spectroelectrochemical Setup  
YouJeong Lee, Soo Jeong Lee, Seog Joon Yoon<sup>1,\*</sup>  
*Chemistry, Yeungnam University, Korea*  
<sup>1</sup>*Department of Chemistry, Yeungnam University, Korea*
- PHYS.P-202 Temperature effect on size-controlled one-pot synthesis of poly (acrylic acid-co-maleic acid) coated platinum oxide nanoparticles as a CT contrast agent  
Adibehalsadat Ghazanfari, Gang Ho Lee<sup>1,\*</sup>  
*Department of Chemistry, Kyungpook National University, Iran*  
<sup>1</sup>*Department of Chemistry, Kyungpook National University, Korea*
- PHYS.P-203 A simulation study on the spatial arrangement and the dynamics of a ring polymer chain in thin linear polymer films  
Jong Ho Choi, Bong June Sung  
*Department of Chemistry, Sogang University, Korea*
- PHYS.P-204 Study of Thermoresponse of Odd-Even Effect in n-Alkanethiolate Self-Assembled Monolayers  
Sohyun Park, Eunchan Kim, Kyungwon Kwak, Minhaeng Cho, Hyo Jae Yoon  
*Department of Chemistry, Korea University, Korea*
- PHYS.P-205 Optical Kerr effect in Liquid Visualized by Femtosecond X-ray Solution Scattering  
Seungjoo Choi, Jae Hyuk Lee<sup>1</sup>, Hyotcherl Ihee<sup>2,\*</sup>, Jeongho Kim  
*Department of Chemistry, Inha University, Korea*  
<sup>1</sup>*PAL-XFEL, Pohang Accelerator Laboratory, Korea*  
<sup>2</sup>*Department of Chemistry, Korea Advanced Institute of Science and Technology, Korea*
- PHYS.P-206 A Simulation Study on the breakdown of time-temperature superposition principle for Poly(ethylene oxide) melts  
Hye Sol Kim, Bong June Sung<sup>1,\*</sup>  
*Department of chemistry, Sogang University, Korea*  
<sup>1</sup>*Department of Chemistry, Sogang University, Korea*
- PHYS.P-207 Advanced Synthetic Method of Organic Inorganic Hybrid Material using Pulsed Laser Ablation in Liquid



Juhyeon Park, Yiseul Yu, Shreyanka Shankar Naik, Yujeong Jeong, Tae Ho Kim, Myong Yong Choi  
*Department of Chemistry, Gyeongsang National University, Korea*

PHYS.P-208

Tracers dynamics reveals the local media structure and diffusion mechanism of two-dimensional polydisperse colloidal glasses

Dong jae Chun, Bong June Sung<sup>1,\*</sup>  
*Chemistry, Sogang University, Korea*  
<sup>1</sup>*Department of Chemistry, Sogang University, Korea*

PHYS.P-209

Study of Non-polar Additive Effect to Solvation Structure in Lithium-Ion Battery Electrolytes by FTIR Spectroscopy

Joo Hyun Kim, Chaiho Lim, Kyungwon Kwak, Minhaeng Cho  
*Department of Chemistry, Korea University, Korea*

PHYS.P-210

Comparison of segmental dynamics of polymer-tethered probes in a single component system and free probes in miscible blends

Hyangseok Lee, Keewook Paeng  
*Department of Chemistry, Sungkyunkwan University, Korea*

PHYS.P-211

The effects of the phase separation and the local domains of ternary mixture lipid bilayers on the diffusion of cholesterol

Eunsub Song, Bong June Sung  
*Department of Chemistry, Sogang University, Korea*

PHYS.P-212

Debye-Stokes-Einstein equation breakdown in the polymer system via fluorescence correlation microscopy.

Kimyoung Kim, Keewook Paeng  
*Department of Chemistry, Sungkyunkwan University, Korea*

PHYS.P-213

Evaluation of Photocatalytic Activity of ZnO/Au/g-C<sub>3</sub>N<sub>4</sub> Ternary Nanocomposite under Simulated Solar Light Irradiation

Talshyn Begildayeva, Seung Jun Lee, Yiseul Yu, Myong Yong Choi  
*Department of Chemistry, Gyeongsang National University, Korea*

PHYS.P-214

Spectroscopic study of ceria NPs for radical quencher in fuel cell

Yujin Hwang, Jeongho Kim<sup>1,\*</sup>  
*Chemistry, Inha University, Korea*  
<sup>1</sup>*Department of Chemistry, Inha University, Korea*

PHYS.P-215

Orbital asymmetry in electron attachment to trihalobenzene molecules

Minwoo Jang, Namdo Kim<sup>1,\*</sup>  
*chemistry, Kongju National University, Korea*  
<sup>1</sup>*Chemistry, Kongju National University, Korea*

PHYS.P-216

Ultrafast Charge Transfer Dynamics of Silver Bismuth Iodide by using Time-Resolved

spectroscopy

Yeong su Lim, Jinwoo Park<sup>1</sup>, Jeongho Kim<sup>2,\*</sup>, Wan-In Lee<sup>2</sup>  
*chemistry and chemical engineering, Inha University, Korea*  
<sup>1</sup>*Chemistry and chemical engineering, Inha University, Korea*  
<sup>2</sup>*Department of Chemistry, Inha University, Korea*

PHYS.P-217

Role of cyclopentadienyl ligands of group 4 precursors toward high-temperature atomic layer deposition

Tran Thi Ngocvan, Jeongwoo Park<sup>1</sup>, Bonggeun Shong  
*Department of Chemical Engineering, Hongik University, Korea*  
<sup>1</sup>*Chemical engineering, Hongik University, Korea*

PHYS.P-218

Laser assisted synthesis of reduced graphene oxide (rGO) supported ZnO/Au nanostructures in liquid with enhanced solar light photocatalytic activity.

Shreyanka Shankar Naik, Seung Jun Lee<sup>1</sup>, Talshyn Begildayeva<sup>1</sup>, Yiseul Yu<sup>1</sup>, Hyeeyeon Lee<sup>1</sup>, Myong Yong Choi<sup>1</sup>  
*Chemistry, Gyeongsang National University, Korea*  
<sup>1</sup>*Department of Chemistry, Gyeongsang National University, Korea*

PHYS.P-219

Edges Controlled Oxidation of Two-Dimensional Transition Metal dichalcogenides

Myeong in Song, Sunmin Ryu  
*Department of Chemistry, Pohang University of Science and Technology, Korea*

PHYS.P-220

Pulse- and Potentiostatic-Electrodeposition of Cu on Carbon Paper Electrode for Electrochemical Reduction of CO<sub>2</sub>

Sena Lee, Min Young Cho, Do Yun Park, Kuan Soo Shin  
*Department of Chemistry, Soongsil University, Korea*

PHYS.P-221

Enhancement of structural stability of electron transport layer in OLED by mixing n-type dopant material.

Minseok Ki, Keewook Paeng  
*Department of Chemistry, Sungkyunkwan University, Korea*

PHYS.P-222

Fabrication of metal and metal oxide nanowires using anodic aluminum oxide templates Sher Ali Khan, Chang Min Kim. Department of chemistry, Kyungpook National University.

Sher Ali Khan  
*Chemistry, Student /Research assistant, Korea*

PHYS.P-223

Translational and Rotational Dynamic Heterogeneity induced by Vacancies in Organic Ionic Plastic Crystals

Hyungshick Park, Bong June Sung  
*Department of Chemistry, Sogang University, Korea*

- PHYS.P-224 Fabrication of metal and metal oxide nanowires using anodic aluminum oxide templates  
Sher Ali Khan, Chang Min Kim<sup>1,\*</sup>  
*Chemistry, Student /Research assistant, Korea*  
<sup>1</sup>*Department of Chemistry, Kyungpook National University, Korea*
- PHYS.P-225 NiPd alloy electrocatalysts synthesized by Pulsed Laser irradiation in liquid phase  
Yiseul Yu, Theerthagiri Jayaraman, Seung Jun Lee, Shreyanka Shankar Naik, Myong Yong Choi  
*Department of Chemistry, Gyeongsang National University, Korea*
- PHYS.P-226 **[Withdrawal]** Understanding Dynamic Heterogeneity using tethered probes by isolating temporal heterogeneity from spatial heterogeneity  
Soohyun Lee, Keewook Paeng  
*Department of Chemistry, Sungkyunkwan University, Korea*
- PHYS.P-227 Computational Study on the Structural and Thermodynamic Features of SOD1  
Haeri Im, Sihyun Ham  
*Department of Chemistry, Sookmyung Women's University, Korea*
- PHYS.P-228 Synthesis of Au-Pd alloy using pulsed Laser irradiation in liquid phase and their catalytic performance  
Kim Jiwon, Yiseul Yu, Seung Jun Lee<sup>1</sup>, Theerthagiri Jayaraman<sup>1</sup>, Myong Yong Choi<sup>1</sup>  
*Gyeongsang National University, Korea*  
<sup>1</sup>*Department of Chemistry, Gyeongsang National University, Korea*
- PHYS.P-229 Facile synthesis and characterization of Nitrogen doped ZnO for the efficient photocatalytic degradation of Tetracycline under Visible light.  
Sang Hun Yeon, Shreyanka Shankar Naik<sup>1</sup>, Seung Jun Lee<sup>2</sup>, Theerthagiri Jayaraman<sup>2</sup>, Myong Yong Choi<sup>2</sup>  
*Department of chemistry, Gyeongsang National University, Korea*  
<sup>1</sup>*Chemistry, Gyeongsang National University, Korea*  
<sup>2</sup>*Department of Chemistry, Gyeongsang National University, Korea*
- PHYS.P-230 SERS-sensitive Gold Nanoparticles Synthesized by Pulsed Laser Ablation in acetonitrile and water mixtures  
Hyeyeon Lee, Talshyn Begildayeva, Seung Jun Lee, Seung Heon Lee, Young Wook Lee<sup>1,\*</sup>, Myong Yong Choi  
*Department of Chemistry, Gyeongsang National University, Korea*  
<sup>1</sup>*Department of Education Chemistry, Gyeongsang National University, Korea*
- PHYS.P-231 Development of fluorescent 'Trun-On' type Pyrene- Schiff base based Mercury ion sensor derivatives  
Nam Gyu Choi, Balasaheb Daniyal Vanjare, Ki Hwan Lee  
*Department of Chemistry, Kongju National University, Korea*
- PHYS.P-232 Study on Ionic conductivity of silver-modified NASICON-type Li<sub>1.3</sub>Al<sub>0.3</sub>Ti<sub>1.7</sub>(PO<sub>4</sub>)<sub>3</sub> solid electrolyte for all-solid-state lithium batteries  
Luhur Muhammad Sadewo Panghudi  
*Chemistry, University of Ulsan, Korea*
- PHYS.P-233 Time-resolved spectroscopic study of a dynamically prototropic hydration probe in a reverse micelle  
Oh-Hoon Kwon\*, Hak-won Nho  
*Department of Chemistry, Ulsan National Institute of Science and Technology, Korea*
- PHYS.P-234 Photocarrier relaxation pathways and multi-exciton relaxation of CdSe nanorods  
Wonwoo Park, Hyunjoon Song<sup>1</sup>, Oh-Hoon Kwon  
*Department of Chemistry, Ulsan National Institute of Science and Technology, Korea*  
<sup>1</sup>*Department of Chemistry, Korea Advanced Institute of Science and Technology, Korea*
- PHYS.P-235 Filming Morphological Dynamics of Black Phosphorus Revealed in Ultrafast Electron Microscopy  
Ye-Jin Kim, Oh-Hoon Kwon  
*Department of Chemistry, Ulsan National Institute of Science and Technology, Korea*
- PHYS.P-236 In Situ Generated Silver Nanodot Förster Resonance Energy Transfer Pair Reveals Nanocage Sizes  
Yanlu Zhao, Sungmoon Choi, Junhua Yu  
*Department of Chemical Education, Seoul National University, Korea*
- PHYS.P-237 Ultrafast dynamics study of organosulfur molecule using x-ray absorption spectroscopy at PAL-XFEL  
Rory Ma, Jae Hyuk Lee  
*PAL-XFEL, Pohang Accelerator Laboratory, Korea*
- PHYS.P-238 Substructure-based Neural Machine Translation for Retrosynthetic Prediction  
Umit Volkan Ucak, Juyong Lee  
*Department of Chemistry, Kangwon National University, Korea*
- PHYS.P-239 Scattering of adiabatically aligned molecules by nonresonant optical standing waves  
Tae Woo Kim, Bum Suk Zhao<sup>1,\*</sup>  
*Department of Chemistry, Ulsan National Institute of Science and Technology, Korea*  
<sup>1</sup>*Department of Chemistry, Department of Physics, Korea*

ANAL.P-240

Detection of Symmetric Dimethylarginine by competitive single-site immunometric assay and avidin/biotin system

Yeojin Jung, Insook Rhee<sup>1,\*</sup>

*Department of Chemistry, Seoul Women's University, Korea*

<sup>1</sup>*Department of Chemistry, Seoul Women's University, Korea*

ANAL.P-241

Amplification-free detection of COVID-19 target genes using a SERS-based microdroplet chip

Sohyun Park, Jaebum Choo<sup>1,\*</sup>

*Chemistry, Chung-Ang University, Korea*

<sup>1</sup>*Department of Chemistry, Chung-Ang University, Korea*

ANAL.P-242

Effective determination of chiral nicotine using Dispersive Liquid-Liquid Microextraction HPLC/UV-vis

Seung Hoon Song, Seung Woon Myung

*Department of Chemistry, Kyonggi University, Korea*

ANAL.P-243

Size sorting of extracellular vesicles from cell using frit-inlet asymmetrical flow field-flow fractionation with multi-angle light scattering

Young Beom Kim, Myeong Hee Moon

*Department of Chemistry, Yonsei University, Korea*

ANAL.P-244

Flow field-flow fractionation with thickness tapered channel

Jaewon Seo, Myeong Hee Moon

*Department of Chemistry, Yonsei University, Korea*

ANAL.P-245

Microfluidic analytical device for Nucleic Acids Amplification and Detection

Nguyet mai Ly, Veasna Soum, Nayoon Pyun, Oh-Sun Kwon, Kwanwoo Shin

*Department of Chemistry, Sogang University, Korea*

ANAL.P-246

Effect of reduced Graphene oxide and MnFe<sub>2</sub>O<sub>4</sub> nanoparticles on Carbonyl Iron for Magnetorheological Fluids

Hyungyoon Choi, Jin-Yeong Choi, Chang-Seop Lee

*Department of Chemistry, Keimyung University, Korea*

ANAL.P-247

Synthesis and application of CNFs/GQD/SiNPs and CNT/GQD/SiNPs composites as anodes for Lithium-ion batteries

Sera Kwon, Jin-Yeong Choi, Jong-Ha Choi<sup>1</sup>, Chang-Seop Lee

*Department of Chemistry, Keimyung University, Korea*

<sup>1</sup>*Department of Applied Chemistry, Andong National University, Korea*

ANAL.P-248

SERS-based immunoassay of thyroid-stimulating hormone (TSH) using silver-encapsulated gold nanoparticles and fabrication of 3D paper fluidic chips

Kyeongnyeon Kim, Jaebum Choo

*Department of Chemistry, Chung-Ang University, Korea*

ANAL.P-249

Synthesis of Red Luminescence Carbon dot by Eu<sup>3+</sup> and Detect Method

Ji won Park, Weekyung Kang<sup>1,\*</sup>

*Department of Chemistry, Soongsil university, Korea*

<sup>1</sup>*Department of Chemistry, Soongsil University, Korea*

ANAL.P-250

Electrochemical sensing of dopamine using nanoparticle composites modified screen-printed carbon electrode in human urine sample

Jingjing Li, Hye Jin Lee

*Department of Chemistry, Kyungpook National University, Korea*

ANAL.P-251

Electrochemical Layer-by-layer biosensors for hypoxanthine and inosine in human serum sample solutions

Yunpei Si, Hye Jin Lee

*Department of Chemistry, Kyungpook National University, Korea*

ANAL.P-252

SERS-PCR assays of SARS-CoV-2 using three-dimensional plasmonic nanodimple substrates.

Yixuan Wu, Jaebum Choo

*Department of Chemistry, Chung-Ang University, Korea*

ANAL.P-253

Method Validation of N-nitrosodimethylamine in Diltiazem by UPLC-ESI-SRM/MS

Keewon Yang, Jae-ung Lee<sup>1</sup>, Han Bin Oh<sup>1</sup>

*Chemistry, Sogang University, Korea*

<sup>1</sup>*Department of Chemistry, Sogang University, Korea*

ANAL.P-254

Identification of cervicovaginal fluid metabolites associated with preterm birth

Heeyeon Lee, Geum-Sook Hwang

*Western Seoul Center, Korea Basic Science Institute, Korea*

ANAL.P-255

Surface Activated NiFeOx Nanosheets for Enhanced OER Catalysis

Birhanu Bayissa Gicha, Jaebeom Lee<sup>1,\*</sup>

*Department of Chemistry, Chungnam National University, Korea*

<sup>1</sup>*Department of Chemical Engineering and Applied Chemistry, Chungnam National University, Korea*

ANAL.P-256

Serum metabolic profiling in morbid obese patients after bariatric surgery using NMR and LC/MS

Yeyoung Han, Do Hyun Ryu<sup>1,\*</sup>, Geum-Sook Hwang  
*Korea Basic Science Institute, Korea*  
<sup>1</sup>*Department of Chemistry, Sungkyunkwan University, Korea*

ANAL.P-257

Surface Modified Hematite Photoanodes with NiFeOOH for Enhanced Solar Water Splitting  
Sohyun Kang, Birhanu Bayissa Gicha<sup>1</sup>, Jaebeom Lee  
*Chemistry, Chungnam National University, Korea*  
<sup>1</sup>*Department of Chemistry, Chungnam National University, Korea*

ANAL.P-258

An Untargeted Analysis of Metabolite Biomarkers in Urine for Miscarriage/Pre-term Birth using LC-MS/MS  
Sae Yoon Oh, Han Bin Oh  
*Department of Chemistry, Sogang University, Korea*

ANAL.P-259

Combined Exposure Assessment of Quaternary Ammonium Compounds (QACs) in Various Consumer Chemical Products (CCPs)  
Hyeri Kim, Han Bin Oh<sup>1,\*</sup>  
*Chemistry, Sogang University, Korea*  
<sup>1</sup>*Department of Chemistry, Sogang University, Korea*

ANAL.P-260

Development of a screening software for the identification of unknown narcotic drugs using artificial intelligent approach and hybrid similarity search  
So Yeon Lee<sup>\*</sup>, Han Bin Oh<sup>1,\*</sup>  
*chemistry, Sogang University, Korea*  
<sup>1</sup>*Department of Chemistry, Sogang University, Korea*

ANAL.P-261

Synthesis and structural studies of  $\text{LiFe}_{1-x}\text{Mn}_x\text{BO}_3$  and  $\text{LiFe}_{1-x}\text{Co}_x\text{BO}_3$  as a cathode material for Li-ion battery  
Inyoung Lee, Youngil Lee<sup>1,\*</sup>  
*University of Ulsan, Korea*  
<sup>1</sup>*Department of Chemistry, University of Ulsan, Korea*

ANAL.P-262

Structural and electrochemical studies of  $\text{LiFeBO}_3$  as a cathode material for lithium-ion battery  
Yujin Son, Youngil Lee<sup>1,\*</sup>  
*chemistry, University of Ulsan, Korea*  
<sup>1</sup>*Department of Chemistry, University of Ulsan, Korea*

ANAL.P-263

Synthesis and Electrochemical Properties of Sulfate-based Yavapaiite-like Structure for Promising Polyanionic Cathode Material  
Reyhan Puji Putranto, Youngil Lee  
*Department of Chemistry, University of Ulsan, Korea*

ANAL.P-264

Sensitive and Selective Detection of Trace Metal Ion with Molecular-Like Au Clusters  
Jihye Yoon, Youngsoo Kim<sup>1,\*</sup>  
*Department of Chemistry, Yeungnam University, Korea*  
<sup>1</sup>*Department of Chemistry, Yeungnam University, Korea*

ANAL.P-265

Characteristics and Electrochemical Performance of Silicon/Carbon nanofibers/Graphene Composite

films as Anode Material for Binder-Free Lithium ion Secondary Batteries

Ruye Cong, Jin-Yeong Choi<sup>1</sup>, Chang-Seop Lee<sup>1</sup>  
*Analytical chemistry, Keimyung University, Korea*  
<sup>1</sup>*Department of Chemistry, Keimyung University, Korea*

ANAL.P-266

Development of analysis methods for the toxic chemicals in Consumer Chemical Products (CCPs)  
Jae-ung Lee, Han Bin Oh  
*Department of Chemistry, Sogang University, Korea*

ANAL.P-267

New named "Spectrator" as a device for the determination of titration end-points  
Jiwon Shin, Gyooyoon Chae, Yejin Park, YealIn Kim, Won-Seok Chae  
*Division of Life Science and Chemistry, Daejin University, Korea*

ANAL.P-268

Kinetic modulation of Amyloid- $\beta$  through its point mutation by structure-based design  
Dongjoon Im, Chae Eun Heo, MyungKook Son, Chae Ri Park, Sooyeon Chae, Min Ji Kim<sup>1</sup>, Hugh I. Kim  
*Department of Chemistry, Korea University, Korea*  
<sup>1</sup>*Chemistry, Korea University, Korea*

ANAL.P-269

Serum exosomes analysis differentiating patients of alcoholic and nonalcoholic fatty liver diseases  
Huu-Quang Nguyen, Jaebeom Lee, Jeongkwon Kim  
*Department of Chemistry, Chungnam National University, Korea*

ANAL.P-270

Structural studies of antimicrobial peptides derived from bovine milk with enhanced antimicrobial activity using NMR spectroscopy  
Jinyoung Son, Yongae Kim<sup>1,\*</sup>  
*Department of chemistry, Hankuk University of Foreign Studies, Korea*  
<sup>1</sup>*Department of Chemistry, Hankuk University of Foreign Studies, Korea*

ANAL.P-271

NMR structural studies and anti-inflammatory effect of the expressed tIK peptides  
Yuyoung Song, Yongae Kim  
*Department of Chemistry, Hankuk University of Foreign Studies, Korea*

ANAL.P-272

Preparation of radiolabeled microplastics for its *in vivo* behavior research  
Heejung Kim, Dong Hyun Kim, Jae Hoon Shim<sup>1,\*</sup>  
*Korea Institute of Radiological & Medical Science, Korea*  
<sup>1</sup>*KRICP, Korea Institute of Radiological & Medical Science, Korea*

ANAL.P-273

Infrared spectroscopic screening of gall bladder cancer using bile juice as a specimen  
Eunjin Jang, Geum-Sook Hwang<sup>1</sup>, Hoeil Chung<sup>2,\*</sup>  
*Chemistry, Hanyang University, Korea*  
<sup>1</sup>*Korea Basic Science Institute, Korea*

<sup>2</sup>*Department of Chemistry, Hanyang University, Korea*

ANAL.P-274

Influence of the Preferred Orientation of Pyridine Derivatives with Donor Substituents on Chemical Interface Damping Induced in Silver-Coated Gold Nanorods with Different Shell Thicknesses

Kyeong Rim Ryu, Ji Won Ha<sup>1,\*</sup>

*Chemistry, University of Ulsan, Korea*

<sup>1</sup>*Department of Chemistry, University of Ulsan, Korea*

ANAL.P-275

Investigating the Structural and Functional Characteristics in Glycated Hemoglobin Using Ion-Mobility Mass Spectrometry

Min Ji Kim, Chae Eun Heo<sup>1</sup>, Sooyeon Chae<sup>1</sup>, Chae Ri Park<sup>1</sup>, MyungKook Son<sup>1</sup>, Dongjoon Im<sup>1</sup>, Hugh I. Kim<sup>1</sup>

*Chemistry, Korea University, Korea*

<sup>1</sup>*Department of Chemistry, Korea University, Korea*

ANAL.P-276

NMR spectroscopy applications in plant metabolomics

Minseon Kim, Yongae Kim

*Department of Chemistry, Hankuk University of Foreign Studies, Korea*

ANAL.P-277

Structural studies of human transmembrane proteins related to disease

Minseon Kim, Yongae Kim

*Department of Chemistry, Hankuk University of Foreign Studies, Korea*

ANAL.P-278

Homologous recombination repair and cholesterol-mediated drug efflux induce dose-dependent chemoresistance in nutrient-deprived neuroblastoma

Sooyeon Chae, Chae Eun Heo, Min Ji Kim, Chae Ri Park, MyungKook Son, Dongjoon Im, Hugh I. Kim

*Department of Chemistry, Korea University, Korea*

ANAL.P-279

Integration of Surface Enhanced Raman Spectroscopy with Polymerase Chain Reaction for Monitoring *K. pneumoniae*

Ara Lee, Dong-Ku Kang

*Department of Chemistry, Incheon National University, Korea*

ANAL.P-280

Tunable Chirality in Two Thumbs film

Juyong Gwak

*Department of Biomaterials Science, Pusan National University, Korea*

ANAL.P-281

Evaluation of weighted ensemble Twin support vector machine for near-infrared spectroscopic discriminant analysis

Woosuk Sohng, Hoeil Chung<sup>1,\*</sup>

*Chemistry, Hanyang University, Korea*

<sup>1</sup>*Department of Chemistry, Hanyang University, Korea*

ANAL.P-282

An integrated approach for probing quaternary structure change of protein induced by ligand using

SAXS and cross-linking/MS

Chae Eun Heo, Chae Ri Park, MyungKook Son, Dongjoon Im, Sooyeon Chae, Minji Kim<sup>1</sup>, Hugh I. Kim

*Department of Chemistry, Korea University, Korea*

<sup>1</sup>*Chemistry Department of Nano-Science, Ewha Womans University, Korea*

ANAL.P-283

Comparison of Fibrillation Kinetics of Amyloid Proteins in H<sub>2</sub>O and D<sub>2</sub>O

MyungKook Son, Chae Ri Park, Chae Eun Heo, Dongjoon Im, Min Ji Kim, Sooyeon Chae, Hugh I. Kim

*Department of Chemistry, Korea University, Korea*

ANAL.P-284

Proteomic analysis of environmental stress in correlation with physiological changes in *Haliotis discus hannai*

Miseon Jeong, Junghoon Kang, Wonryeon Cho  
*Department of Chemistry, Wonkwang University, Korea*

ANAL.P-285

Photothermal effect analysis of Bi-Te covered nanorods on 3D spheroid neuroblastoma cells

Chae ri Park, Chae Eun Heo, MyungKook Son, Dongjoon Im, Min Ji Kim, Sooyeon Chae, Hugh I. Kim

*Department of Chemistry, Korea University, Korea*

ANAL.P-286

Turbidity measurement in absorbance unit

Yesol Lee, In-Yong Eom<sup>1,\*</sup>

*Chemistry, Daegu Catholic University, Korea*

<sup>1</sup>*Department of Life Chemistry, Daegu Catholic University, Korea*

ANAL.P-287

Combining Clinical Implications from TCGA GBM and Proteomic analysis of IDH1 mutated cell-line to investigate the role of IDH1 mutation in GBM

Jiwon Hong, Seunghoon Back, Chaewon Kang<sup>1</sup>, Hokeun Kim, Sang-Won Lee

*Department of Chemistry, Korea University, Korea*

<sup>1</sup>*Korea University, Korea*

ANAL.P-288

One-pot synthesis of water-soluble Iron Selenide Quantum Dots with chiral stabilizer

YeongEun Choi, Jaebeom Lee

*Chemistry, Chungnam National University, Korea*

ANAL.P-289

Colorimetric Strain Sensor by Magnetoplasmonic photonic crystal array on flexible substrate

Dajeong Hwang, Jaebeom Lee<sup>1,\*</sup>

*Department of Chemistry, Chungnam National University, Korea*

<sup>1</sup>*Chemistry, Chungnam National University, Korea*

ANAL.P-290

DO-NCFC-RP/RPLC combined with FAIMS for comprehensive proteomics analysis

Chaewon Kang, Dowoon Nam, Sang-Won Lee

*Department of Chemistry, Korea University, Korea*



ANAL.P-291

Synthesis, Properties and Electrochemical Characteristics of SiNPs/CNT/rGO Composite films for Anode Material of Li ion Batteries.

Eunhee Noh, Ruye Cong, Jin-Yeong Choi, Yura Hyun, Chang-Seop Lee  
*Department of Chemistry, Keimyung University, Korea*

ANAL.P-292

Limit of Detection for HPLC-Photodiode Array Detection is Comparable to the Refractive Index Detection for Monosaccharide Analysis.

Iqbal Jalaludin, Jeongkwon Kim  
*Department of Chemistry, Chungnam National University, Korea*

LIFE.P-293

Divalent ionic regulation for co-formation of an actin-microtubule in vitro

ChangHo Kim, Sungwoo Jeong<sup>1</sup>, Monica Cahyaning Ratri<sup>2</sup>, Kwanwoo Shin<sup>3,\*</sup>

*Institute of Biological Interfaces, Sogang University, Korea*

<sup>1</sup>*Research Institute for Basic Science, Sogang University, Korea*

<sup>2</sup>*chemistry, Sogang University, Korea*

<sup>3</sup>*Department of Chemistry, Sogang University, Korea*

LIFE.P-294

Artificial cellular model for morphological changes and motions with controlled actin polymerization

Sungwoo Jeong, ChangHo Kim<sup>1</sup>, Sungwoo Lee<sup>2</sup>, Kwanwoo Shin<sup>2</sup>

*Research Institute for Basic Science, Sogang University, Korea*

<sup>1</sup>*Institute of Biological Interfaces, Sogang University, Korea*

<sup>2</sup>*Department of Chemistry, Sogang University, Korea*

LIFE.P-295

Evaluation of the expression stability on housekeeping genes from Long-tailed chickens

Yunjeong Noh, Han-ha Chai<sup>1,\*</sup>

*National institute of animal science, Rural Development Administration, Korea*

<sup>1</sup>*National institute of animal science, Rural Development Administration and College of Pharmacy, Chonnam national university, Korea*

LIFE.P-296

Biochemical characterization of Glucose 6-Phosphate dehydrogenase from *Helicobacter pylori*

Heetaek Lee, Jin Kuk Yang  
*Department of Chemistry, Soongsil University, Korea*

LIFE.P-297

Cell Lysate-based Cell Free Expression in a giant liposome

Sungwoo Lee, Sungwoo Jeong<sup>1</sup>, Kwanwoo Shin<sup>2,\*</sup>

*Department of Chemistry and Institute of Biological Interfaces, Sogang University, Korea*

<sup>1</sup>*Research Institute for Basic Science, Sogang University, Korea*

<sup>2</sup>*Department of Chemistry, Sogang University, Korea*

LIFE.P-298

Collagen Fibrils Formation from Collagen-encapsulated Nanoliposomes using Electrical Stimulation

Albertus Ivan Brilian, Agustina Setiawati<sup>1</sup>,

ChangHo Kim, Kwanwoo Shin

*Department of Chemistry and Institute of Biological Interfaces, Sogang University, Korea*

<sup>1</sup>*Department of Life Science, Sogang University, Korea*

LIFE.P-299

Development of modified spytag and spycatcher pair for application in affinity chromatography

Jin Young Son, Sang Jeon Chung<sup>1,\*</sup>

*pharmacy, Sungkyunkwan University, Korea*

<sup>1</sup>*College of Pharmacy, Sungkyunkwan University, Korea*

LIFE.P-300

Microwave-Assisted Solid Phase Peptide Synthesis (SPPS) for Cancer Diagnosis

Seung Chul Kwak, Sang-Won Lee, Hak Joong Kim  
*Department of Chemistry, Korea University, Korea*

LIFE.P-301

DH002 stimulates glucose uptake in C2C12 and 3T3-L1 cells via inhibition of protein tyrosine phosphatases

Dohee Ahn, Ji Young Hwang<sup>1</sup>, Sang Jeon Chung<sup>2,\*</sup>  
*Pharmacy, Sungkyunkwan University, Korea*

<sup>1</sup>*SCHOOL OF PHARMACY, Sungkyunkwan University, Korea*

<sup>2</sup>*College of Pharmacy, Sungkyunkwan University, Korea*

LIFE.P-302

JS-003 as a novel palliative natural compound of type 2 diabetes via downregulation of diabetes-related phosphatases.

Jinsoo Kim, Sang Jeon Chung<sup>1,\*</sup>

*School of Pharmacy, Sungkyunkwan University, Korea*

<sup>1</sup>*College of Pharmacy, Sungkyunkwan University, Korea*

LIFE.P-303

Identification of a natural product inhibitor for Src-homology phosphotyrosyl phosphatase 2

Jae kwan Kim, Sang Jeon Chung<sup>1,\*</sup>

*School of Pharmacy, Sungkyunkwan University, Korea*

<sup>1</sup>*College of Pharmacy, Sungkyunkwan University, Korea*

LIFE.P-304

Antidiabetic effect of MJ44 polymeric micelles targeting protein tyrosine phosphatases

Minji Kang, Sang Jeon Chung<sup>1,\*</sup>, Dohee Ahn<sup>2</sup>

*School of Pharmacy, Sungkyunkwan University, Korea*

<sup>1</sup>*College of Pharmacy, Sungkyunkwan University, Korea*

<sup>2</sup>*Pharmacy, Sungkyunkwan University, Korea*

LIFE.P-305

Target analysis of herbal medicine prescription related to diabetes by high-throughput screening and network analysis

Youllee Kim, Dohee Ahn<sup>1</sup>, Sang Jeon Chung<sup>2,\*</sup>

*School of pharmacy, Sungkyunkwan University, Korea*

<sup>1</sup>*School of Pharmacy, Sungkyunkwan University, Korea*

<sup>2</sup>*School of Pharmacy, Sungkyunkwan University, Korea*

LIFE.P-306

Enhanced Biocompatibility of 3D cartilage scaffolds with decellularized ECM based hydrogels

Jae eun Kim, Kwanwoo Shin<sup>1,\*</sup>

*Chemistry, Sogang University, Korea*

<sup>1</sup>*Department of Chemistry, Sogang University, Korea*

LIFE.P-307

Napthalimide appended deoxyuridine nucleotide synthesis and application in detection of miRNA 24-3P through Rolling Circle Amplification

Ravi Kumara Guralamatta Siddappa, Young Jun  
Seo  
*Department of Chemistry, Jeonbuk National University,  
Korea*

LIFE.P-308

Enzymatic primer extension of unnatural nucleotide  
into DNA and its combination with Graphene Oxide  
for detection of miRNA21

Moon Hyeok Choi, Young Jun Seo  
*Department of Chemistry, Jeonbuk National University,  
Korea*

LIFE.P-309

Biophysical properties of Infliximab  
Soon-Jong Kim<sup>†</sup>, Eun Hye Park<sup>1</sup>

*Department of Chemistry, Mokpo National University,  
Korea*

<sup>1</sup>*chemistry, Mokpo National University, Korea*

LIFE.P-310

Unveiling Terminal Residue-Dependent Electrostatic  
Interactions in Circularly Permuted and Split Outer  
Membrane Protein

Jaewon Lee, Woon Ju Song<sup>1,\*</sup>

*Chemistry, Seoul National University, Korea*

<sup>1</sup>*Department of Chemistry, Seoul National University, Korea*



ORG.N.P-311

New Blue Phosphorescent Heteroleptic Ir(III) Complexes with Imidazole- and *N*-Methylimidazole Carboxylates as Ancillary Ligands  
Hea Jung Park<sup>\*</sup>, Jae-Ho Jang, Do-Hoon Hwang, Ung Chan Yoon  
*Department of Chemistry, Pusan National University, Korea*

ORG.N.P-312

Thienyl group effect of BDT based on Fluorinated Phenazine  
Jinhan Lee, Won Ki Lee<sup>1</sup>, Youngeup Jin  
*Engineering Chemistry, Pukyong National University, Korea*  
<sup>1</sup>*Department of Polymer Engineering, Pukyong National University, Korea*

ORG.N.P-313

DABCO-Mediated Synthesis of  $\alpha$ -Trifluoromethylthio- $\alpha,\beta$ -Unsaturated Carbonyl Compounds  
Heun-Jong Ha, Junho Park, Chang-Woo Cho  
*Department of Chemistry, Kyungpook National University, Korea*

ORG.N.P-314

Synthesis and chiral analysis of various gamma modified PNA backbones  
Alagarsamy Periyalagan, In seok Hong<sup>1,\*</sup>  
*Department of chemistry, Kongju National University, Korea*  
<sup>1</sup>*Department of Chemistry, Kongju National University, Korea*

ORG.N.P-315

Synthesis and characterization of Aurein 1.2 peptides using solution phase synthesis  
Jiseon Kim, Yonghoe Kim, In seok Hong<sup>1,\*</sup>  
*Chemistry, Kongju National University, Korea*  
<sup>1</sup>*Department of Chemistry, Kongju National University, Korea*

ORG.N.P-316

Optimization of peptide coupling agents to minimize racemization in the synthesis of poly Histidine peptide in solution phase  
Ji in Kim, In seok Hong  
*Department of Chemistry, Kongju National University, Korea*

ORG.N.P-317

Derivatization of Peptoid Using Petasis Borono-Mannich Reaction  
Minhwa Kim, Yong-Uk Kwon  
*Department of Chemistry and Nanoscience, Ewha Womans University, Korea*

ORG.N.P-318

Construction of Complex Peptoid-Based Structures  
Soomin Kim, Yong-Uk Kwon  
*Department of Chemistry and Nanoscience, Ewha Womans University, Korea*

ORG.N.P-319

The Study on New Alternating Polymers Having BDTT and Phenazine for Photovoltaics  
Jinhan Lee, Won Ki Lee<sup>1</sup>, Youngeup Jin  
*Engineering Chemistry, Pukyong National University, Korea*  
<sup>1</sup>*Department of Polymer Engineering, Pukyong National University, Korea*

ORG.N.P-320

Enhanced Thermoelectric Performance of SWNT/Organic Small Molecules (OSMs) Hybrid Materials by Tuning the Energy Level of OSMs  
Jong-in Hong<sup>\*</sup>, Tae-hoon Kim<sup>1</sup>  
*Division of Chemistry, Seoul National University, Korea*  
<sup>1</sup>*Department of Chemistry, Seoul National University, Korea*

ORG.N.P-321

Stereochemical Revision and Total Synthesis of Biemamides B and D  
Hyun-Joon Ha<sup>\*</sup>, Nikhil Srivastava<sup>1</sup>  
*Department of Chemistry, Hankuk University of Foreign Studies, Korea*  
<sup>1</sup>*Hankuk University of Foreign Studies, India*

ORG.N.P-322

Optical and Physical Properties Correlation of  $\pi$ -conjugated Pyrazine Derivatives According to Different Conjugation Type.  
Young Dae Gong<sup>\*</sup>, Hyungha Park  
*Department of Chemistry, Dongguk University, Korea*

ORG.N.P-323

Synthesis of Idebenone derivatives and confirm of bioactivity with cell  
Songmi Bae, Dai Il Jung, Ju Hyun Song  
*Department of Chemistry, Dong-A University, Korea*

ORG.N.P-324

Dearomative synthesis of cyclic N-acyl amidine from N-heteroarenes and acylazide  
Dong Geun Jo, Seewon Joung<sup>1,\*</sup>  
*Chemistry, Mokpo National University, Korea*  
<sup>1</sup>*Department of Chemistry, Mokpo National University, Korea*

ORG.N.P-325

Electrochemical Synthesis of Sulfone Derivatives  
Jin Kyu Park<sup>\*</sup>, Sunwoo Lee<sup>1</sup>  
*Department of chemistry, Chonnam National University, Korea*  
<sup>1</sup>*Department of Chemistry, Chonnam National University, Korea*

ORG.N.P-326

Synthesis of Tetrazole *N*-Oxide Derivatives  
Heun-Jong Ha, Chang-Woo Cho  
*Department of Chemistry, Kyungpook National University, Korea*

ORG.N.P-327

Synthesis of Copper Complexes with Tridentate Tris-*N*-Heterocyclic Carbene: Application to Alkyne-Azide Cycloaddition Reaction

Yeon Joo Cheong, Hye-Young Jang<sup>1,\*</sup>  
*Department of Energy System Research, Ajou University, Korea*  
<sup>1</sup>*Department of Chemistry, Ajou University, Korea*

ORGN.P-328

Hydrogen Polysulfides (H<sub>2</sub>S<sub>2</sub>) Imaging in Live Cells and Hippocampal Tissues Using Two-photon Confocal Imaging

Jeewon Chung, Hwan Myung Kim<sup>1,\*</sup>, Juyoung Yoon  
*Department of Chemistry and Nanoscience, Ewha Womans University, Korea*  
<sup>1</sup>*Department of Energy Systems Research, Ajou University, Korea*

ORGN.P-329

Ir(triscarbene)-Catalyzed Transfer Hydrogenation of Levulinic Acid with Various Alcohol as a Hydrogen Source

Kihyuk Sung, Mi-hyun Lee<sup>1</sup>, Hye-Young Jang<sup>2,\*</sup>  
*Department of energy system research, Ajou University, Korea*  
<sup>1</sup>*Department of Energy System Research, Ajou University, Korea*  
<sup>2</sup>*Department of Chemistry, Ajou University, Korea*

ORGN.P-330

Generation and Ring Opening of N-alkylaziridinium Ions

Taehwan Yu, Hyun-Joon Ha<sup>1,\*</sup>, Won Koo Lee<sup>2,\*</sup>  
*Hankuk University of Foreign Studies, Korea*  
<sup>1</sup>*Department of Chemistry, Hankuk University of Foreign Studies, Korea*  
<sup>2</sup>*Department of Chemistry, Sogang University, Korea*

ORGN.P-331

Diarylpyrazine-based position isomers: A detailed study of optical properties and structure property relationship

Dong Jin Park, Young Dae Gong<sup>1,\*</sup>  
*Dongguk University, Korea*  
<sup>1</sup>*Department of Chemistry, Dongguk University, Korea*

ORGN.P-332

Facile Direct Synthesis of N-Aryl-Substituted Azacycles from N-ethyl protected Arylamines via TiCl<sub>4</sub>-Mediated Reaction

Van Hieu Tran, Hee-Kwon Kim  
*Department of Nuclear Medicine, Jeonbuk National University, Korea*

ORGN.P-333

Direct AlCl<sub>3</sub>-Catalyzed Transformation of THP Protected Alcohols

Tien Tan Bui, Hee-Kwon Kim  
*Department of Nuclear Medicine, Jeonbuk National University, Korea*

ORGN.P-334

The Direct Conversion of N-Cbz-Protected Amines to Ureas using Lanthanum (III) Trifluoromethanesulfonate

Tien Tan Bui, Hee-Kwon Kim  
*Department of Nuclear Medicine, Jeonbuk National University, Korea*

ORGN.P-335

Synthesis and Evaluation of Novel Multivalent Fluorescent Translocator Protein Ligand for Glioma

Cancer

Tien Tan Bui, Hee-Kwon Kim  
*Department of Nuclear Medicine, Jeonbuk National University, Korea*

ORGN.P-336

Equilibrium of Spirosystem in Cycloalopin via Retroaldol/Realdol Process: Selective Formation of alpha- or beta-epimer via Iterative Procedure

Jieun Song, Jimin Kim, Chan-Mo Yu<sup>1,\*</sup>  
*Department of Chemistry, Chonnam National University, Korea*  
<sup>1</sup>*Department of Chemistry, Sungkyunkwan University, Korea*

ORGN.P-337

A Conversion of erythro-5-(4-bromo-1-hydroxyakyl)-furan-2(5H)-ones to threo-Diastereomers under Basic Conditions: Origin of Thermodynamic Stability

Euijin Park, Jimin Kim  
*Department of Chemistry, Chonnam National University, Korea*

ORGN.P-338

Synthesis of Naturally Occurring (+)-Hypoxylactone and (+)-Xyloglactone A: Correction and Verification of Stereochemistry

Sehui Yang, Jimin Kim  
*Department of Chemistry, Chonnam National University, Korea*

ORGN.P-339

The development of heavy-atom-free photosensitizers for two-photon excited photodynamic cancer therapy

Jeongsun Ha, Seon Ye Heo, Sujie Qi, DongJoon Lee<sup>1</sup>, Hwan Myung Kim<sup>1</sup>, Juyoung Yoon  
*Department of Chemistry and Nanoscience, Ewha Womans University, Korea*  
<sup>1</sup>*Department of Energy Systems Research, Ajou University, Korea*

ORGN.P-340

Fine-tuning the electronic structure of heavy-atom-free BODIPY photosensitizers for fluorescence imaging-targeted photodynamic therapy

Sujie Qi, Juyoung Yoon  
*Department of Chemistry and Nanoscience, Ewha Womans University, Korea*

ORGN.P-341

A benzothiazole-based fluorescent chemosensor for detecting Cu<sup>2+</sup> in aqueous media

Seon Min Park, Doo OK Jang  
*Department of Chemistry, Yonsei University, Korea*

ORGN.P-342

A Microenvironment-Sensitive Fluorene-Labeled 2'-Deoxyuridine as a Probe to Detect the Presence of an DNA Abasic Site

Seung Woo Hong, Gil Tae Hwang  
*Department of Chemistry, Kyungpook National University, Korea*

ORGN.P-343

Copper-Catalyzed Oxidative C-C Cleavage

Siae Kim, Seong Eon Kim, Hye-Young Jang<sup>1,\*</sup>

Department of Energy System Research, Ajou University, Korea

<sup>1</sup>Department of Chemistry, Ajou University, Korea

ORGN.P-344

Design and synthesis of dinitropyrazole-based high energy materials

Byeongil Lee, Young gyu Kim, Kuktae Kwon<sup>1</sup>, SeungHee Kim<sup>1</sup>

Division of Chemical & Biological Engineering, Seoul National University, Korea

<sup>1</sup>Agency for Defense Development, Korea

ORGN.P-345

Development of Efficient and Safe Nitration Methods for Pyrazole Derivatives via Flow Chemistry

Se Won Bae

Department of Chemistry, Jeju National University, Korea

ORGN.P-346

Highly luminescent green and yellow OLED for Triazine-dibenzocarbazole based bipolar host materials

Keunhwa Kim, Subin Oh, Han-Su Hwang, Younghee Park, Kyu Yun Chai<sup>1,\*</sup>, Kanthasamy Raagulan

Chemistry, Wonkwang University, Korea

<sup>1</sup>Department of Chemistry, Wonkwang University, Korea

ORGN.P-347

Thermally stable hole transporting carbazole-triphenylamine for red phosphorescent OLEDs

Younghee Park, Keunhwa Kim, Subin Oh, Han-Su Hwang, Kanthasamy Raagulan, Kyu Yun Chai<sup>1,\*</sup>

Chemistry, Wonkwang University, Korea

<sup>1</sup>Department of Chemistry, Wonkwang University, Korea

ORGN.P-348

Boron Lewis Acid-Catalyzed Hydrophosphinylation of N-Heteroaryl Substituted Alkenes with Secondary Phosphine Oxides

Sarah Yunmi Lee\*, Jongwon Kim<sup>1</sup>

Department of Chemistry, Yonsei University, Korea

<sup>1</sup>chemistry, Yonsei University, Korea

ORGN.P-349

Photoluminescent and Electrochemiluminescent GSH Sensors Using Cyclometalated Iridium(III) Complexes Based on Different Response Mechanism

Hyun seung No, Jong-in Hong<sup>1,\*</sup>

Division of chemistry, Seoul National University, Korea

<sup>1</sup>Division of Chemistry, Seoul National University, Korea

ORGN.P-350

Fluorene-Labeled 2'-Deoxyuridines with Different Linkers: Application as Probes for DNA Duplex Formation

Su Jin Yang, Gil Tae Hwang

Department of Chemistry, Kyungpook National University, Korea

ORGN.P-351

Palladium-catalyzed cross-coupling reaction by the use of reverse polarity of silyl ketimines

Seungmi Lee, Inji Shin

Department of Fine Chemistry, Seoul National University of

Science & Technology, Korea

ORGN.P-352

Highly Selective Room-Temperature Suzuki-Miyaura Coupling of Bromo-2-sulfonyloxypyridines for Unsymmetrical Diarylpyridines

Young-Kyo Jeon, Wonsuk Kim<sup>1,\*</sup>

Department of Chemistry and Nano Science, Ewha Womans University, Korea

<sup>1</sup>Chemistry Department of Nano-Science, Ewha Womans University, Korea

ORGN.P-353

PSCs based on D-A alternating structure with bulky alkyl chain

Jinhan Lee, Won Ki Lee<sup>1</sup>, Youngeup Jin

Engineering Chemistry, Pukyong National University, Korea

<sup>1</sup>Department of Polymer Engineering, Pukyong National University, Korea

ORGN.P-354

Determination of Regioselectivity using Steric-hindrance in Suzuki-Miyaura Cross Coupling Reaction

Se-Young Lim, Yong-Ju Kwon, Wonsuk Kim<sup>1,\*</sup>

Department of Chemistry and Nano Science, Ewha Womans University, Korea

<sup>1</sup>Chemistry Department of Nano-Science, Ewha Womans University, Korea

ORGN.P-355

Unexpected Formation of Diketopiperazines from Proline-based Nucleotriptides

Chung-Min Park

Chemical Advanced Materials, Gangneung-Wonju National University, Korea

ORGN.P-356

Catalytic Asymmetric Thioallylation of Propiolates via Charge-Induced Thio-Claisen rearrangement.

Kim Hanbyul, Jiwon Jang, Seunghoon Shin

Department of Chemistry, Hanyang University, Korea

ORGN.P-357

**Regioselective Synthesis of N<sub>7</sub>- and N<sub>9</sub>-isomer of 3-deazaneplanocin A**

SeMyeong Choi, Jin Young Lee, Yeon Jin An, Jong Hyun Cho

Dong-A University, Korea

ORGN.P-358

Visible Light-Enabled Radical Mannich Reaction via sp<sup>3</sup> C-H Bond Functionalization of Tertiary Amines

Huong Quynh Nguyen, Seunghoon Shin

Department of Chemistry, Hanyang University, Korea

ORGN.P-359

Development of a fluorescent Probe for Diagnosis of Alzheimer's Disease

Hyeyeon Kim, Eun-Kyoung Bang<sup>1,\*</sup>

Chemistry, Kyung Hee University, Korea

<sup>1</sup>Brain Science Institute, Korea Institute of Science and Technology, Korea

ORGN.P-360

Synthesis and photophysical properties of methyl 2-hydroxy-4-(5-R-thiophen-2-yl)benzoate

Nam Gi Cho, Intae Kim<sup>1,\*</sup>

Department of chemistry, Kwangwoon university, Korea

<sup>1</sup>*Department of Chemistry, Kwangwoon University, Korea*

ORGN.P-361

Cascade Borane-Catalyzed Hydrosilylation of Conjugated nitriles and [3+2] cycloaddition of organic azides: Unexpected formation of the diazoalkane and its applications

Vinh Do cao, Seewon Joung  
*Department of Chemistry, Mokpo National University, Korea*

ORGN.P-362

Unpoled Route to Heterobiaryl Compounds via Cu(I)- or Brønsted Acid Catalysis

Soo Min Oh, Cheol Min Park<sup>1,\*</sup>, Seunghoon Shin  
*Department of Chemistry, Hanyang University, Korea*  
<sup>1</sup>*Department of Chemistry, Ulsan National Institute of Science and Technology, Korea*

ORGN.P-363

Zinc-Catalyzed Transacetalizaion of *N,O*-Acetals into *N,N*-Acetals with Benzotriazole, Indazole, and Azide

SangIk Shin, Seunghoon Shin<sup>1,\*</sup>  
*chemistry, Hanyang University, Korea*  
<sup>1</sup>*Department of Chemistry, Hanyang University, Korea*

ORGN.P-364

Systematic Modifications of a Simple Tolan: Another Category of Viscosity Sensor

Jung-Ho Hong, Dong-gyu Cho  
*Department of Chemistry, Inha University, Korea*

ORGN.P-365

Synthesis, Optimization, further Cyclization of Pyrrole Derivatives

Lina Gu, Sangho Koo<sup>1,\*</sup>  
*Department of energy science technology, Myungji University, Korea*  
<sup>1</sup>*Department of Chemistry, Myongji University, Korea*

ORGN.P-366

Synthesis of Norbixin and Its Ester by Bromoacetate and Julia–Kocienski Olefination Protocol

Aleksei Golikov, Sangho Koo  
*Department of Chemistry, Myongji University, Korea*

ORGN.P-367

Fast Assembly and High-Throughput Screening of Structure and Antioxidant Relationship of Carotenoids

Gaosheng Shi, Sangho Koo<sup>1,\*</sup>  
*Department of Energy Science and Technology, Myungji University, Korea*  
<sup>1</sup>*Department of Chemistry, Myongji University, Korea*

ORGN.P-368

Synthesis of Biologically Active Heterocyclic Compounds by Mn(III)-catalyzed Radical Oxidation

Miao Zhang, Sangho Koo<sup>1,\*</sup>  
*Myungji University, Korea*  
<sup>1</sup>*Department of Chemistry, Myongji University, Korea*

ORGN.P-369

Synthesis of unnatural carotenoids with good electrical properties

Huijung Yang, Sangho Koo<sup>1,\*</sup>  
*Myungji University, Korea*  
<sup>1</sup>*Department of Chemistry, Myongji University, Korea*

ORGN.P-370

Expansion of Azulenes as Nonbenzenoid Aromatic Compounds for C–H Activation : Ir- and Rh-Catalyzed Oxidative Cyclization of Azulene Carboxylic Acids with Alkynes for the Synthesis of Azulenolactones and Benzoazulenes

Tae Hyeon Kim, Hee Jin Yang, Phil Ho Lee  
*Department of Chemistry, Kangwon National University, Korea*

ORGN.P-371

Selective C–C Bond Formation from Rh(III)-Catalyzed C–H Activation Reaction of 2-Arylpyridines with 3-Aryl-2H-Azirines

Eunseo Lee, Tae Hyeon Kim, Hee Chan Noh, Phil Ho Lee  
*Department of Chemistry, Kangwon National University, Korea*

ORGN.P-372

Rhodium(III) Amidation of the Cage B(4)–H Bond in o-Carboranes with Dioxazolones by Carboxylic Acid-Assisted B(4)–H Bond Activation

Hyeongcheol Ham, Eunseo Lee, Phil Ho Lee  
*Department of Chemistry, Kangwon National University, Korea*

ORGN.P-373

Rh(II)-Catalyzed Regioselective C3-Alkylation of 2-Arylimidazo[1,2-a]pyridine Derivatives with Aryl Diazoesters

Hee Jin Yang, Hyeongcheol Ham, Phil Ho Lee  
*Department of Chemistry, Kangwon National University, Korea*

ORGN.P-374

Micelles-based fluorescence sensor for selective and sensitive detection of transferrin concentration in human serum.

Seoyoon Kim, Seoung Ho Lee<sup>1,\*</sup>  
*Department of chemistry, Daegu University, Korea*  
<sup>1</sup>*Department of Chemistry, Daegu University, Korea*

ORGN.P-375

A fluorescent probe based on micellization of amphiphilic fluorophores derivatives for highly selective and sensitive detection of heparin in human serum

Seung yeob Lee, Seoung Ho Lee  
*Department of Chemistry, Daegu University, Korea*

ORGN.P-376

Sequential 1,3-*N*- to *C*- and 1,3-*C*- to *C*-Migration of Sulfonyl Groups via the Synthesis of 1,4-Diazepines from the Aza-[5 + 2] Cycloaddition of Indoloazomethine Ylides

HanJoong Kim, Kyungsup Lee, Phil Ho Lee  
*Department of Chemistry, Kangwon National University, Korea*

ORGN.P-377

Ir-Catalyzed Cyclative Indenylation and Dienylation via Sequential B(4)–C Bond Formation, Cyclization, and Elimination from o-Carboranes and Propargyl Alcohols

Hee Chan Noh, Kyungsup Lee, Phil Ho Lee



Department of Chemistry, Kangwon National University,  
Korea

ORGN.P-378

**[Withdrawal]** Micelle-based fluorescent probe for efficient detection of dopamine in human serum  
HyeBin Song, Seoung Ho Lee  
Department of Chemistry, Daegu University, Korea

ORGN.P-379

Aggregation-Induced Emission based turn-on probe  
Tetrazine-Kaleidolizine  
Sang-Kee Choi, Seulbi Lee, Eunha Kim  
Department of Molecular Science and Technology, Ajou  
University, Korea

ORGN.P-380

Development of a Kaleidoscopic fluorescent sensor  
array for pH sensing  
Hyungi Kim, Jun-Sik Min<sup>1</sup>, Eunha Kim  
Department of Molecular Science and Technology, Ajou  
University, Korea  
<sup>1</sup>Molecular science and technology, Ajou University, Korea

ORGN.P-381

Enantioselective Methallylation and Allylation  
Reaction of Aldehydes with Silane Compounds  
Catalyzed by a Chiral Lewis Acid  
Hye-Min Jeong  
Department of Chemistry, Sungkyunkwan University, Korea

ORGN.P-382

Simultaneous and visual detection of cysteamine  
based on Michael addition reaction with  
polydiacetylenes  
Seongman Lee, Thanh Chung Pham, Songyi Lee<sup>1,\*</sup>  
Department of Industry 4.0 Convergence Bionics  
Engineering, Pukyong National University, Korea  
<sup>1</sup>Department of Chemistry, Pukyong National University,  
Korea

ORGN.P-383

Visual Simultaneous Detection of Cadmium Ion  
Based on Conjugated Polydiacetylenes  
Yongkyun Kim, Chaeon Bae, Yeong Hwan Choi,  
Sumin Jeon, Songyi Lee<sup>1,\*</sup>  
Department of Industry 4.0 Convergence Bionics  
Engineering, Pukyong National University, Korea  
<sup>1</sup>Department of Chemistry, Pukyong National University,  
Korea

ORGN.P-384

Synthesis of Triazole based derivatives as Tyrosinase  
Inhibitors: Lineweaver–Burk Plot Evaluation and  
Computational Ascriptions  
Balasaheb Danijal Vanjare, Nam Gyu Choi, Ki  
Hwan Lee  
Department of Chemistry, Kongju National University,  
Korea

ORGN.P-385

A Selectfluor promoted Cu-catalyzed One-Pot  
Synthesis of 2-Amido-3-bromobenzo[b]thiophene  
from Bromoalkyne  
ChangJu Yoon, Do Hyun Ryu<sup>1,\*</sup>, Hyun Suk Yeom<sup>2,\*</sup>  
Sungkyunkwan University, Korea  
<sup>1</sup>Department of Chemistry, Sungkyunkwan University,  
Korea  
<sup>2</sup>Center for Eco-Friendly New Materials, Korea Research

Institute of Chemical Technology, Korea

ORGN.P-386

Chiral Boron-based Lewis Acid Catalyzed  
Enantioselective Radical 1,2-Addition to Aldehydes  
Jae Yeon Kim, Yea Suel Lee<sup>1</sup>, Do Hyun Ryu  
Department of Chemistry, Sungkyunkwan University, Korea  
<sup>1</sup>Chemistry, Sungkyunkwan University, Korea

ORGN.P-387

Two Bipyridine-based Organic Compounds Available  
As Potential Host Materials in OLEDs  
Suk-Hee Moon, Youngjin Kang<sup>1,\*</sup>, Ki-Min Park<sup>2,\*</sup>  
Department of Food & Nutrition, Kyungnam College of  
Information & Technology, Korea  
<sup>1</sup>Division of Science Education, Kangwon National  
University, Korea  
<sup>2</sup>Research Institute of Natural Science, Gyeongsang  
National University, Korea

ORGN.P-388

Preparation of Linalool Derivatives; Their Fragrance  
and Application  
JiEun Lee, Chuljin Ahn<sup>1,\*</sup>  
Department of Chemistry, Changwon National University,  
Korea  
<sup>1</sup>Department of Biology and Chemistry, Changwon  
National University, Korea

ORGN.P-389

Side-Chain Sequence Guides 2D Ordering of  $\pi$ -  
Conjugated Macrocycles on Surfaces  
Soobin Kim, Henry D. Castillo<sup>1</sup>, Zachary G.  
Ciesielski<sup>1</sup>, Steven L. Tait<sup>1</sup>, Dongwhan Lee  
Division of Chemistry, Seoul National University, Korea  
<sup>1</sup>Department of Chemistry, Indiana University, United States

ORGN.P-390

Visible-Light-Mediated C-S Bond Cleavage  
Reactions  
Anna Lee  
Department of Chemistry, Jeonbuk National University,  
Korea

ORGN.P-391

Cu-catalyzed hydrocarboxylation of allenes with  
carbon dioxide and diisobutylaluminum hydride  
SangHyun Lee, Yunmi Lee  
Department of Chemistry, Kwangwoon University, Korea

ORGN.P-392

Copper-Catalyzed Hydroamination of Pyrazole with  
Oxa/aza-norbornadiene  
Kundo Kim, Yunmi Lee  
Department of Chemistry, Kwangwoon University, Korea

ORGN.P-393

Highly Chemoselective Esterification from *O*-  
Aminoallylation of Carboxylic Acids; Metal- and  
Reagent-Free Hydrocarboxylation of Allenamides  
Hae Eun Lee, Paul Ha-Yeon Cheong<sup>1,\*</sup>, Jin Kyoong  
Park  
Department of Chemistry, Pusan National University, Korea  
<sup>1</sup>Department of Chemistry, Oregon State University,  
United States

ORGN.P-394

Heterogenous bimetallic Pd-Pt supported on Al<sub>2</sub>O<sub>3</sub>  
as catalyst for benzyl alcohol oxidation under air  
atmosphere

Lei Cao, Jin Kyoong Park<sup>1,\*</sup>  
*Department of Chemistry, Pusan National University, China*  
<sup>1</sup>*Department of Chemistry, Pusan National University, Korea*

ORGN.P-395

Simple reversible fixation of a magnetic catalyst in a continuous flow system: ultrafast reduction of nitroarenes and subsequent reductive amination using ammonia borane

Lei Cao, Byeong Moon Kim<sup>1,\*</sup>, Jin Kyoong Park<sup>2,\*</sup>  
*Department of Chemistry, Pusan National University, China*  
<sup>1</sup>*Division of Chemistry, Seoul National University, Korea*  
<sup>2</sup>*Department of Chemistry, Pusan National University, Korea*

ORGN.P-396

A New Route to Acyl Fluorides via DAST-Mediated Fluorinative Beckmann Fragmentation of Activated Ketones

Danhee Kim, Hee Nam Lim<sup>1,\*</sup>  
*Department of Chemistry, Korea University, Korea*  
<sup>1</sup>*Eco-Friendly New Materials Research Center, Korea Research Institute of Chemical Technology, Korea*

ORGN.P-397

Synthesis of new benzorhodamine analogues  
Mingchong Dai, Yun Jae Yang<sup>1</sup>, Kyo Han Ahn<sup>1</sup>  
*Chemistry, Pohang University of Science and Technology, Korea*  
<sup>1</sup>*Department of Chemistry, Pohang University of Science and Technology, Korea*

ORGN.P-398

A Light-Emitting Molecular Gear: Correlating, Amplifying, and Transducing Bond-Rotating Motions into Optical Signals  
Sungmoon Ji, Dongwhan Lee  
*Division of Chemistry, Seoul National University, Korea*

ORGN.P-399

Cell-Membrane-Localizing, Two-Photon Probe for Ratiometric Imaging of  $\gamma$ -Glutamyl Transpeptidase in Cancerous Cells and Tissues  
Yun Lim Jung, Ye Jin Reo, Kyo Han Ahn  
*Department of Chemistry, Pohang University of Science and Technology, Korea*

ORGN.P-400

Synthesis and Biological Evaluation of Indazol-3-one and Indazole derivatives.  
Kyungmin Kim, Heejae Choi<sup>1,\*</sup>, Hakwon Kim, Hakwon Kim  
*Department of Applied Chemistry, Kyung Hee University, Korea*  
<sup>1</sup>*Applied Chemistry, Kyung Hee University, Korea*

ORGN.P-401

Pd-catalyzed selective  $\gamma$ -arylation of aliphatic amines with transient directing groups  
Hyeon Bin Ha, HoJeong Choi, Jaesung Kwak<sup>1</sup>, Byunghyuck Jung<sup>2</sup>, Min Kim  
*Department of Chemistry, Chungbuk National University, Korea*  
<sup>1</sup>*Infectious Diseases Therapeutic Research Center, Korea Research Institute of Chemical Technology, Korea*  
<sup>2</sup>*School of Basic Science, Daegu Gyeongbuk Institute of*

*Science & Technology, Korea*

ORGN.P-402

Cu(I)-Catalyzed Enantioselective [5 + 1] Cycloaddition of N-Aromatic Compounds and Alkynes via Chelating-Assisted 1,2-De-aromatic Addition  
Donguk Ko, Eun Jeong Yoo  
*Department of Applied Chemistry, Kyung Hee University, Korea*

ORGN.P-403

To Go Beyond Is as Wrong as To Fall Short: Anion Recognition in Water by Hydrophobicity-Driven and Aggregation-Induced Emission of Multicationic Fluorophores  
Soohyung Kim, Jongmin Kim, Dongwhan Lee  
*Division of Chemistry, Seoul National University, Korea*

ORGN.P-404

Molecular organized isoindigo based small molecules with terminal thermally cleavable protecting group  
Mohamed Shaker, Hironobu Hayashi<sup>1</sup>, Hiroko Yamada<sup>1</sup>  
*Chemistry Department, Faculty of Science, Tanta University, Tanta, Egypt*  
<sup>1</sup>*Division of Materials Science, Graduate School of Science and Technology, Nara Institute of Science and Technology (NAIST), Japan*

ORGN.P-405

Copper-catalyzed asymmetric reduction of  $\alpha,\beta$ -unsaturated lactones using pinacolborane  
Lee Soyeon, Jaesook Yun<sup>1,\*</sup>  
*Chemistry, Sungkyunkwan University, Korea*  
<sup>1</sup>*Department of Chemistry, Sungkyunkwan University, Korea*

ORGN.P-406

Cobalt-Catalyzed Defluorosilylation of Aryl Fluorides via Grignard Reagent Formation  
Soobin Lim, Hyungdo Cho<sup>1</sup>, Jongheon Jeong, Jang Minjae, Hyunseok Kim<sup>2</sup>, Seung Hwan Cho, Eunsung Lee  
*Department of Chemistry, Pohang University of Science and Technology, Korea*  
<sup>1</sup>*Division of Chemistry and Chemical Engineering, California Institute of Technology, United States*  
<sup>2</sup>*Department of Chemistry, The Scripps Research Institute, United States*

ORGN.P-407

Copper-catalyzed asymmetric Intramolecular coupling of 1,3-dienes with benz-tethered ketone moieties  
Ranjan Acharyya, Soyoung Kim<sup>1</sup>, Jaesook Yun<sup>1</sup>  
*Chemistry, Sungkyunkwan University, Korea*  
<sup>1</sup>*Department of Chemistry, Sungkyunkwan University, Korea*

ORGN.P-408

Self-Assembled Multifunctional Fe-Iminopyridine Catalysts and Carbon Dioxide Utilization  
Seunghyun Lee, Jae Hyung Kim<sup>1</sup>, Eun Joo Kang<sup>1</sup>  
*Applied Chemistry, Kyung Hee University, Korea*  
<sup>1</sup>*Department of Applied Chemistry, Kyung Hee University,*

Korea

ORGN.P-409

Iron-Catalyzed [4+2] Cycloaddition Reactions of Tertiary Anilines with Electron-Rich Olefins under Aerobic Condition

Duyong Park, Joon Young Hwang<sup>1</sup>, Eun Joo Kang<sup>1</sup>  
*Department of Chemistry, Kyung Hee University, Korea*  
<sup>1</sup>*Department of Applied Chemistry, Kyung Hee University, Korea*

ORGN.P-410

Investigation of Intramolecular Cyclization of Dienyl Substituted Acetophenones Using Copper

Complexes

Wanseok Yoon, Jaesook Yun  
*Department of Chemistry, Sungkyunkwan University, Korea*

ORGN.P-411

Terpyridine-Pr-Fe<sub>3</sub>O<sub>4</sub>@boehmite nanoparticles; a novel and highly effective magnetic nanocatalyst for preparation of cyclic carbonates from carbon dioxide and epoxides under solventless conditions

Faisal Muhammad, Aamer Saeed  
*Organic chemistry, Quaid-i-Azam University, Pakistan*

- MEDI.P-412 Water-Soluble Organic Nanoparticles (WSOs) for Biocompatible Photodynamic Therapy (PDT) In Vitro and In Vivo  
Il Yoon  
*Center for Nano Manufacturing and Department of Nanoscience and Engineering, Inje University, Korea*
- MEDI.P-413 Structure-activity Relationship Studies of Transglutaminase 2 Inhibitors  
Sol Han, Kihang Choi<sup>1,\*</sup>  
*Chemistry, Korea University, Korea*  
<sup>1</sup>*Department of Chemistry, Korea University, Korea*
- MEDI.P-414 **[Withdrawal]** Fabrication of gelatin nanofiber gelma scaffolds for enhanced cell culture  
Bosun Baek, Il Yoon<sup>1,\*</sup>  
*department of nanoscience and engineering, Inje University, Korea*  
<sup>1</sup>*Center for Nano Manufacturing and Department of Nanoscience and Engineering, Inje University, Korea*
- MEDI.P-415 Synthesis and evaluation of butein derivatives for in vitro and in vivo inflammatory response suppression in lymphedema  
Jiman Jung, Dawn Song, Jin-Mo Ku  
*Infrastructure Support Team, Gyeonggi Business & Science Accelerator, Korea*
- MEDI.P-416 Solid-Phase Synthesis of thiazolo[4,5-*d*] pyrimidine derivatives via Intramolecular Cyclization  
Su jin Lim, Young Dae Gong<sup>1,\*</sup>  
*Chemistry, Dongguk University, Korea*  
<sup>1</sup>*Department of Chemistry, Dongguk University, Korea*
- MEDI.P-417 Combination Therapy of Photodynamic Therapy Using Chlorin Derivatives and Photothermal Therapy Using Gold Nanorod  
Hyeonho Song, Il Yoon<sup>1,\*</sup>  
*Department of Nanoscience and Engineering, Inje University, Korea*  
<sup>1</sup>*Center for Nano Manufacturing and Department of Nanoscience and Engineering, Inje University, Korea*
- MEDI.P-418 A dual inhibitor of pan-RAF and VEGFR2 for the treatment of K-RAS mutant colorectal cancer  
Jaesun Jung, Soon Kil Ahn, Goeun Lee<sup>1</sup>, Lee JaeWoong<sup>2</sup>, Yongbin Park<sup>2</sup>, Ho Seok Kwon<sup>3</sup>, Min-hyo Ki<sup>3</sup>  
*Institute for New Drug Development, Incheon National University, Korea*  
<sup>1</sup>*Medicinal chemistry lab, Samjin Pharm Co., Korea*  
<sup>2</sup>*Research Institute, Samjin Pharm Co., Korea*  
<sup>3</sup>*Research institute, Samjin Pharm Co., Korea*
- MEDI.P-419 Enzymatic linking of the monomeric Phloroglucinol to high molecular oligomeric forms  
Bong Ho Lee  
*Department of Chemical and Biological Engineering, Hanbat National University, Korea*
- MEDI.P-420 Development of high efficient and smart anticancer drug, PDT-PTT-Chemo (PPC) triple-nanocomplex (TNC)  
Sang Hyeob Lee, Il Yoon<sup>1,\*</sup>  
*Department of Nanoscience, Nano Drug Delivery Lab, Korea*  
<sup>1</sup>*Center for Nano Manufacturing and Department of Nanoscience and Engineering, Inje University, Korea*
- MEDI.P-421 A facile access to phenazine derivatives under metal-free condition  
Gyeongtae Park, Giweon Yu, Seok Hun Woo  
*R&D Center, ST PHARM. Co., Korea*
- MEDI.P-422 Solid-phase synthesis of thiazolo[4,5-*d*]pyrimidin-7(6*H*)-ones via iodine-based catalytic cyclization of 4-aminothiazole-5-carboxamide resin with aldehydes  
Dana Kim, Young Dae Gong<sup>1,\*</sup>  
*Dongguk University, Korea*  
<sup>1</sup>*Department of Chemistry, Dongguk University, Korea*
- MEDI.P-423 Synthesis of structure-based derivatives of transthyretin (TTR) to inhibit amyloid formation  
Eunhee Jeon, Kunwoo Kim, Yu Jin Lee, Sungwook Choi  
*Development of Drug Development and Discovery, Chungnam National University, Korea*
- MEDI.P-424 Synthesis and study of styryl-pyrazole derivatives that inhibit the dissociation of tetrameric TTR  
Yunlan Kim, Eunhee Jeon, Yu Jin Lee<sup>1</sup>, Kunwoo Kim<sup>2</sup>, Sungwook Choi<sup>2</sup>  
*Development Of Drug Development And Discovery, Chungnam National University, Korea*  
<sup>1</sup>*Development of Drug Development And Discovery, Chungnam National University, Korea*  
<sup>2</sup>*Development of Drug Development and Discovery, Chungnam National University, Korea*
- MEDI.P-425 Discovery of a new antibiotic adjuvant agent and study on its mode of action.  
So Eun Park, Hak Joong Kim<sup>1,\*</sup>  
*Chemistry, Korea University, Korea*  
<sup>1</sup>*Department of Chemistry, Korea University, Korea*
- MEDI.P-426 Study of indole moiety compounds for butyrylcholinesterase inhibitors.



Jintaek Oh, Byong Wook Choi, Bong Ho Lee, Ji Hyun Hwang, Jeong Ho Park  
*Department of Chemical & Biological Engineering, Hanbat National University, Korea*

MEDI.P-427

Synthesis and study of styryl-pyrazole derivatives that inhibit the dissociation of tetrameric TTR  
Yunlan Kim, Eunhee Jeon, Yu Jin Lee<sup>1</sup>, Kunwoo Kim<sup>2</sup>, Sungwook Choi<sup>2</sup>  
*Development Of Drug Development And Discovery, Chungnam National University, Korea*  
<sup>1</sup>*Development of Drug Development And Discovery, Chungnam National University, Korea*  
<sup>2</sup>*Development of Drug Development and Discovery, Chungnam National University, Korea*

MEDI.P-428

Neuroprotective effect against 6-OHDA toxicity in PC12 cells resulting from the suppression of PGE<sub>2</sub> production by selectively blocking mPGES-1  
Dohyeong Ko, Yunchan Nam, Geuntae Kim, Minji Kang, Jae Yeol Lee<sup>1,\*</sup>  
*Kyung Hee University, Korea*  
<sup>1</sup>*Department of Chemistry, Kyung Hee University, Korea*

MEDI.P-429

Nitrogen and Sulfur Doped Carbon Quantum Dots as a Fluorescence Biosensor for Glutathione Detection  
Jeongman An, Woo-jung Kang<sup>1</sup>, Yong-kyu Lee<sup>2,\*</sup>  
*Department of Bioengineering, Hanyang University, Korea*  
<sup>1</sup>*Department of Aeronautical Science & Flight Operation, Korea National University of Transportation, Korea*  
<sup>2</sup>*Department of Chemical and Biological Engineering, Korea National University of Transportation, Korea*

MEDI.P-430

Rational design of nanozymatic Ru-Te hollow nanorods for hypoxic pancreatic cancer phototherapy  
Seounghun Kang, Dal-Hee Min<sup>1,\*</sup>  
*Department of chemistry, Seoul National University, Korea*  
<sup>1</sup>*Department of Chemistry, Seoul National University, Korea*

MEDI.P-431

Synthesis of 6,7-Dihydro-5H-dibenz[*b,g*][1,5]oxazocin-5-one via Ullmann Coupling and Lactam Formation Reaction  
Hye Ran Bae, Eunyoung Yoon<sup>1</sup>, Jung-Nyoung Heo<sup>2,\*</sup>  
*Development of Drug Development and Discovery, Chungnam National University, Korea*  
<sup>1</sup>*Korea Research Institute of Chemical Technology, Korea*  
<sup>2</sup>*Center for Medicinal Chemistry, Korea Research Institute of Chemical Technology, Korea*

MEDI.P-432

In vivo biodistribution study of fluorescent silica nanoparticles

Lee Jaewoon, InCheol Heo<sup>1</sup>, Won Cheol Yoo<sup>2</sup>, Sun-Joon Min<sup>3,\*</sup>  
*Applied Chemistry, Hanyang University, Korea*  
<sup>1</sup>*Department of Applied chemistry, Hanyang University, Korea*  
<sup>2</sup>*Department of Chemical and Molecular Engineering, Hanyang University (ERICA), Korea*  
<sup>3</sup>*Dept of Chemical & Molecular Eng/Applied Chemistry, Hanyang University, Korea*

MEDI.P-433

The synthesis and biological evaluation of chalcone derivatives as a neuroprotective agent against glutamate-induced HT22 mouse hippocampal neuronal cell death  
Gyuwon Huh, Heesu Lee<sup>1</sup>, Ae Nim Pae<sup>2</sup>, Jae Wook Lee<sup>3,\*</sup>  
*Natural Products Research Center, Korea Institute of Science and Technology, Korea*  
<sup>1</sup>*Department of Dentistry, Gangneung-Wonju National University, Korea*  
<sup>2</sup>*Korea Institute of Science and Technology, Korea*  
<sup>3</sup>*Convergence Research Center for Dementia DTC, Korea Institute of Science and Technology, Korea*

MEDI.P-434

Effects of ginsenoside Rb2 on osteogenic differentiation of C2C12 cells  
Jae Wook Lee, Heesu Lee<sup>1</sup>, Seong-Hee Ko<sup>1</sup>  
*Convergence Research Center for Dementia DTC, Korea Institute of Science and Technology, Korea*  
<sup>1</sup>*Department of Dentistry, Gangneung-Wonju National University, Korea*

MEDI.P-435

Structure guided design of novel acetylene containing 3-aminoindazoles incorporated with diarylamides as potent Breakpoint cluster region-Abelson (Bcr-Abl) kinase inhibitors endowed with anti-leukemia activity  
Ashraf K. El-Damasy  
*Department of Medicinal Chemistry, Faculty of Pharmacy, Mansoura University, Mansoura 35516, Egypt*

MEDI.P-436

Virtual Screening for Selective drug Discovery  
Jung Woo Park  
*Korea Institute of Science and Technology Information, Korea*

MEDI.P-437

Resistance to tyrosine kinase inhibitors originated from the altered EGFR mutant-specific interactome  
Minh Hung Vu, Min-Sik Kim<sup>1,\*</sup>  
*New Biology, Daegu Gyeongbuk Institute of Science & Technology, Korea*  
<sup>1</sup>*Department of New Biology, DGIST, Korea*

MAT.P-438

Evaluation of raw and calcined eggshell for removal of Cd<sup>2+</sup> from aqueous solution

Keon Sang Ryoo\*, Jong-Ha Choi, Yong Pyo Hong  
Department of Applied Chemistry, Andong National University, Korea

MAT.P-439

Evaluation of natural and calcined eggshell as adsorbent for phosphorous removal from water

Keon Sang Ryoo\*, Jong-Ha Choi, Yong Pyo Hong  
Department of Applied Chemistry, Andong National University, Korea

MAT.P-440

Study on Adsorption of PO<sub>4</sub><sup>3-</sup>-P in Water using Activated Clay

Keon Sang Ryoo\*, Jong-Ha Choi, Yong Pyo Hong  
Department of Applied Chemistry, Andong National University, Korea

MAT.P-441

Polypyrrole Composites for Cell Scaffolds

Joo-woon Lee  
School of Liberal Arts and Sciences, Korea National University of Transportation, Korea

MAT.P-442

Janus solar oil evaporation systems for cleanup and collection of BTX

Won san Choi\*, Yejin Kim<sup>1</sup>  
Department of Chemical & Biological Engineering, Hanbat National University, Korea  
<sup>1</sup>Chemical and Biological Engineering, Hanbat National University, Korea

MAT.P-443

Unmanned solar oil evaporators for fast cleanup of hazardous noxious substance (HNS)

Sol Park, Won san Choi<sup>1,\*</sup>  
Chemical&Biological Engineering, Hanbat National University, Korea  
<sup>1</sup>Department of Chemical & Biological Engineering, Hanbat National University, Korea

MAT.P-444

Eco-friendly series and parallel air filters for removal of particulate matters and volatile organic compounds

Han bi Lee, Won san Choi<sup>1,\*</sup>  
Chemical & biological Engineering, Hanbat National University, Korea  
<sup>1</sup>Department of Chemical & Biological Engineering, Hanbat National University, Korea

MAT.P-445

In-situ X-ray absorption spectroscopy analysis of hollow RuO<sub>2</sub>/TiO<sub>2</sub> composites for application to advanced anode material of LIBs

Seung-Min Paek\*, Minseop Lee<sup>1</sup>  
Department of Chemistry, Kyungpook National University, Korea

<sup>1</sup>Chemistry, Kyungpook National University, Korea

MAT.P-446

An anatomical comparison of human terminal hairs: Microscopic observation and Properties

Jungwoo Suh, Soo Ryeon Ryu<sup>1,\*</sup>, ChangHo Kim<sup>1</sup>, Kwanwoo Shin  
Department of Chemistry, Sogang University, Korea  
<sup>1</sup>Institute of Biological Interfaces, Sogang University, Korea

MAT.P-447

Fabrication of Flexible Pressure Sensor with 3D Printing Method

Daeyeon Cho, Nayoon Pyun, Kwanwoo Shin  
Department of Chemistry, Sogang University, Korea

MAT.P-448

Synthesis and Characterization of Novel Two-dimensional Quaternary Bismuth Sulfide of KAgBi<sub>2</sub>S<sub>4</sub>

Younbong Park  
Department of Chemistry, Chungnam National University, Korea

MAT.P-449

Humidified air treated C<sub>3</sub>N<sub>4</sub> nanoplatelets and their in vivo fluorescence imaging performance without labeling

Sungjin Park\*, Dawoon Jang  
Department of Chemistry, Inha University, Korea

MAT.P-450

Electrocatalysis for the oxygen evolution reaction: synthesis of NiO/N-doped carbon hybrid and its electrocatalytic activity

Jinyoung Son, Sungjin Park<sup>1,\*</sup>  
chemistry, Inha University, Korea  
<sup>1</sup>Department of Chemistry, Inha University, Korea

MAT.P-451

Formation of Cellular Multi component Extracellular Matrix

Agustina Setiawati, Sungwoo Jeong<sup>1</sup>, Albertus Ivan Brilian<sup>2</sup>, Kwanwoo Shin  
Department of Chemistry, Sogang University, Korea  
<sup>1</sup>Research Institute for Basic Science, Sogang University, Korea  
<sup>2</sup>Chemistry, Sogang University, Korea

MAT.P-452

Label-Free Detection of Biomarker with Ultra-high Sensitivity using an Electrolyte-gate Thin-Film Transistors (TFTs) structure

Byung seok Yu, Young-Geun Ha<sup>1,\*</sup>  
Kyonggi University, Korea  
<sup>1</sup>Department of Chemistry, Kyonggi University, Korea

MAT.P-453

Exploration of Substituents Engineered Deep-Red to NIR Emitting Phosphorescent Complexes for Solution-Processable Organic Light-Emitting Diodes

Taehyun Kim, Hae Un Kim, Kyoungwon Choi, Dasol Chung, Taiho Park  
*Department of Chemical Engineering, Pohang University of Science and Technology, Korea*

MAT.P-454

Thermoelectric performance of hole doped-polycrystalline  $\text{Sn}_{1-x}\text{Fe}_x\text{Se}$   
Taeshik Kim, Chung In<sup>1,\*</sup>  
*school of chemical and biological engineering, Seoul National University, Korea*  
<sup>1</sup>*School of Chemical & Biological Engineering, Seoul National University, Korea*

MAT.P-455

Block copolymer templated mesoporous Mg-Al mixed metal oxide for effective Congo red removal  
Jing Xie, Tetsuo Yamaguchi<sup>1</sup>, Jae-Min Oh  
*Energy and Materials Engineering, Dongguk University, Korea*  
<sup>1</sup>*Department of Energy and Materials Engineering, Dongguk university, Korea*

MAT.P-456

Controllable surface roughness of reconstructed LDH by methyl orange intercalation  
Tetsuo Yamaguchi, Jae-Min Oh  
*Department of Energy and Materials Engineering, Dongguk university, Korea*

MAT.P-457

Synthesis of core-shell structure silica sphere for a thermal energy storage medium using various paraffin wax as phase change materials  
Hanjun Mun, Jae Young Bae  
*Department of Chemistry, Keimyung University, Korea*

MAT.P-458

Synthesis of porous silica network with controllable pore size from slag  
Gyuhwan Hwang, Namho Kim, Jae-Min Oh  
*energy and materials engineering, Dongguk University, Korea*

MAT.P-459

Effect of halogen and sulfur substitution in  $\text{Li}_5\text{SPS}_4\text{X}_1\text{Br}$  ( $\text{X} = \text{Cl}, \text{Br}$ )  
Sangwon Park, Myoung-ho Pyo<sup>1,\*</sup>  
*Department of printed electronics engineering, Suncheon National University, Korea*  
<sup>1</sup>*Department of Printed Electronics Engineering, Suncheon National University, Korea*

MAT.P-460

Layered double hydroxide and oxide with controlled porous structure prepared with natural template  
Jiwon Park, Sang-Yong Jung, Jae-Min Oh  
*Material and of Energy engineering, Dongguk University, Korea*

MAT.P-461

Synthesis of 1,3,5-trimethyl-1,3,5-tris(3,3,3-trifluoropropyl)cyclotrisiloxane(FD3) derived fluoro siloxane resin compound added  
*Trifluoropropyltrimethoxysilane(TFPTMS)*  
Ji Myeong Lee, Jae Young Bae  
*Department of Chemistry, Keimyung University, Korea*

MAT.P-462

The Synthesis and Characterization of Highly Water Soluble Triphenylmethine Acid Dyes for Digital Textile Printing  
Seong Hyun Jang, Lee Geonho, Sang Yoon Lee<sup>1</sup>, Jun Choi  
*Human Convergence Technology R&D Department, Korea Institute of Industrial Technology, Korea*  
<sup>1</sup>*Human Convergence Technology R&D Department, Korea Institute of Industrial Technology(KITECH), Korea*

MAT.P-463

Anisotropic Alloying of Rhenium Molybdenum Sulfide Nanosheets for Electrochemical Hydrogen Evolution Reaction  
In Hye Kwak, Ik Seon Kwon, Jeunghee Park  
*Advanced Materials Chemistry, Korea University, Korea*

MAT.P-464

Adatom Doping of Transition Metals in  $\text{ReSe}_2$  Nanosheets for Enhanced Electrocatalytic Hydrogen Evolution Reaction  
Ik Seon Kwon, In Hye Kwak, Jeunghee Park  
*Advanced Materials Chemistry, Korea University, Korea*

MAT.P-465

Improvement of Electrode Performance of  $\text{MoS}_2$  Nanosheets upon Pillaring of Inorganic Nanocluster  
Tae-Ha Gu, Seong-Ju Hwang<sup>1,\*</sup>  
*Department of Chemistry and Nanoscience, Ewha Womans University, Korea*  
<sup>1</sup>*Department of Materials Science and Engineering, Yonsei University, Korea*

MAT.P-466

A Crucial Role of Interfacial Interaction in Improving Electro Catalyst Performance of Nanocomposites  
Xiaoyan Jin, Seong-Ju Hwang  
*Department of Materials Science and Engineering, Yonsei University, Korea*

MAT.P-467

Graphitic-Carbon Nitride Nanosheet as New Cationic Building Block for Bifunctional 2D Superlattice Nanohybrids  
Nam hee Kwon, Seong-Ju Hwang  
*Department of Materials Science and Engineering, Yonsei University, Korea*

MAT.P-468

Enhancement in Open-Circuit Voltages for Tin-based Perovskite Photovoltaics by Introducing a New Charge Transporting Layer  
Myeongjeong Lee, Chung In  
*School of Chemical & Biological Engineering, Seoul National University, Korea*

MAT.P-469

Fabrication of Molecular Tunnel Junction Arrays via Direct Printing of Liquid-Metal Microelectrode  
Seo Eun Byeon, Hyo Jae Yoon  
*Department of Chemistry, Korea University, Korea*

MAT.P-470

The Synthesis and Characterization of Perovskite Nano Crystals for Inkjet-printed Color Conversion Layer of High Color Purity  
Sang Yoon Lee, Lee Geonho<sup>1</sup>, Seong Hyun Jang<sup>2</sup>,

Jun Choi<sup>3,\*</sup>  
*Human Convergence Technology R&D Department, Korea Institute of Industrial Technology(KITECH), Korea*  
<sup>1</sup>*Human Convergence Technology Group, Korea Institute of Industrial Technology, Korea*  
<sup>2</sup>*Human Institute of Industrial Technology Convergen, Korea Institute of Industrial Technology, Korea*  
<sup>3</sup>*Korea Institute of Industrial Technology, Korea*

MAT.P-471 Critical evaluation of a model-based estimation of monolayer coverage in porous materials: a case study of solid-like H<sub>2</sub> adsorption  
SungHyun Yun, Yongchul Chung  
*Chemical & Biomolecular Engineering, Pusan National University, Korea*

MAT.P-472 Porous silicon nanoprobe for the detection of anthrax biomarker and its practical applications  
Yuna Jung, Dokyoung Kim<sup>1,\*</sup>  
*Department of Biomedical science, Kyung Hee University, Korea*  
<sup>1</sup>*College of Medicine, Kyung Hee University, Korea*

MAT.P-473 Enhanced Thermoelectric Performance in eco-friendly Coated Grain boundary system  
Minju Lee  
*Chemistry & Nanoscience, Ewha Womans University, Korea*

MAT.P-474 2D Organic-Inorganic Hybrid Tin (II) Iodide Perovskites  
So-Hyeon Yang, Youngmee Kim, Sung-Jin Kim  
*Department of Chemistry and NanoScience, Ewha Womans University, Korea*

MAT.P-475 Anisotropic Two-Dimensional SiAs for High-Performance UV-Visible Photodetectors  
Doyeon Kim, Jaemin Seo<sup>1</sup>, In Hye Kwak<sup>2</sup>, Ik Seon Kwon, Kidong Park<sup>3</sup>, Jeunghye Park<sup>1</sup>  
*Advanced Materials Chemistry, Korea University, Korea*  
<sup>1</sup>*Department of Materials Chemistry, Korea University, Korea*  
<sup>2</sup>*Micro Device Engineering / Microdevices, Korea University, Korea*  
<sup>3</sup>*Department of Advanced Material Chemistry, Korea University, Korea*

MAT.P-476 Chalcogen-Vacancy Group VI Transition Metal Dichalcogenide Nanosheets for Solar-Driven Photoelectrochemical Hydrogen Evolution  
Jong Hyun Lee, In Hye Kwak<sup>1</sup>, Ik Seon Kwon<sup>1</sup>, Jaemin Seo<sup>1</sup>, Doyeon Kim<sup>1</sup>, Doyeon Kim<sup>1</sup>, Jeunghye Park<sup>1</sup>  
*Department of Materials Chemistry, Advanced Materials Chemistry, Korea*  
<sup>1</sup>*Advanced Materials Chemistry, Korea University, Korea*

MAT.P-477 Phase Controlled Growth of Cd<sub>3</sub>As<sub>2</sub> Nanowires  
Kidong Park, Doyeon Kim, Jaemin Seo, Jong Hyun Lee, Jeunghye Park  
*Department of Advanced Material Chemistry, Korea*

*University, Korea*

MAT.P-478 Simple and Rapid Synthesis of Highly Efficient Cesium Lead Halide Perovskite Nanocrystals by Ultrasonication Method  
Lee Geonho, Sang Yoon Lee<sup>1</sup>, Seong Hyun Jang, Jun Choi  
*Human Convergence Technology R&D Department, Korea Institute of Industrial Technology, Korea*  
<sup>1</sup>*Human Convergence Technology R&D Department, Korea Institute of Industrial Technology(KITECH), Korea*

MAT.P-479 Enhancing n-type thermoelectric performance of polycrystalline SnSe by PbSe alloying and Halogen doping  
Sejin Byun, Chung In<sup>1,\*</sup>  
*Chemical and biological engineering, Seoul National University, Korea*  
<sup>1</sup>*School of Chemical & Biological Engineering, Seoul National University, Korea*

MAT.P-480 Investigation of the structural and optoelectronic properties of Ga<sub>2</sub>S<sub>3</sub> Nanowires.  
Jaemin Seo, Kidong Park<sup>1</sup>, Doyeon Kim<sup>2</sup>, In Hye Kwak<sup>3</sup>, Ik Seon Kwon<sup>2</sup>, Jong Hyun Lee<sup>2</sup>, Jeunghye Park  
*Department of Materials Chemistry, Korea University, Korea*  
<sup>1</sup>*Department of Advanced Material Chemistry, Korea University, Korea*  
<sup>2</sup>*Advanced Materials Chemistry, Korea University, Korea*  
<sup>3</sup>*Micro Device Engineering / Microdevices, Korea University, Korea*

MAT.P-481 Multiscale computational investigation of all-silica zeolites for simultaneous removal of H<sub>2</sub>S and CO<sub>2</sub> for natural gas upgrading  
Jaehoon Cha, Seongbin Ga, Yongchul Chung  
*Chemical & Biomolecular Engineering, Pusan National University, Korea*

MAT.P-482 Observing extending PL lifetime by raising temperature of organic-inorganic hybrid perovskite materials via TCSPC lifetime measurement  
Dawoon Kim, Chung In<sup>1,\*</sup>  
*School of Chemical and Biological Engineering, Seoul National University, Korea*  
<sup>1</sup>*School of Chemical & Biological Engineering, Seoul National University, Korea*

MAT.P-483 Thermoelectric Properties of Chromium-doped Cu-Sn-S Compound  
Sujin Kim, Sung-Jin Kim<sup>1,\*</sup>  
*Nano chemistry, Ewha Womans University, Korea*  
<sup>1</sup>*Department of Chemistry, Ewha Womans University, Korea*

MAT.P-484 Plasmon-Induced polymerization of Poly(Acrylic acid) on Gold Nanoparticles  
Jeonghyeon Lee, Youngsoo Kim, Hyeonji Kim  
*Department of Chemistry, Yeungnam University, Korea*



MAT.P-485

Particle Size-Dependent Electron Transfer Kinetics on Plasmonic Au Photocatalyst

Donghee Kim, Youngsoo Kim<sup>1,\*</sup>

*Department of Chemistry, Yeungnam university, Korea*

<sup>1</sup>*Department of Chemistry, Yeungnam University, Korea*

MAT.P-486

Plasmon-Induced Intramolecular Carbon-Carbon Bond Formation with Au Nanoparticles

Juhee Ha, Youngsoo Kim

*Department of Chemistry, Yeungnam University, Korea*

MAT.P-487

Hot Electron Transfer Kinetics in Aggregation-Induced Space of Gold Nanoparticles

Jueun Bae, Youngsoo Kim

*Department of Chemistry, Yeungnam University, Korea*

MAT.P-488

**[Withdrawal]** High stability Li-halide based  $\text{Li}_3\text{MCl}_6$  electrolyte with high ionic conductivity for all-solid-state batteries

Sunggeun Lee, Myoungcho Pyo<sup>1,\*</sup>

*Department of Printed Electronics Engineering, Suncheon National University, Korea*

<sup>1</sup>*Department of Printed Electronics Engineering, Suncheon National University, Korea*

MAT.P-489

Visible-Light-Promoted Intramolecular C-N Bond Formation Using Plasmonic Au and Au@Pd Core-Shell Nanoparticles

Hyeonji Kim, Youngsoo Kim

*Department of Chemistry, Yeungnam University, Korea*

MAT.P-490

Realizing Exceptionally High Average Power Factor and Thermoelectric Figure of Merit in n-type PbSe by Dual Incorporation of Cu and Te

Zhou Chongjian, Chung In<sup>1,\*</sup>

*Chemical and biological engineering, Seoul National University, Korea*

<sup>1</sup>*School of Chemical & Biological Engineering, Seoul National University, Korea*

MAT.P-491

New 2D Metallic ZnSb with High Carrier Mobility from 3D Semiconducting ZnSb

Weiqun Lu, Chung In<sup>1,\*</sup>

*Department of Chemical and Biological Engineering, Seoul National University, Korea*

<sup>1</sup>*School of Chemical & Biological Engineering, Seoul National University, Korea*

MAT.P-492

High Voltage Dendrite-free Lithium Metal Battery Electrolyte Utilizing Adiponitrile Single Solvent and  $\text{NO}_2\text{BF}_4$  as Electrolyte Additive

Manasi Mwemezi

*Printed electronics, Suncheon National University, Korea*

MAT.P-493

Enhancing p-type thermoelectric properties of polycrystalline  $\text{Bi}_2\text{Te}_3$ -based materials via MnTe<sub>2</sub> incorporation

Hyungseok Lee, Chung In<sup>1,\*</sup>

*School of Chemical and Biological Engineering, Seoul National University, Korea*

<sup>1</sup>*School of Chemical & Biological Engineering, Seoul National University, Korea*

MAT.P-494

Ge/GeO<sub>2</sub>/RuO<sub>2</sub> nanocomposite as enhanced anode materials for Li ion Batteries

Jihye Koo, Seung-Min Paek<sup>1,\*</sup>

*department of chemistry, Kyungpook National University, Korea*

<sup>1</sup>*Department of Chemistry, Kyungpook National University, Korea*

MAT.P-495

Device Fabrication of Heterostructured TMDCs Formed by Selective Sulfurization Through Graphene Masks

Jaekwang Song, Byung Hee Hong

*Division of Chemistry, Seoul National University, Korea*

MAT.P-496

Blue light-emitting electrochemical cells based on ionic small molecules

Jino John, Youngson Choe<sup>1,\*</sup>

*Chemical Engineering, Pusan National University, India*

<sup>1</sup>*Pusan National University, Korea*

MAT.P-497

Green light-emitting electrochemical cells based on ionic small molecules

Archana Puthanveedu, Youngson Choe<sup>1,\*</sup>

*CHEMICAL ENGINEERING, PUSAN NATIONAL UNIVERSITY, India*

<sup>1</sup>*Pusan National University, Korea*

MAT.P-498

Highly selective sucrose detection using carbon nanotube based field effect transistor

Myeongsoon Lee<sup>\*</sup>, Don Kim

*Department of Chemistry, Pukyong National University, Korea*

MAT.P-499

Biomimetic Moth-Eye SiO<sub>2</sub> Pattern via Polystyrene Nano-Sphere Lithography for Enhancing Extrusion Efficiency

SeungJe Lee, Gang Yeol Yoo<sup>1</sup>, Woong Kim<sup>2</sup>, Young rag Do

*Department of Bionano Chemistry, Kookmin University, Korea*

<sup>1</sup>*Department of Advanced Materials Engineering, Korea University, Korea*

<sup>2</sup>*Division of Advanced Materials Engineering, Korea University, Korea*

MAT.P-500

Synthesis and instrumental characteristics of the selected Quinophthalone and Azopyridone derivatives renowned for yellow colorants

Soo-Yeon Yang

*Department of Chemical Engineering, Kyung Hee University Global Campus, Korea*

MAT.P-501

Facile Synthesis of Narrow-Band SrMgAl<sub>10</sub>O<sub>17</sub>:Eu,Mn Green Phosphors and Three-Package White LED Backlighting Applications and Photoluminescence Properties

Heejoon Kang, Keyong Nam Lee<sup>1</sup>, Young rag Do

*Department of Bionano Chemistry, Kookmin University,*

Korea

<sup>1</sup>Department of Chemistry, Kookmin University, Korea

MAT.P-502

Electrocatalytic properties of CoP<sub>2</sub>/Fe-CoP<sub>2</sub> yolk-shell nanoboxes for oxygen evolution reaction

Ganesan Vinoth, Jihye Son, Jinkwon Kim  
Department of Chemistry, Kongju National University, Korea

MAT.P-503

Synthesis of NiP<sub>2</sub> hollow nanostructures using Ni-BDC crystals as structural templates

Jihye Son, Chaeun Lee, Jinkwon Kim  
Department of Chemistry, Kongju National University, Korea

MAT.P-504

Investigation on doping dependent optical properties of N-carbon dots

Ahyun Lee, Jin-sil Choi  
Department of Chemical and Biological Engineering, Hanbat National University, Korea

MAT.P-505

Artificial enzyme: N doped carbon dots and their enzymatic properties depending on N degree

Sohee Yun, Jin-sil Choi  
Department of Chemical and Biological Engineering, Hanbat National University, Korea

- ELEC.P-506 Fabrication of a Size-gradient Structure of Porous Silicon for a Miniature Spectrometer Application  
Byoung-Yong Chang  
*Department of Chemistry, Pukyong National University, Korea*
- ELEC.P-507 MnO<sub>2</sub> and banana peel derived porous carbon composites for supercapacitors application  
Guijun Yang, Soo-Jin Park<sup>1,\*</sup>  
*Department of Chemistry, Inha University, China*  
<sup>1</sup>*Department of Chemistry, Inha University, Korea*
- ELEC.P-508 Synthesis of Li<sub>4</sub>Ti<sub>5</sub>O<sub>12</sub> anode materials with high specific capacity for lithium-ion batteries  
Guijun Yang, Soo-Jin Park<sup>1,\*</sup>  
*Department of Chemistry, Inha University, China*  
<sup>1</sup>*Department of Chemistry, Inha University, Korea*
- ELEC.P-509 Synthesis of carbon-based NiCo<sub>2</sub>O<sub>4</sub> as electrodes for an asymmetric supercapacitors  
Guijun Yang, Soo-Jin Park<sup>1,\*</sup>  
*Department of Chemistry, Inha University, China*  
<sup>1</sup>*Department of Chemistry, Inha University, Korea*
- ELEC.P-510 Role of Electrical Field for Transformation of Perovskite Quantum Dots Tracking through *In-situ* Spectroelectrochemical Tools  
ChaeHyun Lee, KyoungSoo Kim<sup>1</sup>, YeJi Shin, Donghoon Han<sup>1</sup>, Seog Joon Yoon  
*Department of Chemistry, Yeungnam University, Korea*  
<sup>1</sup>*Department of Chemistry, The Catholic University of Korea, Korea*
- ELEC.P-511 Ultra Compact Nanoporous Platinum Coating Improves Neural Recording  
Je Hyun Bae, Taek dong Chung<sup>1,\*</sup>  
*Graduate School of Analytical Science and Technology, Chungnam National University, Korea*  
<sup>1</sup>*Department of Chemistry, Seoul National University, Korea*
- ELEC.P-512 Flake size and porosity effects of activated graphene on the performance of silicon/activated graphene composites as lithium-ion battery anodes  
Youngseul Cho, Yuanzhe Piao  
*Program in Nano Science & Technology, Graduate School of Convergence Science and Technology, Seoul National University, Seoul, Republic of Korea, Korea*
- ELEC.P-513 An Oligonucleotide-based Electrochemical Sensor for Sensitive and Selective Detection of Silver(I)  
Kyoungsoo Kim, Je Hyun Bae<sup>1</sup>, Donghoon Han  
*Department of Chemistry, The Catholic University of Korea, Korea*
- ELEC.P-514 <sup>1</sup>*Graduate School of Analytical Science and Technology, Chungnam National University, Korea*
- ELEC.P-515 Supercapacitive behaviors of activated carbons derived from coffee grounds  
Ui-Won Lee, Soo-Jin Park  
*Department of Chemistry, Inha University, Korea*
- ELEC.P-516 Electrochromic properties of mixed Iron/Nickel hexacyanoferrate(III) thin films  
Young hee Jung, Yeong Il Kim<sup>1,\*</sup>  
*Research & development center, Adchro co.ltd, Korea*  
<sup>1</sup>*Department of Chemistry, Pukyong National University, Korea*
- ELEC.P-517 Preparation and characterization of rice husks based activated carbon for improving specific capacitance  
Ui-Won Lee, Soo-Jin Park  
*Department of Chemistry, Inha University, Korea*
- ELEC.P-518 Electrochemical performance of the mixed solid electrolyte (100-x)Li<sub>3</sub>Si<sub>1-x</sub>Li<sub>6</sub>PS<sub>5</sub>Cl<sub>x</sub>(x=0, 5, 10, 15 and 20) for all solid state lithium batteries  
Minho Park, Kwang Sun Ryu  
*Department of Chemistry, University of Ulsan, Korea*
- ELEC.P-519 Trimetallic double hydroxide nanosheets derived from graphene oxide for enhanced oxygen evolution reaction  
Jihyun Kim, Sunguk Noh, Jun Ho Shim  
*Department of Chemistry, Daegu University, Korea*
- ELEC.P-520 Trimetallic Co-M-Fe (M = Ni, Mn, Cu) catalysts for low overpotential water splitting  
Sujin Jo, Jun Ho Shim  
*Department of Chemistry, Daegu University, Korea*
- ELEC.P-521 Ca-doped CuS Counter Electrodes for High Efficiency Quantum Dot Sensitized Solar Cells  
Mohammed Panthakkal abdul muthalif, Youngson Choe<sup>1,\*</sup>  
*Chemical Engineering, Pusan National University, India*  
<sup>1</sup>*Pusan National University, Korea*
- ELEC.P-522 Spherical FeOF Nanoparticles Wrapped in Graphitic Carbon Derived from Maleopimaric Acid as a Cathode Material for Sodium-Ion Batteries  
Achmad Yanuar Maulana, Jongsik Kim  
*Department of Chemistry, Dong-A University, Korea*
- ELEC.P-523 Understanding of growth mechanism and photoelectrochemical activity of BiVO<sub>4</sub>/Bi<sub>2</sub>S<sub>3</sub>



nanowire composite

Changhyun Hong, Ki Min Nam  
*Department of Chemistry, Pusan National University, Korea*

ELEC.P-523

A Constant Phase Element at Nanoporous Electrodes

Je Hyun Bae  
*Graduate School of Analytical Science and Technology, Chungnam National University, Korea*

ELEC.P-524

Synthesis and Characterization of La-doped Pt/C nanocatalysts and Their Application towards the Oxygen Reduction Reaction

Jeonghyeon Kim, Sang-Il Choi<sup>1,\*</sup>  
*Chemistry, Kyungpook National University, Korea*  
<sup>1</sup>*Department of Chemistry, Kyungpook National University, Korea*

ELEC.P-525

Facile synthesis of iron-doped porous nickel pyrophosphate nanoparticles for high performance OER electrocatalyst and supercapacitor

Jeongmin Kang, Yuanzhe Piao  
*Graduate School of Convergence Science and Technol, Seoul National University, Korea*

ELEC.P-526

Preparation of TEMPOL Derivatives : Tempol-Adsorbed Li-TFSI Film for Fiber-Shaped Dye-Sensitized Solar Cell.

Myeonghwan Shin, Chuljin Ahn<sup>1,\*</sup>  
*Department of biology and chemistry, Changwon National University, Korea*  
<sup>1</sup>*Department of Biology and Chemistry, Changwon National University, Korea*

ELEC.P-527

Synthesis of Crumpled MoS<sub>2</sub>/N-Doped Carbon Nanosheets as Anode materials for Lithium-ion Batteries

Keunho Lee, Yuanzhe Piao<sup>1,\*</sup>  
*Graduate School of Convergence Science and Technology, Seoul National University, Seoul National University, Korea*  
<sup>1</sup>*Graduate School of Convergence Science and Technol, Seoul National University, Korea*

ELEC.P-528

Nanoelectrode as a light guide for photoelectrochemical imaging

Je Hyun Bae, Michael V. Mirkin<sup>1,\*</sup>  
*Graduate School of Analytical Science and Technology, Chungnam National University, Korea*  
<sup>1</sup>*Department of Chemistry and Biochemistry, Queens College, United States*

ELEC.P-529

Surface Charge Effects on Electron-Transfer in Chemically Not Modified Single Carbon Nanopore

Je Hyun Bae, Michael V. Mirkin<sup>1,\*</sup>  
*Graduate School of Analytical Science and Technology, Chungnam National University, Korea*  
<sup>1</sup>*Department of Chemistry and Biochemistry, Queens College, United States*

ELEC.P-530

Integrating Heteromixed Cu<sub>2</sub>O/CuO Photocathode Interface through a Hydrogen Treatment for Photoelectrochemical Hydrogen Evolution Reaction

Young Jun Seo, Soon Hyung Kang<sup>1,\*</sup>  
*Department of Chemistry Education, Chonnam National University, Korea*  
<sup>1</sup>*Department of Chemical Education, Chonnam National University, Korea*

ELEC.P-531

Homocysteine detection using multienzyme co-immobilized electrode

Jeon Sang hyeon, Ik-Soo Shin<sup>1,\*</sup>  
*Chemistry, Soongsil University, Korea*  
<sup>1</sup>*Information Communication, Materials, Korea*

ELEC.P-532

Increased Brightness and Efficiency of Light-emitting Electrochemical using Host-guest System

Do-hyeong Lee, Ik-Soo Shin<sup>1,\*</sup>  
*Chemistry, Soongsil University, Korea*  
<sup>1</sup>*Information Communication, Materials, Korea*

ELEC.P-533

Surface engineering of GaN for efficient water oxidation.

Maheswari Arunachalam, Soon Hyung Kang<sup>1,\*</sup>  
*Department of Chemistry, Chonnam National University, Korea*  
<sup>1</sup>*Department of Chemical Education, Chonnam National University, Korea*

EDU.P-534

The Effect of the Explanatory Method of Process Viewpoint on Scientific Concept Learning

Sungki Kim, Seounghey Paik<sup>1,\*</sup>

*Korea Institute for Curriculum and Evaluation, Korea*

*<sup>1</sup>Department of Chemical Education, Korea National University of Education, Korea*

EDU.P-535

Story about Education and Life Reflected in the Overseas Voluntary Activity of Science Education

JaeYoung Han<sup>\*</sup>, Sungmin Im<sup>1</sup>

*Department of Chemistry Education, Chungbuk National University, Korea*

*<sup>1</sup>Division of Science Education, Daegu University, Korea*

EDU.P-536

Activities to commemorate the 150th anniversary of Mendeleev's discovery of the periodic table of the chemical elements

Young Tae Kong

*Science Education, Chinju National University of Education, Korea*

EDU.P-537

A study on the contents of articles about chemical elements published in Hansung Sunbo newspaper

Young Tae Kong

*Science Education, Chinju National University of Education, Korea*

EDU.P-538

the Effects of Collaborative Problem-solving for Character Competence (CoProC) instruction model on Character Competence of Elementary School Students

Jaekyoung Jun, Geonu Kim, Jihun Park, Eugene Kang<sup>1</sup>, Jiaeng Park<sup>2</sup>, Jeonghee Nam<sup>2</sup>

*Department of Chemistry Education, Pusan National University, Korea*

*<sup>1</sup>Pusan National University, Korea*

*<sup>2</sup>Department of Chemical Education, Pusan National University, Korea*

EDU.P-539

The Impact of Negotiation-Based Self and Peer Assessment Activities on Science-Gifted Students' Science Writing and Multiple Representation

Eunbi Jo, Dojun Jung, Jeonghee Nam<sup>1,\*</sup>

*Department of Chemistry Education, Pusan National University, Korea*

*<sup>1</sup>Department of Chemical Education, Pusan National University, Korea*

EDU.P-540

Errors and Mistakes in Students' Research Reports at National Science Exhibition

Ju Ran Shin, HyunJu Park<sup>1,\*</sup>

*Department of Chemical Education, Chosun University, Korea*

*<sup>1</sup>Faculty of Science Education, Chosun University, Korea*

EDU.P-541

Excitation spectrum, nanoparticles, and their applications in cellular optical imaging

Sungjay Hong, Yanlu Zhao, Sungmoon Choi, Junhua Yu

*Department of Chemical Education, Seoul National University, Korea*

EDU.P-542

Applying Chemistry Knowledge to Arduino-Neutralization Titration

Pil-Kwang Oh, Seong-Joo Kang

*Department of Chemical Education, Korea National University of Education, Korea*

ENVR.P-543

Highly efficient perovskite solar cells with novel dopant-free polymeric hole transport material  
Dohyun Kim, Junwoo Lee, Kyoungwon Choi, Hae Un Kim, Taiho Park  
*Department of Chemical Engineering, Pohang University of Science and Technology, Korea*

ENVR.P-544

A study on the durability enhancement of PtCo/C in PEMFC cathode by including dissolved  $\text{Co}^{2+}$  capturing layer  
Youjin Lee, Kahyun Ham, Jaeyoung Lee<sup>1,\*</sup>  
*Gwangju Institute of Science and Technology, Korea*  
<sup>1</sup>*School of Earth Sciences and Environmental Enginee, Gwangju Institute of Science and Technology, Korea*

ENVR.P-545

Effects of metal oxide nanoparticles for thermally stable planar perovskite solar cells  
Kyoungwon Choi, Hae Un Kim, Dohyun Kim, Dasol Chung, Taiho Park  
*Chemical engineering, Pohang University of Science and Technology, Korea*

ENVR.P-546

Precursor Engineering by using the  $\text{PbI}_2$ -DMSO complex and Fabrication of Highly Efficient Perovskite Solar Cells.  
Seungjoo Lee, Kye Chun Nam<sup>1,\*</sup>, Nam Joong Jeon<sup>2,\*</sup>  
*chemistry, Chonnam National University, Korea*  
<sup>1</sup>*Department of Chemistry, Chonnam National University, Korea*  
<sup>2</sup>*Solar Energy Materials, Korea Research Institute of Chemical Technology, Korea*

ENVR.P-547

Application of Methanol-tolerant Pt Catalyst with Phosphorus-doped Carbon Layer on Direct Methanol Fuel Cell  
Jung-goo Choi, Kahyun Ham<sup>1</sup>, Jaeyoung Lee<sup>2,\*</sup>  
*School of Earth Sciences and Environmental Eng., Gwangju Institute of Science and Technology, Korea*  
<sup>1</sup>*Gwangju Institute of Science and Technology, Korea*  
<sup>2</sup>*School of Earth Sciences and Environmental Enginee, Gwangju Institute of Science and Technology, Korea*

ENVR.P-548

Moderate Oxophilic CoFe in Carbon Nanofiber for the Oxygen Evolution Reaction in Anion Exchange Membrane Water Electrolysis  
Sinwoo Kang, Kahyun Ham, Jaeyoung Lee  
*School of Earth Sciences and Environmental Engineering, Gwangju Institute of Science and Technology, Korea*

ENVR.P-549

Cobalt-Antimony Oxide for Oxygen Evolution Reaction in Anion Exchange Membrane Water Splitting  
Kahyun Ham, Jaeyoung Lee<sup>1,\*</sup>

*School of Earth Sciences and Environmental Engineering, Gwangju Institute of Science and Technology, Korea*  
<sup>1</sup>*School of Earth Sciences and Environmental Enginee, Gwangju Institute of Science and Technology, Korea*

ENVR.P-550

Development of a colorimetric detection method of chlorine dioxide ions using recyclable concave cubic gold nanoparticles  
Sujin Yoon, Yun Sik Nam<sup>1</sup>, Kang-Bong Lee<sup>2,\*</sup>  
*National Agenda Research Division, Korea Institute of Science and Technology, Korea*  
<sup>1</sup>*Advanced Analysis Center, Korea Institute of Science and Technology, Korea*  
<sup>2</sup>*Green City Technology Institute, Korea Institute of Science and Technology, Korea*

ENVR.P-551

Highly sensitive gas sensor using graphene doped with ZnO nanosheet for detection of  $\text{NO}_2$  gas  
Lee Soyoung, Yun Sik Nam<sup>1</sup>, Kang-Bong Lee<sup>2,\*</sup>  
*National Agenda Research Division, Korea Institute of Science and Technology, Korea*  
<sup>1</sup>*Advanced Analysis Center, Korea Institute of Science and Technology, Korea*  
<sup>2</sup>*Green City Technology Institute, Korea Institute of Science and Technology, Korea*

ENVR.P-552

Oxygen vacancy control on cerium oxide for mild photocatalytic oxidation  
Hoang Tran Bui, Wooyul Kim  
*Department of Chemical and Biological Engineering, Sookmyung Women's University, Korea*

ENVR.P-553

Modeling of mercury mass and isotopic transport by species in lake  
Hoin Lee, Sae Yun Kwon  
*Division of Environmental Science & Engineering, Pohang University of Science and Technology, Korea*