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**P1-1**  
Investigation of Trapezoidal Well for Improving the Light Efficiency in AlGaInP-based LEDs

Hwa Sub Oh1, Ki Chang Jung1, Sung Hoon Jung1, Tae Hoon Jung1, Young Jin Kim2, Hyung Joo Lee2, Young Dae Cho2, and Jong Hyeob Baek3  
1Korea Photonics Technology Institute, Korea, 2AUK Co., Korea

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Kil-Ju Na1, Gye-Choon Park2, Soon-Youl So2, Jin Lee2, Yang-June Jung2, Hyuk-Reol Park2, Chang-Dae Kim2, Yong-Jun Park2, and Richard S. Kim4  
1Mokpo Science University, Korea, 2Mokpo National University, Korea, 3Pohang Accelerator Laboratory, Korea, 4University of Dayton, USA

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Dae Hun Kim, Eun Im Koh, and Tae Whan Kim  
Hanyang University, Korea

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Seokhwan Son1, Doeun Kim1, Chanwoo Lee1, Cheehun Kwak1, Jihoon Lee2, Hogeun Ahn1, and Minchul Chung1  
1Sunchon National University, Korea, 2Korea National University of Transportation, Korea
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Seokhwan Son¹, Hwan Gyu Lee¹, Nopl Lee¹, Minwoo Ryu¹, Cheehun Kwak¹, Jihoon Lee², Hogeun Ahn¹, and Minchul Chung¹

¹Sunchon National University, Korea, ²Korea National University of Transportation, Korea

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Jaehyun Lee, Hwangyu Shin, and Jongwook Park
The Catholic University of Korea, Korea

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Jun Gyu Lee, Dong Chul Choo, Yo Han Bang, and Tae Whan Kim
Hanyang University, Korea

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Seungho Kim, Sunmi Lee, Beomjin Kim, Hwangyu Shin, and Jongwook Park
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Jeung pyo Oh¹, In Seok Choi², Eun Mi Kim³, and Gi-seok Heo³
¹Chonnam National University, Korea, ²DongShin University, Korea, ³Korea Institute of Industrial Technology, Korea
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Dongguk University, Korea

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Han Kyu Yoo1, Ho Won Lee1, Song Eun Lee1, Jae Woo Lee1, Yong Sun1, Gi Taek Oh3, Jae Seok Heo1, Eou Sik Cho3, Jaehoon Park2, and Young Kwan Kim1
1Hongik University, Korea, 2Hallym University, Korea, 3Gachon University, Korea

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Sungkyu Lee1, Ho Won Lee1, Song Eun Lee1, Jae Woo Lee1, Yong Sun1, Chanwoo Kim2, Seung Soo Yoon2, and Young Kwan Kim1
1Hongik University, Korea, 2Sungkyunkwan University, Korea

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Jeongwoo Hwang1,2, Jeong-Woo Choe2, Sang Jun Lee3, and Jae Cheol Shin4
1Korea Photonics Technology Institute, Korea, 2Kyung Hee university, Korea, 3Korea Research Institute of Standards and Science, Korea, 4Yeungnam University, Korea

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Wael Z. Tawfik\(^1\), Gilyong Hyeon\(^1\), Sangwan Ryu\(^1\), and June Key Lee\(^1\)  
\(^1\)Chonnam National University, Korea, \(^2\)Beni-Suef University, Egypt

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\(^1\)Gwangju Institute of Science and Technology, Korea, \(^2\)Nagoya University, Japan

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Tae-Won Ha\(^1\), Hyeon-Taek Jeong\(^1\), Byoung-Wook Lim\(^1\), Bum-Ho Choi\(^1\), Jin-Kyoung Oh\(^2\), Hyung-Jong Lee\(^3\), and Young-Baek Kim\(^1\)  
\(^1\)Korea Institute of Industrial Technology, Korea, \(^2\)P-CUBE, Korea, \(^3\)Chonnam National University, Korea

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1Korea Photonics Technology Institute, Korea, 2Chonnam National University, Korea

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Yong Hoon Choi, Young Pyo Jeon, Dong Chul Choo, and Tae Whan Kim
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Yo Han Bang, Dong Chul Choo, and Tae Whan Kim
Hanyang University, Korea
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Won-Bo Yang, Guen-Hwan Ryu, and Han-Youl Ryu

*Inha University, Korea*

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A. N. Khoroshun¹, A. V. Chernykh¹, A. N. Tsimbaluk², J. A. Kirichenko², P. V. Yezhov³, A. V. Kuzmenko³, and J. T. Kim³

¹East-Ukrainian National University, Ukraine, ²National Academy of Science of Ukraine, Ukraine, ³Chosun University, Korea

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Tae Kyoung Kim, Yu Lim Lee, Seung Kyu Oh, and Joon Seop Kwak

*Sunchon National University, Korea*

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Seung Hyun Park¹,², Yoon Seok Kim¹, Tae Hoon², and Sang Wan Ryu³

¹Korea Photonics Technology Institute, Korea, ²Lumimicro Co. Ltd., Korea, ³Chonnam National University, Korea

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Yu Seong Lee¹,², Changhun Yun¹, Ki Hyun Kim¹, Wan Ho Kim¹, Sie-wook Jeon¹, Jun Key Lee², and Jae Pil Kim³

¹Korea Photonics Technology Institute, Korea, ²Chonnam National University, Korea
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Seung-Jong Oh¹, Doo-Hyung Kim¹, Jong-Hyun Jeon¹,², Ja-Yeon Kim², and Min-Ki Kwon¹

¹Chosun University, Korea, ²Korea Photonics Technology Institute, Korea

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Quinton Rice¹, Anderson Hayes¹, Andrew Wang², William Yu³, Wan-Joong Kim⁴, Sungsoo Jung⁵, and Jaetae Seo¹

¹Hampton University, USA, ²Louisiana State University, USA, ³Ocean NanoTech, USA, ⁴Electronics and Telecommunications Research Institute, Korea, ⁵Korea Research Institute of Standards and Science, Korea

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Anderson Hayes¹, Quinton Rice¹, Wan-Joong Kim², Sungsoo Jung³, and Jaetae Seo¹

¹Hampton University, USA, ²Electronics and Telecommunications Research Institute, Korea, ³Korea Research Institute of Standards and Science, Korea

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Gye-Choon Park¹, Soon-Youl So¹, Jin Lee¹, Kil-Ju Na², Yong-Jun Park³, and Richard S. Kim⁴

¹Mokpo National University, Korea, ²Mokpo Science College, Korea, ³Pohang Accelerator Laboratory, Korea, ⁴University of Dayton, USA
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$^1$Mokpo National University, Korea, $^2$Mokpo Science College, Korea, $^3$Pohang Accelerator Laboratory, Korea, $^4$University of Dayton, USA

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Dongwoo Shin$^1$, Dong Hyun Chun$^2$, Heon Jung$^2$, Mijong Kim$^1$, Hyunjoon Song$^1$, and Ji Chan Park$^2$
$^1$Korea Advanced Institute of Science and Technology, Korea, $^2$Korea Institute of Energy Research, Korea

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Sun-Woo Yang$^1$, Min-Young Kim$^1$, Moo-Sung Lee$^2$, and Ho-Sung Kim$^1$
$^1$Korea Institute of Industrial Technology, Korea, $^2$Chonnam National University, Korea

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Hyeon-Jong Jeon$^1$, Min-Young Kim$^1$, Moo-Sung Lee$^2$, and Ho-Sung Kim$^1$
$^1$Korea Institute of Industrial Technology, Korea, $^2$Chonnam National University, Korea
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Dong Hyun Chun¹, Ji Chan Park¹, Geun Bae Rhim¹, Ho-Tae Lee¹, Jung-II Yang¹, SungJun Hong¹, and Heon Jung¹  
¹*Korea Institute of Energy Research, Korea, ²Chungnam National University, Korea*

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¹*Korea Institute of Energy Research, Korea, ²Korea University, Korea*

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Geun Bae Rhim¹,², Seok Yong Hong¹, Ji Chan Park¹,², Heon Jung¹, Young Woo Rhee², and Dong Hyun Chun¹  
¹*Korea Institute of Energy Research, Korea, ²Chungnam National University, Korea*
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Seunghyun Ko\textsuperscript{1,2}, Soon Chang Lee\textsuperscript{3}, Sungho Jang\textsuperscript{1,4}, Chul Wee Lee\textsuperscript{1,2}, and Ji Sun Im\textsuperscript{1,2}

\textsuperscript{1}Korea Research Institute of Chemical Technology, Korea, \textsuperscript{2}University of Science and Technology, Korea, \textsuperscript{3}Chungnam National University, Korea, \textsuperscript{4}Chungbuk National University, Korea

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Young-Sung Seo, Seong-Min Kim, and Hyo-Jin Kim

Korea Photonics Technology Institute, Korea

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Hyo Jin Kim, Young Sung Seo, and Seong Min Kim

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Ho Chang\textsuperscript{1}, Mu-Jung Kao\textsuperscript{2}, and Xuan-Rong Lai\textsuperscript{1}

\textsuperscript{1}National Taipei University of Technology, Taiwan, \textsuperscript{2}National Taiwan Normal University, Taiwan
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Kangwon National University, Korea

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Kyoung-Su Ha, Hae-Gu Park1,2, Gyu-In Jung2, Tae-Wan Kim2, and Jinwon Lee1
1Sogang University, Korea, 2Korea Research Institute of Chemical Technology, Korea

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Woohyoung Lee and Cheolhyun Lim
Green Energy Institute, Korea
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**P1-57 Performance of Microbial Fuel Cell with Layer-by-Layer Self-Assembled Carbon Nanotube Electrode**

Sung-Hee Roh¹ and Joon-Ho Hong²  
¹Chosun University, Korea, ²Jeonnan Nano Bio Center, Korea

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K. S. Jeon¹², J. H. Sung¹, M. W. Lee¹, H. W. Song¹, H. Y. Shin¹, W. H. Park¹, Y. I. Jang¹, M. G. Kang¹, Y. H. Choi¹, J. S. Lee¹, D. H. Ko², and H. Y. Ryu³  
¹LG Electronics, Korea, ²Yonsei University, Korea, ³Inha University, Korea

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Sang Yong Ahn¹, Sang-Chai Kim², and Ho-Young Jung³  
¹Korea Special Battery, Korea, ²Mokpo University, Korea, ³Chonnam National University, Korea

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Dong-Cheon Kang¹², Woo-hyung Lee¹, Kwang-il Choi³, Suk-Ho Lee¹, and Cheolhyun Lim¹  
¹Green Energy Institute, Korea, ²Chonnam National University, Korea

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Kyul Ko, Abu ul Hassan Rana, Mingi Kang, Eunseon Jeong, and Hyun-Seok Kim  
Dongguk University, Korea
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*Gwangju Institute of Science and Technology, Korea*

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Jin Hoo Park¹, Sang Su Lee¹, Sung Jong Yoo², Kee Suk Nahm¹, and Pil Kim¹  
¹Chonbuk National University, Korea, ²Korea Institute of Science and Technology, Korea
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Jung-Hun Kim\(^1\), Tae-Young Kim\(^2\), Kyung-Hee Park\(^3\), and Jae-Wook Lee\(^1\)  
\(^1\)Chosun University, Korea, \(^2\)Chonnam National University, Korea

Kyung Hee Park\(^1\), Seok Jae Kim\(^2\), Gil-Ha Jeong\(^3\), and Eun-Mi Han\(^3\)  
\(^1\)Chosun University, Korea, \(^2\)Chonnam National University, Korea

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Sun-Young Kim, Sang-Hoon Cho, Jin-Su Ko, Ki-Sub Kim, and Jeong Won Kang  
Korea National University of Transportation, Korea

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Bo-Ram Kang, Dong-Ki Kim, and In-Jin Shon  
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P1-72 The Formation of Nano-sized Grains in Copper Alloys by Severe Plastic Deformation Process

Cha-Yong Lim¹, Hyoung-Wook Kim¹, and Seong-Hee Lee²
¹Korea Institute of Materials Science, Korea. ²Mokpo National University, Korea

P1-73 Effect of Heat Treatment on Microstructures and Mechanical Properties of Severe Plastically Deformed Hypo · Hyper Eutectoid Steels by Caliber Rolling Process

Shin-Cheon Yun¹, Kyu-Sik Kim¹, Hyun-Jin Kim², Chul-Min Bae², and Kee-Ahn Lee¹
¹Andong National University, Korea, ²POSCO, Korea

P1-74 Synthesis Process of Copper/Graphene Nanocomposite by the Liquid Phase Plasma Reduction Method

Sang-Chai Kim¹, Young-Kwon Park², Minchul Chung³, Ho-Geun Ahn³, Heon Lee³, and Sang-Chul Jung³
¹Mokpo National University, Korea, ²University of Seoul, Korea, ³Sunchon National University, Korea

P1-75 Study on the Low-temperature Forming Processes of the Gas-atomized Cu-In-Ga Alloy Powder

Hyeon-Taek Son, Yong-Ho Kim, and Hyo-Sang Yu
Korea Institute of Industrial Technology, Korea

P1-76 Mechanical Properties and Fracture Behaviors of the As-extruded Mg-5Al-3Ca Alloys Containing REs at Elevated Temperature

Hyeon-Taek Son and Yong-Ho Kim
Korea Institute of Industrial Technology, Korea
[P1] Poster 1

**Date & Time**  
November 6, 2014 (Thursday) / 12:50-14:20

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**P1-77**  
Effect of Fine Precipitates on Mechanical Properties of Li Addition Mg Alloys

Yong-Ho Kim, Jung-Han Kim, Hyo-Sang Yoo, Joeng-Won Choi, and Hyeon-Taek Son  
*Korea Institute of Industrial Technology, Korea*

**P1-78**  
Self-Assembly of Nanowires from CdTe Nanoparticles Solution under Dark Condition

Hyun Jung Choi, Yea Eun Lee, Jeong Won Kang, and Ki-Sub Kim  
*Korea National University of Transportation, Korea*

**P1-79**  
Effects of Doping Profiles and Structural Variations on the Cell-to-cell Interferences of Vertical NAND Flash Memories

Dong Hun Kim, Kyoung Wook Koh, and Tae Whan Kim  
*Hanyang University, Korea*

**P1-80**  
Electrical Characteristics of the Multi Bit Flash Memories Fabricated Utilizing FinFET Structure Dependent on an Asymmetrical Series of Selective Doping Profiles

Joonsung Ahn, Dong Hun Kim, and Tae Whan Kim  
*Hanyang University, Korea*

**P1-81**  
Reliability Degeneration Mechanisms of the 20-nm Flash Memories due to the Word line stress

Hyun Soo Jung, Ju Tae Ryu, and Tae Whan Kim  
*Hanyang University, Korea*
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P1-82 Enhancement of Upconversion Luminescence of $\text{Y}_2\text{O}_3$:Er$^{3+}$ Nanophosphors by Co-doping Yb$^{3+}$

Hyeon Mi Noh$^1$, Byung Kee Moon$^1$, Jung Hyun Jeong$^1$, and Jung Hwan Kim$^2$

$^1$Pukyong National University, Korea, $^2$Dongeui University, Korea

P1-83 Preparation and Investigation of Sr$_3$Y(PO$_4$)$_3$:Dy$^{3+}$ Single-phase Full-color Phosphor

Yeon Woo Seo$^1$, Byung Kee Moon$^1$, Jung Hyun Jeong$^1$, and Jung Hwan Kim$^2$

$^1$Pukyong National University, Korea, $^2$Dongeui University, Korea

P1-84 Synthesis, Crystal Structure and Luminescence Characteristics of SrLaMgTaO$_6$:Dy$^{3+}$/Eu$^{3+}$ Phosphors for White Light-emitting

Guo Yue$^1$, Hyeon Mi Noh$^1$, Byung Kee Moon$^1$, Jung Hyun Jeong$^1$, and Jung Hwan Kim$^2$

$^1$Pukyong National University, Korea, $^2$Dongeui University, Korea

P1-85 Synthesis and Photoluminescence Properties of Spindle radial Sr$_2$CaMoO$_6$:Eu$^{3+}$ phosphors by High-Energy Ball Milling and Solid State Reaction

Lili Wang$^1$, Hyeon Mi Noh$^1$, Byung Kee Moon$^1$, Jung Hyun Jeong$^1$, and Jung Hwan Kim$^2$

$^1$Pukyong National University, Korea, $^2$Dongeui University, Korea

P1-87 Nano-microstructure and Mechanical Strength of F-class and C-class Fly Ash Based Geopolymer

Ji Hwan Won and Seung-Gu Kang

Kyonggi University, Korea
# [P1] Poster 1

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## P1-88 The Structural Characteristics of ZnO Nanorods Grown on PES Substrate

Hyunmin Lee, Jaeheon Ock, Sanghyun Kim, Nakwon Jang, and HongSeung Kim  
*Korea Maritime and Ocean University, Korea*

## P1-89 Mixed-solvent Effect on the Nanostructure and Interface of Poly(3-hexylthiophene):fullerene Layer with an Aluminum Electrode

Hyun Hwi Lee¹ and Hyo Jung Kim²  
¹*Pohang Accelerator Laboratory, Korea, ²Pusan National University, Korea*

## P1-90 The Effect of Buffer Layer for ZnO Nanorods on PES Substrate

Jaeheon Ock, Hyunmin Lee, Sanghyun Kim, Nakwon Jang, and HongSeung Kim  
*Korea Maritime and Ocean University, Korea*

## P1-91 The Nano-scale Microstructure and Thermal Properties of ZnO/low Melting Glass Composite for LED Packaging

Jimin Kang and Seunggu Kang  
*Kyonggi University, Korea*

## P1-92 Nucleation Temperature Effect on Crystallization Mechanism and Thermal Properties of Nano Glass-Ceramics of CaO-MgO-SiO₂-(TiO₂) Glass System

Sang-Won Lee and Seung-gu Kang  
*Kyonggi University, Korea*

## P1-93 3D Porous Structured LiFePO₄ Cathode Material For Lithium Ion Batteries

M. Jeevan Kumar Reddy, A. M. Shanmugharaj, and Sung Hun Ryu  
*Kyung Hee University, Korea*
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P1-94 The Effect of CuO Addition on the Nano Crystallization Behavior of Diopside Glass Ceramic

Soobin Park and Seunggu Kang
*Kyonggi University, Korea*

P1-95 Production and Characterization of Nickel-based Heterogeneous Catalyst Supported on SiC-Al2O3 Beads with a Nanowire Structure

S. J. Lim, Dong Ju Moon, and Sang Woo Kim
*Korea Institute of Science and Technology, Korea*

P1-97 Influence of Si Addition on Quenching Sensitivity and Formation of Nano-precipitate in Al-Mg-Si Alloys

JaeHwang Kim1, Minoru Hayashi2, Equo Kobayashi1, and Tatsuo Sato1
1*Tokyo Institute of Technology, Japan, 2UACJ, Japan*

P1-98 Preparation and Evaluation of a Supported Catalyst for Glycerol Steam Reforming

Daeil Park1, Changwook Lee1, Dong Ju Moon2, and Taegyu Kim1
1*Chosun University, Korea, 2Korea Institute of Science and Technology, Korea*

P1-99 Fabrication of Metal Assisted Nano-texturing of Silicon Surfaces for Solar Cell Applications

Cheol-Hyun Lim1, Su-Wung Baek1,2, Jin-Ho Song1, Jun-Young Kwon1, and Suk-Ho Lee1
1*Green Energy Institute, Korea, 2Chonbuk National University, Korea*
P1-101 Synthesis of 3D Hierarchically Hollowed Electrospun TiO$_2$ Nanofibers
Kwang-il$^{1,2}$, Woohyoung Lee$^1$, Suk-Ho Lee$^1$, and Cheolhyun Lim$^1$
$^1$Green Energy Institute, Korea, $^2$Chonnam National University, Korea

P1-102 Comparison Study of HF and NaOH as Etchants Forming 3D Hierarchically Hollowed TiO$_2$ Nanofibers
Kwang-il$^{1,2}$, Woohyoung Lee$^1$, Sukho Lee$^1$, and Cheolhyun Lim$^1$
$^1$Green Energy Institute, Korea, $^2$Chonnam National University, Korea

P1-103 Control of Handedness with Helical Silica Nanotubes
Jong Sung Jin$^1$, Do Yeon Kim$^1$, Cha Young Oh$^2$, and Tae Kyu Kim$^3$
$^1$Korea Basic Science Institute, Korea, $^2$Korea Institute of Footwear and Leather Technology, Korea, $^3$Dongkuk R&S, Korea

P1-104 Synthesis and Consolidation of Nano-sized Cu Coated SiC Powders by a Chemical Method and Spark Plasma Sintering
Young-Keun Jeong$^1$, Su-Ryong Bang$^2$, and Sung-Tag Oh$^2$
$^1$Pusan National University, Korea, $^2$Seoul National University of Science and Technology, Korea

Young-Min Han, Yoen-Ku Kim, and Choong-Hwan Jung
Korea Atomic Energy Research Institute, Korea

P1-106 Nanoscale Inertial Sensor Based on Graphite-Flake with Self-Retracting Motion
Sang-Hoon Cho, Sun-Young Kim, Jin-Su Ko, Ki-Sub Kim, and Jeong Won Kang
Korea National University of Transportation, Korea
## [P1] Poster 1

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### P1-107

**A Study on the Microstructure of CaTiO3 Perovskite Made by Combustion Synthesis for High-level Waste Ceramic Form**

Yeon-Ku Kim and Choong-Hwan Jung  
*Korea Atomic Energy Research Institute, Korea*

### P1-108

**Synthesis and CO Gas Sensing Performances of WO3-core/SnO2-shell Heterostructure Nanorod Sensors**

Sunghoon Park, Soohyun Kim, Gun-Joo Sun, and Chongmu Lee  
*Inha University, Korea*

### P1-109

**Fabrication, Structure and Hydrogen Gas Sensing Properties of Multiple Networked GaN Nanostructure Gas Sensors**

Sunghoon Park, Soohyun Kim, Suyoung Park, and Chongmu Lee  
*Inha University, Korea*

### P1-110

**The Relations between the Mechanical Properties and the Nano Crystalline in Chalcogenide Glass System**

Ju H. Choi¹, Du Hwan Cha¹, Jeong-Ho Kim¹, Jun Ho Lee², Yong Gyu Choi², and Hye-Jeong Kim¹  
¹*Korea Photonics Technology Institute, Korea*, ²*Korea Aerospace University, Korea*

### P1-111

**Alignment of One-Dimensional SnO2 Lines by Electrohydrodynamic Jet Printing**

Hannah Choi¹,², Hyunsung Jung¹, Duck-kyun Choi², and Chang-Yeoul Kim¹  
¹*Korea Institute of Ceramic Engineering and Technology, Korea*, ²*Hanyang University, Korea*
ICNST 2014

International Conference on Nano Science and Nano Technology

November 6-7, 2014 / Mokpo National University, Muan, Korea

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P1-112 Synthesis of Zirconia Nanoparticles by Precipitation and Urea Hydrolysis
Jaehong Kim, Kyu Hong Hwang, and Jong Kook Lee
1Chosun University, Korea, 2Gyeongsang National University, Korea

P1-113 Fabrication of Wollastonite Bioceramics Coatings on Zirconia by Room Temperature Spray Process
Sangcheol Eum, Dasom Ham, and Jong Kook Lee
Chosun University, Korea

P1-114 Effect of Ca Addition on Microstructure and Mechanical properties of Mg-11Li-3Zn-1Sn-0.4Mn Based Alloys
Jung-Han Kim, Yong-Ho Kim, Hyo-Sang Yoo, Hyeon-Taek Son, and Seong-Hee Lee
1Korea Institute of Industrial Technology, Korea, 2Mokpo National University, Korea

P1-115 Effect of Li Addition on Microstructure and Mechanical Properties of Mg-Zn-Zr-Ag-Ca Based Alloys
Hyo-Sang Yoo, Yong-Ho Kim, Jung-Han Kim, Hyeon-Taek Son, and Seong-Hee Lee
1Korea Institute of Industrial Technology, Korea, 2Mokpo National University, Korea

P1-116 Microstructural Evolution of a Nanostructured Complex Copper Alloy Processed by ARB of OFC and DLP
Seong-Hee Lee, Seong Ro Lee, and Cha-Yong Lim
1Mokpo National University, Korea, 2Korea Institute of Materials Science, Korea
[P1] Poster 1

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P1-117  Effect of Al₂O₃ Buffer Layer in Mo-Al-Mo Auxiliary Electrode on Wet Etching Characteristics for the Application to Large-area Organic Light-emitting Diodes

Jae Seok An, Ha Jun Jang, Cheol Young Park, Jong Ho Lee, and Bum Ho Choi
Korea Institute of Industrial Technology, Korea

P1-118  Growth Behavior of Cobalt Layer Prepared by using Atomic Layer Deposition Technology

Ha Jun Jang, Jae Seok An, Cheol Young Park, Bum Ho Choi, and Jong Ho Lee
Korea Institute of Industrial Technology, Korea

P1-119  Preparation of SiO₂ Insulator Layer at Extremely Low Pressure by using Plasma Enhanced Chemical Vapor Deposition System

Cheol Young Park, Ha Jun Jang, Jae Seok An, Jong Ho Lee, and Bum Ho Choi
Korea Institute of Industrial Technology, Korea

P1-120  Memory Margin Enhancement due to Embedded Au Nanoparticles in Resistive Switching Memory Devices Fabricated Utilizing Cu₂O Thin Films

Dohyun Oh, Dong Yeol Yun, Nam Hyun Lee, and Tae Whan Kim
Hanyang University, Korea

P1-121  Ar and Oxygen Ratio Effect on Electrical Performance of NiO Doped Indium Zinc Oxide (NIZO) Thin Films

Byung-Wook Lim¹², Young-Baek Kim², Hyeon-Taek Jung², Tae-Won Ha², Gi-Seok Heo², Eun Mi Kim², Bum-Ho Choi², Young-Jun Lee¹, and Joo-Hyung Kim¹

¹Inha University, Korea, ²Korea Institute of Industrial Technology, Korea
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P1-122 Effect of Infiltration with Ferric Oxide-Containing Glass on the Color and Strength of Zirconia  
Kyoung jun Jang, Gye jeong Oh, Hyun-pil Lim, Kwi dug Yun, John G. Fisher, Min kyung Ji, Ji hyun Kim, and Sang won Park  
Chonnam National University, Korea

P1-123 Core-shell Particles Prepared with Ion Compound-added Polymer for a Fluidized Bed Electrode  
Eun-Hee Kim, Geun-Ho Cho, Jung Li, and Yeon-Gil Jung  
Changwon National University, Korea

P1-124 Microstructure Changes of Copper Nano Particles via Polymer Solution and Reduction Processes  
Young-Min Han¹, Choong-Hwan Jung¹, and Sang-Jin Lee²  
¹Korea Atomic Energy Research Institute, Korea, ²Mokpo National University, Korea

P1-125 Electromagnetic Properties of Y Based Ceramics Oxides  
Sang-Heon Lee¹ and Yong Choi²  
¹Sunmoon University, Korea, ²Dankook University, Korea

P1-126 Structural and Optical Properties of MoS₂ Atomic Layers Grown by Chemical Vapor Deposition  
Doo-Hyung Kim¹, Seung-Jong Oh¹, Jong-Hyun Jeon¹², Ja-Yeon Kim² and Min-Ki Kwon¹  
¹Chosun University, Korea, ²Korea Photonics Technology Institute, Korea
[P1] Poster 1

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P1-127 Growth and Characterization of GaN and AlGaN Quantum Dots by Metal Organic Chemical Vapor Deposition
Seong-Ran Jeon, Young Ho Song, and Jae Bum Kim
Korea Photonics Technology Institute, Korea

P1-128 Characteristics of One, Two and Three Component, Nano-Scale Titanate Powders Prepared from Polymer Solution Technique
Choong-Il Ma and Sang-Jin Lee
Mokpo National University, Korea

P1-129 Phase Transformation of Nano-sized FePt Particles through the Mixed-gas Thermal-Nitrogenization
Young-Woo Oh and Moon-Su Park
Kyungnam University, Korea

P1-130 Photoluminescence of Vanadate Garnet Ca$_2$NaMg$_{2-x}$V$_{3}$O$_{12}$:xEu$^{3+}$ Phosphors Synthesized by Solution Combustion Method
H. Kim, D. A. Hakeem, J. S. Cha, and K. Park
Sejong University, Korea

P1-131 Synthesis and Sensing Application of Poly(tetraphenylsilole) Siloxane Nanoaggregates
Sung Gi Lee and Honglae Sohn
Chosun University, Korea
[P1] Poster 1

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P1-132 Reliability and Bending Properties of ITO/Ag NW/ITO Flexible Substrate for OLED Device Application

Woo-Jin Yeon, Yong-Taeg Oh, Ki-Hyun Kim, Eun-Sun Kim, and Dong-Chan Shin  
Chosun University, Korea

P1-133 Crystallization of Alq3 via Imidazolium Based Ionic Liquids

Yong-Taeg Oh, Ki-Hyun Kim, Eun-Sun Kim, Woo-Jin Yeon, and Dong-Chan Shin  
Chosun University, Korea

P1-135 The Surface Characteristics of Bioactive Glass Infiltrated Zirconia with Different Hydrofluoric Acid Etching Conditions

1Chonnam National University, Korea, 2R&D Center for Titanium and Special Alloys, Korea
[TC] Next Generation Nano Photonics

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**Session Chair:** Joon Seop Kwak (Sunchon Nat’l Univ.), June Key Lee (Chonnam Nat’l Univ.)

**TC-1 14:30-14:50** [Invited] Inorganic/Organic Hybrid Solar Cells Employing Nanocrystalline Semiconductors and Organic Hole Conductors

Sang Il Seok  
*Korea Research Institute of Chemical Technology, Korea*

**TC-2 14:50-15:10** [Invited] Nanophotonics for Optical Antenna and Transparent Electrode

Seong-II Kim  
*Korea Institute of Science and Technology, Korea*

**TC-3 15:10-15:20** Tunneling Characteristics Depending on Schottky Barriers and Diffusion Current in TFTs

Teresa Oh  
*Cheongju University*

**TC-4 15:20-15:30** Surface Plasmon Resonance of Gamma-ray Irradiated Optical Fiber Incorporated with Au Nano-particles in Cladding

Seongmin Ju¹, Seongmook Jeong¹, Youngwoong Kim¹, Sang-Hyun Lee¹, Hyejeong Jeong², Seongjae Boo², and Won-Taek Han²  
¹Gwangju Institute of Science and Technology, Korea, ²Korea Institute of Industrial Technology, Korea
[TD] Nano Energy 1

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Session Chair:

TD-1  14:30-14:50  [Invited] Development of New OPV Photoactive Materials and Large-area OPV Devices through Solution/printing Process

Sang-Jin Moon
Korea Research Institute of Chemical Technology, Korea


Nam-Gyu Park
Sungkyunkwan University, Korea

TD-3  15:10-15:30  [Invited] Nanocarbon-Based Hybrid Materials and Their Application Technologies

Geon-Woong Lee and Eun-Dong Kim
Korea Electrotechnology Research Institute, Korea
[TE] Nano Structure 1

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Session Chair:

**TE-1 14:30-14:50** [Invited] Elucidation of Formation Mechanisms of Pyrite (FeS₂) Nano-crystals via Colloidal Route

Hong Tak Kim, Thao Phuong Ngoc Nguyen, Chang Duk Kim, and Chinho Park
Yeungnam University, Korea

**TE-2 14:50-15:00** Effect of Cryomilling on the Long-term High-temperature Oxidation Property of Nano-structured Oxide Dispersion Strengthened Alloys

Jin-han Gwon¹, Jeoung-han Kim², and Kee-ahn Lee¹
¹Andong National University, Korea, ²Hanbat National University, Korea

**TE-3 15:00-15:10** Surface Nanocrystalline and Hardening Effects of Ti–Al–V Alloy by Electropulsing Ultrasonic Shock

Xiaoxin Ye and Guoyi Tang
Tsinghua University, China

**TE-4 15:10-15:20** Graphene Transfer Technique for Ultrathin Graphene Membrane TEM Grid

Yong Bok Lee, Kiwoon Choi, Heejun Jang, Su Hyeon Lee, Jae Hoon Jung, Sung Woo Park, and Chi Won Ahn
National NanoFab Center, Korea
**TF** Graphene and Carbon

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**Session Chair:** Sung-Yong Chun (Mokpo Nat’l Univ.)

**TF-1 14:30-14:50**  
Hee Dong Jang¹, Sun Kyung Kim¹,², Hankwon Chang¹, Ki-Min Roh¹, Jiwoong Kim¹, Jeong-Woo Choi², and Jiaxing Huang³  
¹Korea Institute of Geoscience and Mineral Resources, Korea, ²Sogang University, Korea, ³Northwestern University, USA

**TF-2 14:50-15:10**  
[Invited] Nanoscale Graphene Oxidized and Hydrogenated using AFM Lithography  
Bae Ho Park  
Konkuk University, Korea

**TF-3 15:10-15:30**  
[Invited] Structural and Electrochemical Characteristics of Biomass Based Carbon Nanospheres as Anode Materials in Lithium Ion Batteries  
Arenst Andreas Arie¹, Hans Kristianto¹, Ratna Frida Susanti¹, Martin Halim², and Joong Kee Lee²  
¹Parahyangan Catholic University, Indonesia, ²Korea Institute of Science and Technology, Korea
**[TG] Nanocatalyst and its applications**

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**Session Chair:**

**TG-1  14:30-14:50**  
[Invited] Metal Hybrid Nanostructures: Synthesis and Catalytic Applications  
Hyunjoon Song  
*Korea Advanced Institute of Science and Technology, Korea*

**TG-2  14:50-15:00**  
Nickel Supported Monolith Catalyst for Steam CO₂ Reforming of Methane: Effect of Promoter (Ca, Sr, La)  
Young-su Noh¹, Eun-hyeok Yang¹,², Sung Soo Lim¹,³, Sang Woo Kim¹, and Dong-ju Moon¹,²  
¹*Korea Institute of Science and Technology, Korea, ²University of Science and Technology, Korea, ³Korea University, Korea*

**TG-3  15:00-15:10**  
The Effect of Fe in Perovskite Catalyst for Steam CO₂ Reforming of Methane  
Eun-hyeok Yang¹,², Sung Soo Lim¹,³, Young Su Noh¹, Byoung Sung Ahn¹, and Dong Ju Moon¹,²  
¹*Korea Institute of Science and Technology, Korea, ²University of Science and Technology, Korea, ³Korea University, Korea*

**TG-4  15:10-15:20**  
Fabrication of ZSM-5 on Al₂O₃ by Mechanical-Alloying for FTS  
Jae-Sun Jung, Gi Hoon Hong, Sang Yong Lee, Na-Young Kim, and Dong Ju Moon  
*Korea Institute of Science and Technology, Korea*
[P2] Poster 2

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**P2-1** Microquantitation of δ-catenin using Antibody-conjugated Microsphere Bead

Ho-Bin Lee¹, Sang-Don Lee¹, Do-Jin Lee¹, Sang-Chul Jung¹, Kwonseop Kim², Kyung Keun Kim², and Hangun Kim¹

¹Sunchon National University, Korea. ²Chonnam National University, Korea

**P2-2** Changing Bioavailability of Nano-unit ¹⁴C-Clomazone under Different Soil Conditions

Sang-Chul Jung, Hangun Kim, Ho-Geun Ahn, and Do-Jin Lee

Sunchon National University, Korea

**P2-3** Effects of Oxide Layer on the Bonding Strength of Co-Cr Alloys with Porcelain Ceramics

Won Uk Park¹, Su Jeong Shin¹, Jingming Zhao¹, Kyu Hong Hwang¹, and Jong Kook Lee²

¹Gyeongsang National University, Korea, ²Chosun University, Korea

**P2-4** Characteristics of CuGaSe₂/CdS Solar Cell


Mokpo National University, Korea

**P2-5** Preparation of Low Molecular Weight Gelatin using MDEL/TiO₂ Photocatalyst Hybrid System

Do-Jin Lee, Hangun Kim, Young-Kwon Park, Heon Lee, and Sang-Chul Jung

Sunchon National University, Korea
**[P2] Poster 2**

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¹Gachon University, Korea, ²Korea Basic Science Institute, Korea, ³Korea Research Institute of Bioscience and Biotechnology, Korea, ⁴Inha University, Korea

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¹Inha University, Korea, ²Plexense, Korea

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¹Korea Textile Development Institute, Korea, ²Kyungpook National University, Korea, ³Chonnam National University, Korea, ⁴Chungbuk National University, Korea

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¹National Chiao-Tung University, Taiwan, ²Chung Hua University, Taiwan, ³Mingdao High School, Taiwan
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¹*Mokpo National University, Korea. ²Jeju National University, Korea, ³University of California San Diego, USA*
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¹Chosun University, Korea, ²The Ohio State University, USA

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¹Chonnam University, Korea, ²Korea Institute Science and Technology, Korea

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¹Sunchon National University, Korea, ²Oregon State University, USA, ³OT&T, Inc., Korea

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¹Sunchon National University, Korea, ²OT&T, Inc., Korea

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Hyeonhee Choi\(^1\), Hyuna Kim\(^1\), Young-Kwon Park\(^2\), and Jong-Ki Jeon\(^1\)

\(^1\)Kongju National University, Korea, \(^2\)University of Seoul, Korea

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\(^1\)University of Seoul, Korea, \(^2\)Sunchon National University, Korea, \(^3\)Mokpo National University, Korea, \(^4\)Kongju National University, Korea

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\(^1\)University of Seoul, Korea, \(^2\)Sunchon National University, Korea, \(^3\)Mokpo National University, Korea, \(^4\)Kongju National University, Korea

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\(^1\)University of Seoul, Korea, \(^2\)Sunchon National University, Korea, \(^3\)Mokpo National University, Korea, \(^4\)Kongju National University, Korea
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¹University of Seoul, Korea, ²Sunchon National University, Korea, ³Mokpo National University, Korea, ⁴Kongju National University, Korea

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¹Sungkyunkwan University, Korea, ²Hongik University, Korea

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¹Mokpo National University, Korea, ²Chonnam National University, Korea, ³University of Seoul, Korea

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\(^1\)Chonnam National University, Korea, \(^2\)Gwangju Science Academy for the Gifted, Korea

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\(^1\)Korea Research Institute of Chemical Technology, Korea, \(^2\)Sogang University, Korea

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¹Henan Normal University, China, ²Chungnam National University, Korea

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Xiaochuan Li¹, Yuhe Zhou¹, Yingchao Zhang¹, and Young-A Son²
¹Henan Normal University, Korea, ²Chungnam National University, Korea

**P2-85** Reduction of Frictional Resistance of Hard Metal Surface with Soft Metal Nano Particles

Won Jun Lee and Chong Soo Han
Chonnam National University, Korea
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1Chonnam National University, Korea, 2Portsmouth Abbey School, USA

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Chonbuk National University, Korea

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1Korea Institute of Industrial Technology, Korea, 2Inha University, Korea, 3Korea Institute of Science and Technology, Korea

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Sejong University, Korea

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Dong Shin Won1, In-Su Park2, Myounghoon Park1, Kang-Sup Chung2, Kee Suk Nahm1, and Pil Kim1
1Chonbuk National University, Korea, 2Korea Institute of Geoscience and Mineral Resources, Korea
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\(^1\)Chonbuk National University, Korea, \(^2\)Korea Institute of Industrial Technology, Korea

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\(^1\)Chosun University, Korea, \(^2\)Amotech New Materials Research Center, Korea, \(^3\)Chonnam National University, Korea
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¹Sungkyunkwan University, Korea, ²Hongik University, Korea

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¹Samsung Electronics, Korea, ²Gachon University, Korea
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¹University of Technology Sydney, Australia ²Chonnam National University, Korea

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¹Seoul National University, Korea, ²Inha University, Korea

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¹Korea Institute of Science and Technology, ²Yonsei University
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*Seoul National University, Korea*

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¹*Korea Institute of Industrial Technology, Korea, ²Chonnam National University, Korea*

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Eun Mi Kim¹, Tae-Won Kim¹, Jeong Pyo Oh², Young-Baek Kim¹, Bum-Ho Choi¹, and Gi-Seok Heo¹
¹*Korea Institute of Industrial Technology, Korea, ²Chonnam National University, Korea*
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Jeongdong Choi¹, Youngho Ahn¹, Mohamed Gamal El-Din², and Eun-Sik Kim³

¹Yeungnam University, Korea, ²University of Alberta, Canada, ³Chonnam National University, Korea

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Hyung-Sun Yoon¹, Somi Park¹, Seong-Gyu Seo¹, Jeongdong Choi², and Eun-sik Kim³

¹Chonnam National University, Korea, ²Yeungnam University, Korea

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Fidelis Stefanus Hubertson Simanjuntak, Byoung Sung Ahn, and Hyunjoo Lee

Korea Institute of Science and Technology, Korea

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Ho Chang1, Chin-Guo Kuo2, and Guo-yan Liu1
1National Taipei University of Technology, Taiwan, 2National Taiwan Normal University, Taiwan

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1Korea Institute of Industrial Technology, Korea, 2Korea Institute of Ocean Science and Technology, Korea, 3Korea Institute of Geoscience and Mineral Resources, Korea, 4H&H Co. LTD., Korea, 5Hanyang University, Korea, 6PuKyong National University, Korea

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Seung Chul Chae
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¹VIT University, India, ²Kyung Hee University, Korea

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Tae Hoon Kim¹, Kwang Won Park², and Jong Su Kim²
¹Lumimicro Co., Ltd., Korea, ²Pukyong National University, Korea

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Kwang Won Park¹, Tae Hoon Kim², Ji Hoon Kim², and Jong Su Kim¹
¹Pukyong National University, Korea, ²Lumimicro Co., Ltd., Korea

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P2-125 Nanopowder Cs$_{0.32}$WO$_3$ for IR-cutting Film

Kwangwon Park$^1$, Seokkyu Lim$^1$, Taehoon Kim$^2$, and Jongsu Kim$^1$

$^1$Pukyong National University, Korea, $^2$Lumimicro Co., Ltd., Korea

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D. Y. Lee and S. G. Kang

Kyonggi University, Korea

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Gwang-seok Song and Dai-soo Lee

Chonbuk National University, Korea

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Kwangwon Park$^1$, Taehoon Kim$^2$, and Jongsu Kim$^1$

$^1$Pukyong National University, Korea, $^2$Lumimicro Co., Ltd., Korea

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National Taipei University of Technology, Taiwan

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Chunyuan Liu$^1$, Yu Bian$^1$, Younghwan Kwon$^1$, and Jin Seuk Kim$^2$

$^1$Daegu University, Korea, $^2$Agency for Defense Development, Korea
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Zhongyou Han, Younghwan Kwon, and Chang Kee Kim
1Daegu University, Korea, 2Agency for Defense Development, Korea

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Xuan Thang Cao, Ali Md. Showkat, Inpil Kang, and Kwon Taek Lim
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Moonhwan Kim and Shinho Cho
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Je-Hyeok Ryu$^1$, Phimmavong Kongsy$^1$, Jeong-Hwan Song$^1$, Dae-Young Lim$^1$, and Seung-Beom Cho$^2$
$^1$PaiChai University, Korea, $^2$LG Chem. Ltd, Korea
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P2-136 Mesoporous Carbon Supported Rh Nanoparticle Catalysts for the Production of C2+ Alcohol from Syngas

Min-Ji Kim1, Tae-Wan Kim1, Ho-Heung Chae1, Chul-Ung Kim1, Soon-Yong Jeong2, Jeong-Rang Kim1, and Kyoung-Su Ha2

1Korea Research Institute of Chemical Technology, Korea, 2Sogang University, Korea

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Na-Yeon Kwon1, Young Do Kim2, Myung-Jin Suk3, Seong Lee4, and Sung-Tag Oh1

1Seoul National University of Science and Technology, Korea, 2Hanyang University, Korea, 3Kangwon National University, Korea, 4Agency for Defense Development, Korea

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Tae-Hyun Lim and Hyuk-Ryeol Park

Mokpo National University, Korea

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Narae Shin1, Taekyeong Kim1, Jaesung Park2, Hye Jun Jin1, Hyungwoo Lee1, Kyung-Eun Byun1, Chang-Seuk Lee3, Kwang S Kim2, Byung Hee Hong1, Tae Hyun Kim3, and Seunghun Hong1

1Seoul National University, Korea, 2Pohang University of Science and Technology, Korea, 3Soonchunhyang University, Korea
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¹Hanyang University, Korea, ²Fuzhou University, China

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Chonnam National University, Korea

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Korea National University of Transportation, Korea

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Korea Research Institute of Chemical Technology, Korea

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Eun-Byul Ko, Hyungsung Jung, and Chang-Yeoul Kim  
*Korea Institute of Ceramic Engineering and Technology, Korea*

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Woong-Ki Hong, Byoung-Guk Park, SeungNam Cha, and Jung Inn Sohn  
1*Korea Basic Science Institute, Korea, 2Korea Advanced Institute of Science and Technology, Korea, 3University of Oxford, UK*

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Qi Dong, Chunyuan Lu, Tulugan Kelimu, Jeong Wan Kim, and Tae Gyu Kim  
1*Pusan National University, Korea, 2Gyeongsang National University, Korea*

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1*Kyungpook National University, Korea, 2Hallym University, Korea*

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Young Joon Yoon, Ji-Yun Seon, Chang-Yeoul Kim, and Hyo Tae Kim  
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Sang Mu Choi and Young Rang Uhm

*Korea Atomic Energy Research Institute, Korea*

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Seon Tae Kim, Tae Gyu Kim, Hyun Cho, and Jin Kon Kim

*Pusan National University, Korea*

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Hee Yeon Yang1,2, Dong Yeol Yun1, Yu Na Kim1, Jung Ah Lim2, Jae-Min Hong2, and Tae Whan Kim1

1(Hanyang University, Korea, 2Korea Institute of Science and Technology, Korea

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Se Chul Kim and Sung-Yong Chun

*Mokpo National University, Korea*

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Sang-Heon Lee1 and Yong Choi2

1Sunmoon University, Korea, 2Dankook University, Korea
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**P2-155 Characteristics the Li-doped NiO Thin Films Prepared by RF-Sputter**

Ho-Beom Kwon, Do-Hyoung Kim, Hee Young Lee, and Jai-Yeoul Lee  
*Yeungnam University, Korea*

**P2-156 Fabrication of Chitosan-coated Iron Oxides Applicable to Anode Materials in Li-ion Batteries and Photocatalysts**

Kun-Woo Kim and Sang-Wha Lee  
*Gachon University, Korea*

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Eun-Sang Kim\(^1,2\), You-Jin Lee\(^1,2\), Jeong-Rang Kim\(^1\), Joo-Wan Kim\(^1\), Tae-Wan Kim\(^1\), Ho-Jeong Chae\(^1\), Chul-Ung Kim\(^1\), Chang-Ha Lee\(^2\), and Soon-Yong Jeong\(^1\)  
\(^1\)Korea Research Institute of Chemical Technology, Korea, \(^2\)Yonsei University, Korea

**P2-158 Electrical Characteristics of the p-GaN Layer Etched by Inductively Coupled Ar/Cl\(_2\)/CHF\(_3\) Plasma**

Yong-Yeon Kim, Jae-Kwan Kim, and Ji-Myon Lee  
*Sunchon Nnanntional University, Korea*

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Shin Kim, Jae-Kwan Kim, and Ji-Myon Lee  
*Sunchon Nnanntional University, Korea*
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Kyung Ho Kang, Jae-Kwan Kim, and Ji-Myon Lee
*Sunchon National University, Korea*

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Seung-Jun Lee, Seok-Ki Jang, and Seong-Jong Kim
*Mokpo Maritime University, Korea*

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Joo-Sang Hwang¹, Sujay Kumar², Jihoon Kim², and Ji-Myon Lee¹
¹*Sunchon National University, Korea, ²Kongju National University, Korea*

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Jeoung Han Kim¹, Kyong Min Kim², and Jong Taek Yeom²
¹*Hanbat National University, Korea, ²Korea Institute of Materials Science, Korea*

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D. A. Hakeem, H. Kim, J. S. Cha, and K. Park
*Sejong University, Korea*
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Jung-Hyung Lee and Seong-Jong Kim  
*Mokpo Maritime University, Korea*

P2-166 The Characterization of Hot Formability and Transformation Temperatures in Ti-Ni-Hf and Ti-Ni-Hf-Zr Alloys

Jong-Taek Yeom$^1$, Chan Hee Park$^1$, Jeoung Han Kim$^2$, Seong-Woong Kim$^1$, and Jae-Keun Hong$^1$  
$^1$Korea Institute of Materials Science, Korea, $^2$Hanbat National University, Korea

P2-169 (Sb)/Cu$_2$Sb-TiC-C Composite Anode for High-performance Sodium-ion Batteries

Jaehyun Hur and Il Tae Kim  
*Gachon University, Korea*
[FC] The Scientific Connection of Nano Bio Technology

**Date & Time**
November 7, 2014 (Friday) / 14:20-15:20

**Place**
Room C (Little Theater, B1F / Plaza 60)

**Session Chair:** Shiv Shankar (Mokpo Nat’l Univ.)

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**FC-1 14:30-14:50**
*Invited* Application of Nanotechnology in Food Packaging
Shiv Shankar  
*Mokpo National University, Korea*

**FC-2 14:50-15:00**
Designing Quantum Dot Based Calcium Sensors for Intracellular Delivery
Soon-Jong Kim  
*Mokpo National University, Korea*

**FC-3 15:00-15:20**
*Invited* BioNano Health Guard Research Program for Early Diagnosis and Monitoring of Infectious Bio-substances
Bong Hyun Chung  
*Korea Research Institute of Bioscience and Biotechnology, Korea*

**FC-4 15:20-15:30**
Biomimetic Mineralization of Chitin Butyrate Coated Polyamide 6 Nanofiber for Bone Tissue Engineering
Mahesh Kumar Joshi$^{1,2}$, Hem Raj Pant$^{1,2}$, Han Joo Kim$^1$, Surya Adhikari$^1$, Chan Hee Park$^1$, and Cheol Sang Kim$^1$  
$^1$*Chonbuk National University, Korea, $^2$Tribhuvan University, Nepal*
FD-1 14:30-14:50  [Invited] Influence of Steam Treatment on Electrocatalytic Properties of Activated Carbon Based Counter Electrode: Dye Sensitized Solar Cells
O-bong Yang
Chonbuk National University, Korea

Woo Chul Jung1 and Sossina Haile1
1Korea Advanced Institute of Science and Technology, Korea, 2Caltech, USA

FD-3 15:10-15:20  Studies on the Role of Nitrogen in the Feed for Fischer-Tropsch Synthesis under Fixed-bed Reactor System
Gi Hoon Hong, Jae-Sun Jung, Sang Yong Lee, Na-Young Kim, and Dong Ju Moon
Korea Institute of Science and Technology, Korea

FD-4 15:20-15:30  Synthesis of Graphene/Metal nitride Nanocomposite as an Effective Electrocatalyst Support for Methanol Oxidation Reaction
Yuvaraj Haldorai1, Young-Kyu Han1, and Yun Suk Huh2
1Dongguk University, Korea, 2Inha University, Korea
[FE] Nano Structure 2

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Session Chair:

FE-1 14:30-14:50 [Invited] Nanotechnology Policy Direction of Korea and Current R&D Trends of Carbon Based Nanomaterials
Dae Sup So, Dong Ho Lee, and Heon Ham
1Korea Institute of Science and Technology Information, Korea, 2Chungju National University, Korea

Yongjun Park
PAL. POSTECH, Korea

FE-3 15:10-15:20 Characteristic Study of Boron Doping Carbon Nanowalls on Silicon Substrate Fabricated by MPECVD
Chunyuan Lu1, Qi Dong1, Kelimu Tulugan2, Yeong Min Park1, and Tae Gyu Kim1
1Pusan National University, Korea, 2Gyeongsang National University, Korea

FE-4 15:20-15:30 Thermal Conductivity of ZnO Single Nanowire
Sh. U. Yuldashev, V. Sh. Yalishev, H. D. Cho, and T. W. Kang
Dongguk University, Korea
### [FF] Nano Scale Coating and Films

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**Session Chair:**

**FF-1 14:30-14:50**  
[Invited] Nano-structured Catalyst Coating with Strong Adhesion to Metal Substrate  
Joon Hwan Choi, Ho-Jung Ha, Jungho Ryu, Jong-Jin Choi, Woon-Ha Yoon, Byung-Dong Hahn, Jong-Woo Kim, and Cheol-Woo Ahn  
*Korea Institute of Materials Science, Korea*

**FF-2 14:50-15:10**  
[Invited] Very Smooth Ultrananocrystalline Diamond Film Growth by a Novel Pretreatment Technique  
Jong Cheon Park, Tae Gyu Kim, Jin Kon Kim, Sungu Hwang, and Hyun Cho  
*Pusan National University, Korea*

**FF-3 15:10-15:30**  
Hoon-Kyu Shin  
*Pohang University of Science and Technology, Korea*
[FG] Nanochemistry and its applications

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**Session Chair:** Kyukwan Zong (Chonbuk Nat'l Univ.)

**FG-1 14:30-14:50**  
[Invited] Synthesis and Structure-property Relationship of Two-dimensional BDT-TPD Conjugated Copolymers for Polymer Solar Cells  
Namjeong Hong and Kyukwan Zong  
Chonbuk National University, Korea

**FG-2 14:50-15:10**  
[Invited] Graphene Barristors for Low-power Electronics  
Du-Hwa Choi, Jun-Ho Lee, Hyun-Cheol Kim, Han-Byeol Lee, and Hyun-Jong Chung  
Konkuk University, Korea

**FG-3 15:10-15:20**  
Superhydrophobic Graphene-Based Nanosensors for In Situ Monitoring of Polycyclic Aromatic Hydrocarbons (PAHs)  
Jared Church, Xiaochen Wang, Woo Hyoung Lee, Hyoung J. Cho, and Lei Zhai  
University of Central Florida, USA

**FG-4 15:20-15:30**  
Assembly of $\text{Fe}_3\text{O}_4$ Metal Nanoparticles onto Polymeric Fibers Based On Catecholic Chemistry  
Amin Ghavaminejad, Melisa Samarikhalaj, Arathyram Ramachandra Kurup Sasikala, Afeesh Rajan Unnithan, Chan Hee Park, and Cheol Sang Kim  
Chonbuk National University, Korea