

# Nanostructured Materials for Energy Devices (ED)

## Oral Presentation

Nov. 9, 2011 (Wed.)

### ED 1 (Nanostructured Materials for Energy Devices 1)

Ballroom 3

Chair: Prof. Zhiyong Fan (Hong Kong University of Science and Technology, China)

09:10-10:20

#### EDIS1

#### Novel Processing for Low-Cost Silicon Photovoltaics

09:10-09:40 Xiu Fei<sup>1</sup>, Miao Yu<sup>2</sup>, Johnny C. Ho<sup>1</sup>, Zhiyong Fan<sup>2</sup>

Invited Speech <sup>1</sup>City University of Hong Kong, China, <sup>2</sup>Hong Kong University of Science and Technology, China

#### ED973

#### Thermal Annealing Effects in Styrenic Pentablock Ionomers on the Physical Properties and Their Electromechanical Responses

09:40-10:00

Jang-Woo Lee, Jin Hong Lee, Chong Min Koo

Korea Institute of Science and Technology, Korea

#### ED482

#### Superhydrophobic and Antireflective Oxide Nanostructures on Glass for High Performance Solar Cells

10:00-10:20

Hyo-Jin Gwon<sup>1,2</sup>, Ho Won Jang<sup>1</sup>, Kwang Soo Yoo<sup>2</sup>, Seok-Jin Yoon<sup>1</sup>

<sup>1</sup>Korea Institute of Science and Technology (KIST), Korea, <sup>2</sup>The University of Seoul, Korea

Nov. 9, 2011 (Wed.)

### ED 2 (Nanostructured Materials for Energy Devices 2)

Ballroom 3

Chair: Prof. Johnny C. Ho (City University of Hong Kong, China)

10:40-12:10

#### EDIS2

#### Engineered 3-D Nanostructures for Photon Management and Photovoltaics

10:40-11:10

Zhiyong Fan, Siu-Fung Leung, Miao Yu, Qingfeng Lin, Yunze Long

Invited Speech Hong Kong University of Science and Technology, China

#### ED1414

#### Fabrication and Characterization of TiO<sub>2</sub> Working Electrode by Dielectrophoretic Method for Dye-sensitized Solar Cells

11:10-11:30

Hyonkwang Choi, Hyunkook Kim, Sookhyun Hwang, Minhyon Jeon

Inje University, Korea

#### ED1410

#### Characterization of Graphene Counter Electrodes for Dye-sensitized Solar Cells

11:30-11:50

Hyunkook Kim, Hyonkwang Choi, Sanghyo Kim, Minhyon Jeon

Inje University, Korea

#### ED24

#### Structural and Electrochemical Characterization of Si - M Multilayer Anodes for Thin Film Lithium Batteries

11:50-12:10

Vaishali Patil<sup>1,2</sup>, Arun Patil<sup>1,3</sup>, Seok-Jin Yoon<sup>1</sup>, Ji-Won Choi<sup>1</sup>

<sup>1</sup>Korea Institute of Science and Technology, Korea, <sup>2</sup>Vishwakarma Institute of Information Technology, India, <sup>3</sup>Vishwakarma College of Arts Commerce and Science, India

## Nanostructured Materials for Energy Devices

Nov. 10, 2011 (Thu.)

### ED 3 (Nanostructured Materials for Energy Devices 3)

Ballroom 3

Chair: Dr. Seung Yol Jeong (Korea Electrotechnology Research Institute, Korea)

09:10-10:20

#### ED153 Silicon Carbide Power Devices for Energy Saving

09:10-09:40 Kenji Fukuda, Shinsuke Harada, Junji Senzaki, Akimasa Kinoshita

Invited Speech *National Institute of Advanced Industrial Science and Technology, Japan*

#### ED779 Two Step Hydrothermal Synthesis of Hybrid PbTe/Carbon Core-Shell Nanocables

09:40-10:00

Kishore Sridharan, Man-Jong Lee

*Konkuk University, Korea*

#### ED272 Electronic Structure of $\text{InMO}_3(\text{ZnO})_3$ (M=In, Ga)

10:00-10:20 Li-Li Wu<sup>1,2</sup>, Xi-Tian Zhang<sup>1,3</sup>

*<sup>1</sup>Harbin Institute of Technology, China, <sup>2</sup>Heilongjiang Institute of Science and Technology, China, <sup>3</sup>Harbin Normal University, China*

Nov. 10, 2011 (Thu.)

### ED 4 (Nanostructured Materials for Energy Devices 4)

Ballroom 3

Chair: Prof. Hyunhyub Ko (Ulsan National Institute of Science and Technology, Korea)

10:40-12:10

#### ED154 Nanostructured Surface for Optoelectronic Devices

10:40-11:10 Jihyun Kim

Invited Speech *Korea University, Korea*

#### ED1013 Fabrication and Growth Mechanism of Vertically Aligned Fullerene Tubes

11:10-11:30

Ryota Kuriyama<sup>1</sup>, Ryoei Kato<sup>2</sup>, Kun'ichi Miyazawa<sup>2</sup>, Masaru Tachibana<sup>1</sup>

*<sup>1</sup>Yokohama City University, Japan, <sup>2</sup>Fullerene Engineering Group, Japan*

#### ED901 High Performance Transparent Conductive Films using Rheologically-Derived Reduced Graphene Oxide

11:30-11:50

Seung Yol Jeong, Sung Hun Kim, Joong Tark Han, Hee Jin Jeong, Sunhye Yang, Geon-Woong Lee

*Korea Electrotechnology Research Institute, Korea*

#### ED488 Solution Processed $\text{InGaO}_3(\text{ZnO})_m$ Thin Films with Layered Structures

11:50-12:10

Jun Hyeon Kim, Dong Kyu Seo, Hyung Koun Cho

*Sungkyunkwan University, Korea*

Nov. 10, 2011 (Thu.)

**ED 5 (Nanostructured Materials for Energy Devices 5)**

Ballroom 3

Chair: Prof. Arun Ramchandra Patil (Vishwakarma College of Arts Commerce and Science, India) 15:00-16:10

**EDISS Semiconducting Nanoribbon and Nanowire Arrays for High Performance Transistors**

15:00-15:30

Invited Speech

Hyunhyub Ko

*Ulsan National Institute of Science and Technology, Korea***ED134 Conventional Conduction and Fast Charge Pulses in Nanostructured Polymeric Materials**

15:30-15:50

Man Xu<sup>1</sup>, Gian Carlo Montanari<sup>2</sup>, Davide Fabiani<sup>2</sup>, Leonard A Dissado<sup>3</sup>, Andrej Krivda<sup>4</sup><sup>1</sup>*Xi'an Jiaotong University, China*, <sup>2</sup>*University of Bologna, Italy*, <sup>3</sup>*University of Leicester, UK*,<sup>4</sup>*ABB Switzerland Ltd, Switzerland***ED1598 Growth of Single Crystalline KNbO<sub>3</sub> Nanowires by Hydrothermal Method**

15:50-16:10

Mi-Ri Joung, Haibo Xu, In-Tae Seo, Jin-Seong Kim, Tae-Geun Seong, Sahn Nahm

*Korea University, Korea*

Nov. 10, 2011 (Thu.)

**ED 6 (Nanostructured Materials for Energy Devices 6)**

Ballroom 3

Chair: Dr. Nam Kyun Kim (Korea Electrotechnology Research Institute, Korea) 16:30-17:30

**ED1082 Vertically Aligned Lead Zirconate Titanate Nanorod using Hydrothermal Method**

16:30-16:50

Who-Hee Lee<sup>1,2</sup>, Young-Ho Do<sup>1</sup>, Byeong-Kwon Ju<sup>2</sup>, Chong-Yun Kang<sup>1</sup>, Seok-Jin Yoon<sup>1</sup><sup>1</sup>*Korea Institute of Science and Technology, Korea*, <sup>2</sup>*Korea University, Korea***ED373 Review on Recent Progress of Solid Electrolytes for Lithium Secondary Battery**

16:50-17:10

Arun Patil<sup>1,2</sup>, Vaishali Patil<sup>1,3</sup>, Ji-Won Choi<sup>1</sup>, Seok-Jin Yoon<sup>1</sup><sup>1</sup>*Korea Institute of Science and Technology, Korea*, <sup>2</sup>*Vishwakarma College of Arts**Commerce and Science, India*, <sup>3</sup>*Vishwakarma Institute of Information Technology, India***ED224 Structural and Electrochemical Properties of Nanocrystalline Si-Cr Alloy Anodes for Lithium Thin Film Battery**

17:10-17:30

Arun Patil<sup>1,2</sup>, Vaishali Patil<sup>1,3</sup>, Ji-Won Choi<sup>1</sup>, Seok-Jin Yoon<sup>1</sup><sup>1</sup>*Korea Institute of Science and Technology, Korea*, <sup>2</sup>*Vishwakarma College of Arts**Commerce and Science, India*, <sup>3</sup>*Vishwakarma Institute of Information Technology, India*

## Nanostructured Materials for Energy Devices

### Poster Presentation

Nov. 8, 2011 (Tue.)

**EDP 1 (Nanostructured Materials for Energy Devices) Poster Presentation 1** Lobby 8F

Chair: Dr. Geon-Woong Lee (Korea Electrotechnology Research Institute, Korea)

14:00-15:30

- ED1688 Vertically Aligned Tubular Structured Graphene Arrays for Flexible Field Emitters**  
Joong Tark Han, Hee Jin Jeong, Ho Young Kim, Hae Deuk Jeong, Sung Hun Kim, Jun Suk Kim, Seung Yol Jeong, Geon-Woong Lee  
*Korea Electrotechnology Research Institute, Korea*
- ED1686 Flexible Field Emission from Thermally Welded, Chemically Doped Graphene Thin Films**  
Joong Tark Han, Hee Jin Jeong, Hae Deuk Jeong, Ho Young Kim, Sung Hun Kim, Jun Suk Kim, Seung Yol Jeong, Geon-Woong Lee  
*Korea Electrotechnology Research Institute, Korea*
- ED1684 Enhanced Conductivity and Interfacial Adhesion of Single-walled Carbon Nanotube Network Films on Plastic Substrates via Chemical Strain-relaxation**  
Joong Tark Han, Jun Suk Kim, Hee Jin Jeong, Seung Yol Jeong, Geon-Woong Lee  
*Korea Electrotechnology Research Institute, Korea*
- ED1682 Enhanced Electrical Properties of Reduced Graphene Oxide/TiO<sub>2</sub> Multilayer Films**  
Joong Tark Han<sup>1</sup>, Beom Joon Kim<sup>2</sup>, Jun Suk Kim<sup>1</sup>, Bo Hwa Jeong<sup>1</sup>, Seung Yol Jeong<sup>1</sup>, Hee Jin Jeong<sup>1</sup>, Jeong Ho Cho<sup>2</sup>, Geon-Woong Lee<sup>1</sup>  
<sup>1</sup>*Korea Electrotechnology Research Institute, Korea, <sup>2</sup>Soongsil University, Korea*
- ED1672 SiO<sub>x</sub> Nanoparticles Synthesized by Evaporation and Condensation Method for an Anode in Li-ion Battery**  
Bo Yun Jang, Jin Seok Lee, Joon Soo Kim  
*Korea Institute of Energy Research, Korea*
- ED1668 Microstructures of Crystalline Silicon Nanoparticles doped with Phosphorous for Printable Electronics**  
Bo Yun Jang, Jin Seok Lee, Joon Soo Kim  
*Korea Institute of Energy Research, Korea*
- ED1618 p-n Junction In<sub>x</sub>Ga<sub>1-x</sub>As Nanowires Grown on Silicon for Tandem Solar Cells**  
Jae Cheol Shin<sup>1,2</sup>, Kyou Hyun Kim<sup>1</sup>, Ki Jun Yu<sup>1</sup>, Hefei Hu<sup>1</sup>, John A. Rogers<sup>1</sup>, Jian-Min Zuo<sup>1</sup>, Xiuling Li<sup>1</sup>  
<sup>1</sup>*University of Illinois, USA, <sup>2</sup>Korea Photonics Technology Institute, Korea*
- ED1535 Pseudocapacitive Performance of Anodically Deposited Porous Manganese Oxide Film on Nickel Foil**  
Hua Fang, Shichao Zhang  
*Beihang University, China*

**ED1531 Photocatalytic Degradation of Phenol with Preferred-oriented TiO<sub>2</sub> Nanotube Arrays**

Ik Jae Park, Sangwook Lee, Sangbaek Park, Kug Sun Hong  
*Seoul National University, Korea*

**ED1528 Room Temperature Fabrication of Mesoporous ZnO Vertical Array for Dye-Sensitized Solar Cells**

Byung Suh Han, Jun Hong Noh, Jong Hoon Park, Kug Sun Hong  
*Seoul National University, Korea*

**ED1524 Synthesis and Photocatalytic Characteristics of Walnut-like TiO<sub>2</sub> Microsphere**

Won Mo Seong<sup>1</sup>, Dong Hoe Kim<sup>1</sup>, Sangwook Lee<sup>1</sup>, In Sun Cho<sup>2</sup>, Kug Sun Hong<sup>1</sup>  
<sup>1</sup>*Seoul National University, Korea,* <sup>2</sup>*Stanford University, USA*

**ED1487 Effect of Solid Loading in Cast Tape on the Thermoelectric Property of Reactive Template Grain Grown Ca<sub>3</sub>Co<sub>4</sub>O<sub>9</sub>**

Ho-Yoon Choi<sup>1</sup>, Myung-Hyun Lee<sup>1</sup>, Soon-Mok Choi<sup>1</sup>, Won-Seon Seo<sup>1</sup>, Hong-Lim Lee<sup>2</sup>  
<sup>1</sup>*Korea Institute of Ceramic Engineering and Technology, Korea,* <sup>2</sup>*Yonsei University, Korea*

**ED1465 Electrical Characteristics of High Voltage TDMOS using Recess Gate Process**

Seong-Wook Yoo<sup>1</sup>, Kyoung-Il Na<sup>1</sup>, Jin-Gun Koo<sup>1</sup>, Jin-Ho Lee<sup>1</sup>, Tae-Pok Rhee<sup>2</sup>  
<sup>1</sup>*ETRI, Korea,* <sup>2</sup>*Matrix Semiconductor Company, Korea*

**ED1423 Synthesis of 3D Chestnut Bur-like Rutile TiO<sub>2</sub> for Dye-sensitized Solar Cells**

Seong Sik Shin<sup>1</sup>, Dong Wook Kim<sup>1</sup>, Sangwook Lee<sup>1</sup>, In-Sun Cho<sup>2</sup>, Dong Hoe Kim<sup>1</sup>, Jong Hoon Park<sup>1</sup>, Kug Sun Hong<sup>1</sup>  
<sup>1</sup>*Seoul National University, Korea,* <sup>2</sup>*Stanford University, USA*

**ED1405 Structure of SiO<sub>x</sub> Powders Were Prepared by Flame Hydrolysis Deposition**

Seung-Ho Lee, Yong-Sub Yoon, Chan-Hwi Park, Dong-Wook Shin  
*Hanyang University, Korea*

**ED1327 Preparation of Porous Flowerlike LiFePO<sub>4</sub> Microspheres and Their Electrochemical Performances**

Hye Sun Shin, Hong-Ryun Jung, Ik Jun Jang, Na Ra Shin, Su Hyun Kim, Wan-Jin Lee, Sung June Cho  
*Chonnam National University, Korea*

**ED1291 Low Temperature Synthesis of Nano BaTiO<sub>3</sub> Particle using Potassium Hydroxide**

Kug-Hyo Park<sup>1,2</sup>, Hyo-Soon Shin<sup>1</sup>, Dong-Hun Yeo<sup>1</sup>, Hyung-Sun Kim<sup>2</sup>, Gook-Hyun Ha<sup>3</sup>  
<sup>1</sup>*Korea Institute of Ceramic Engineering and Technology, Korea,* <sup>2</sup>*Inha University, Korea,* <sup>3</sup>*Korea Institute of Materials Science, Korea*

**ED1283 In-situ Preparation of Poly(2-ethynylpyridine)-Iron(III) Chloride Complex and Its Electro-optical and Electrochemical Properties**

Yeong-Soon Gal<sup>1</sup>, Sung-Ho Jin<sup>2</sup>, Jong-Wook Park<sup>3</sup>, Won Seok Lyoo<sup>4</sup>, Kwon Taek Lim<sup>5</sup>  
<sup>1</sup>*Kyungil University, Korea,* <sup>2</sup>*Pusan National University, Korea,* <sup>3</sup>*The Catholic University of Korea, Korea,* <sup>4</sup>*Yeungnam University, Korea,* <sup>5</sup>*Pukyong National University, Korea*

## Nanostructured Materials for Energy Devices

**ED1229 The Fabrication of Anti-reflective PTFE Nanostructures using Catalytic CVD Method on Si Substrate**

Jeong-Ok Cha, Jeung-Sun Ahn  
*Kyung Hee University, Korea*

**ED1193 ZnO Piezoelectric Fine Wire Gated Graphene Oxide Field Effect Transistor**

Rajneesh Mohan, K. Karthikeyan, Sang-Jae Kim  
*Jeju National University, Korea*

**ED1143 Large Scale Synthesis of Copper Nanowires for using Ionic Liquid**

Ho Seok Lee, Tae Young Kim, Kwang S. Suh  
*Korea University, Korea*

**ED1051 Simple Fabrication of Antireflective Silicon Subwavelength Structure with Self-cleaning Properties**

Bo-Soon Kim, Won-Ki Ju, Min-Woo Lee, Cheon Lee, Seung-Gol Lee, Beom-Hoan O  
*Inha University, Korea*

**ED1017 Fabrication of N-type Organic-Inorganic Hybrid TFT**

Seung-Hyeon Jeong<sup>1,2</sup>, Moon Kyong Na<sup>2,3</sup>, Sang Cheol Kim<sup>2</sup>, Eun Dong Kim<sup>2</sup>, Dong Hoon Kwon<sup>1</sup>, Chung-Kun Song<sup>1</sup>  
<sup>1</sup>*Dong-A University, Korea*, <sup>2</sup>*Korea Electrotechnology Research Institute, Korea*, <sup>3</sup>*Pohang University of Science and Technology, Korea*

**ED989 Spark Plasma Sintered  $\text{In}_4(\text{Se}_{1-x}\text{Te}_x)_3$  and Its Thermoelectric Properties**

Mahn Jeong<sup>1,2</sup>, Young Soo Lim<sup>1</sup>, Won-Seon Seo<sup>1</sup>, Jong-Heun Lee<sup>2</sup>  
<sup>1</sup>*Korea Institute of Ceramic Engineering and Technology, Korea*, <sup>2</sup>*Korea University, Korea*

**ED970 Polymer Gel Electrolytes using Polymerizable Ionic Liquids**

Jin Hong Lee, Jang-Woo Lee, Soon Man Hong, Chong Min Koo  
*Korea Institute of Science and Technology, Korea*

**ED968 Preparation and Evaluation of Nanoporous Carbon-based Electrodes using Amino-fluorination**

Min-Jung Jung<sup>1</sup>, Euigyung Jeong<sup>1</sup>, Sang Ick Lee<sup>2</sup>, Young-Seak Lee<sup>1</sup>  
<sup>1</sup>*Chungnam National University, Korea*, <sup>2</sup>*GS Caltex Corporation, Korea*

**ED962 ZnO-Zn<sub>2</sub>SnO<sub>4</sub> Core-Shell Nanowires for Dye Sensitized Solar Cell**

Tae Hyung Kwon, Mang-Jong Lee  
*Konkuk University, Korea*

**ED887 Dielectric Properties of HDPE / CaCO<sub>3</sub> Nano-micro Composite**

M.A. Al-Eshaikh, M.I. Qureshi  
*King Saud University, Saudi Arabia*

**ED869 Photo-electrochemical Properties of TiO<sub>2</sub>-based Composite Nanotubes Grown by Alloy Anodization**Yoon-Chae Nah<sup>1</sup>, Doohun Kim<sup>2</sup>, Patrik Schmuki<sup>3</sup><sup>1</sup>Korea University of Technology and Education, Korea, <sup>2</sup>Korea Electrotechnology Research Institute, Korea, <sup>3</sup>University of Erlangen-Nuremberg, Germany**ED827 Electrochemical Lithiation and Delithiation Behavior of MoS<sub>2</sub> Nanoclusters Synthesized by Hydrothermal Method**

Moon-Jin Hwang, Kwang-Sun Ryu

University of Ulsan, Korea

**ED813 Dielectric Properties of PAI-CS Nanohybrid Film for Coil Insulation**

Dong-Pil Kang, Ju-Young Lee, Se-Won Han

Korea Electrotechnology Research Institute, Korea

Nov. 10, 2011 (Thu.)

**EDP 2 (Nanostructured Materials for Energy Devices) Poster Presentation 2** Lobby 2F

Chair: Dr. Nam Kyun Kim (Korea Electrotechnology Research Institute, Korea)

13:30-15:00

**ED823 Preparation and Characterization of Gold-decorated Graphite Nanosheet Composites**Dae-Han Kim<sup>1</sup>, Jungsoo Kim<sup>2</sup>, Min-Soo Koo<sup>1</sup>, Weontae Oh<sup>1</sup><sup>1</sup>Dong-Eui University, Korea, <sup>2</sup>Korea Institute of Industrial Technology, Korea**ED808 Electrical and Thermal Properties of PAI-CS Nanohybrid for Magnetic Enamelled Wire with Sol-gel Process**

Se-Won Han, Dong-Phil Kang

Korea Electrotechnology Research Institute, Korea

**ED807 Superhydrophobic Properties of EPDM Surface Coated with Multi-modal Nano CS After Plasma Pre-treatment**Se-Won Han<sup>1</sup>, Jin Jeong<sup>1</sup>, Dong-Phil Kang<sup>1</sup>, Chul-Ho Lee<sup>2</sup>, Yong-Suk Cho<sup>2</sup><sup>1</sup>KERI, Korea, <sup>2</sup>Fine Polymer, Inc., Korea**ED787 Stability of Precipitated HgTe Nano-inclusions Embedded in Thermoelectric PbTe**

Su-Han Park, Kyung-Ho Kim, Tae Hyung Kwon, Yang Dam Eo, Mang-Jong Lee

Konkuk University, Korea

**ED750 Graphene Anchored with M<sub>3</sub>O<sub>4</sub> (Mn, Co) Nanoparticles as Anode of Lithium Ion Batteries**

Seung-Gi Hwang, Hye-Min Lim, Su-Ryeon Yun, Kwang-Sun Ryu

University of Ulsan, Korea

## Nanostructured Materials for Energy Devices

- ED723 Thermolectric Properties of Non-stoichiometric  $\beta$ -Zn<sub>4</sub>Sb<sub>3</sub> Polycrystals**  
Min-Seok Song<sup>1,3</sup>, Soon-Mok Choi<sup>1</sup>, Won-Seon Seo<sup>1</sup>, Kyung-Wook Jang<sup>2</sup>, Joo-Ho Moon<sup>3</sup>  
<sup>1</sup>Korea Institute of Ceramic Engineering and Technology (KICET), Korea, <sup>2</sup>Hanseo University, Korea, <sup>3</sup>Yonsei University, Korea
- ED682 Nanoscale Strain Mapping at/around HgTe Nano-disks Embedded in Thermolectric PbTe**  
Kyung-Ho Kim, Tae Hyung Kwon, Su-Han Park, Yang Dam Eo, Mang-Jong Lee  
Konkuk University, Korea
- ED651 Thermolectric Properties of Polycrystalline Higher-Manganese-Silicides (HMS) Fabricated by a Vacuum Induction Melting Method**  
Tae-ho An<sup>1,2</sup>, Soon-mok Choi<sup>1</sup>, Il-ho Kim<sup>3</sup>, Sun-uk Kim<sup>4</sup>, Won-seon Seo<sup>1</sup>, Chan Park<sup>2</sup>  
<sup>1</sup>Korea Institute of Ceramic Engineering and Technology (KICET), Korea, <sup>2</sup>Seoul National University, Korea, <sup>3</sup>Chungju National University, Korea, <sup>4</sup>Research Institute of Industrial Science and Technology (RIST), Korea
- ED619 Two-step Electrochemical Etching of Aluminum for the Control of Etch Pit Size**  
Hoyeon Lee, Yoonmin Lee, Yongsug Tak  
Inha University, Korea
- ED613 Low Voltage Operation Regioregular Poly(3-hexylthiophene-2,5-diyl) Thin-Film Transistors using Solution Process at Ambient Conditions**  
Moonkyong Na<sup>1,2</sup>, Eun-Dong Kim<sup>1</sup>, Sang-Cheol Kim<sup>1</sup>, Shi-Woo Rhee<sup>2</sup>  
<sup>1</sup>Korea Electrotechnology Research Institute, Korea, <sup>2</sup>Pohang University of Science and Technology, Korea
- ED558 Surface Energy and Morphology of OTS Coated ZnO Nanowires Synthesized by Hydrothermal Technique**  
Im-Jun No<sup>1</sup>, Paik-Kyun Shin<sup>1</sup>, Shizuyasu Ochiai<sup>2</sup>  
<sup>1</sup>Inha Univ., Korea, <sup>2</sup>Aichi Institute of Technology, Japan
- ED554 WO<sub>3</sub> based Composite for Photoelectrochemical Water Oxidation**  
Soon Hyung Kang<sup>1</sup>, Allen J. Bard<sup>2</sup>  
<sup>1</sup>Chonnam National University, Korea, <sup>2</sup>The University of Texas at Austin, USA
- ED546 Evaluation of Partial Discharge Resistance of Insulating Sheets Produced in Saudi Arabia under Alternating Stress**  
A.A. Al-Sulaiman, M.I. Qureshi  
King Saud University, Saudi Arabia
- ED523 Single Oscillator Parameters of Chemically Deposited CdS Thin Films**  
Wug-Dong Park  
Dongyang University, Korea
- ED505 Fabrication of SnO<sub>2</sub> Nanorods by using Hydrothermal Growth for Dye-sensitized Solar Cell Photoanode**  
Hui Song, Ki Seok Kim, Gun Yong Jung  
Gwangju Institute of Science and Technology (GIST), Korea



- ED483**     **Surface Plasmon Enhanced Emission of Core-shell ZnO Nanorods**  
 Bum-Young Noh<sup>1,2</sup>, Seong-Ho Baek<sup>1</sup>, Jae Hyun Kim<sup>1</sup>, Il-Kyu Park<sup>2</sup>  
<sup>1</sup>Daegu-Gyeongbuk Institute of Science and Technology(DGIST), Korea, <sup>2</sup>Yeungnam University, Korea
- ED455**     **Effect of Solution Combusted TiO<sub>2</sub> Nanopowders within Commercial BaTiO<sub>3</sub> Dielectric Layer on the Photoelectric Properties for AC Powder EL Devices**  
 Sung Park<sup>1</sup>, Gil Rak Choi<sup>1</sup>, Yeon Cheol Kim<sup>2</sup>, Jae Chun Lee<sup>1</sup>, Ju-Hyeon Lee<sup>3</sup>  
<sup>1</sup>Myongji University, Korea, <sup>2</sup>Kongju National University, Korea, <sup>3</sup>SunMoon University, Korea
- ED439**     **Electrochemical Properties of Hemisphere Structured 3D Li[Li<sub>0.2</sub>Mn<sub>0.54</sub>Ni<sub>0.13</sub>Co<sub>0.13</sub>]O<sub>2</sub> Cathode Thin Films for Lithium Battery**  
 Haena Yim, Woo Weon Kong, Hi Gyu Moon, Ho Won Jang, Seok-Jin Yoon, Ji-Won Choi  
 Korea Institute of Science and Technology, Korea
- ED414**     **Morphological Evolution of Ag Nanoparticle and Its Effect on Metal-induced Chemical Etching of Silicon**  
 Seong-Ho Baek, Jae Hyun Kim  
 Daegu-Gyeongbuk Institute of Science and Technology(DGIST), Korea
- ED393**     **Effects of Substrate Bias Voltage on the Characteristics of Titanium Nitride Films by Reactive Magnetron Sputtering**  
 Sung-Yong Chun, Man-Geun Han  
 Mokpo National University, Korea
- ED392**     **Synthesis and Characterization of Nanostructured TiN Films for Electrodes of AMTEC**  
 Sung-Yong Chun, Dae-Han Seo  
 Mokpo National University, Korea
- ED282**     **Highly Efficient Organic Bifunctional Devices with Photovoltaic and Electroluminescent Properties**  
 Shun-Wei Liu<sup>1</sup>, Chih-Chien Lee<sup>2</sup>, Wei-Cheng Su<sup>2</sup>  
<sup>1</sup>Mingchi University of Technology, China, <sup>2</sup>National Taiwan University of Science and Technology, China
- ED276**     **Fabrication and Characterization of Silicon Carbide Schottky Diode**  
 Sang-cheol Kim<sup>1</sup>, Wook Bahng<sup>1</sup>, In-Ho Kang<sup>1</sup>, Seong-Jae Joo<sup>1</sup>, Nam-Kyun Kim<sup>1</sup>, Jong-Hong Lee<sup>2</sup>, Jae-Woo Kyoung<sup>2</sup>  
<sup>1</sup>Korea Electrotechnology Research Institute, Korea, <sup>2</sup>KEC Corporation, Korea
- ED155**     **Demonstration of Radial PN Junction Nanowires for Betavoltaic Cells**  
 Seung-Ho Jeong<sup>1</sup>, Se-Jin Yoon<sup>1</sup>, Chil-Hoon Doh<sup>2</sup>, Seog-Whan Kim<sup>2</sup>, Chan Park<sup>1</sup>  
<sup>1</sup>Seoul National University, Korea, <sup>2</sup>Korea Electrotechnology Research Institute, Korea

## Nanostructured Materials for Energy Devices

**ED100**     **Synthesis and Electrochemical Properties of LiFePO<sub>4</sub> Nanofiber by Electrospinning Method**

Chung-Soo Kang, Cheong Kim, Jong-Tae Son  
*Chungju National University, Korea*

**ED71**     **Ultrafast Electrochromic Switching in Self-organized Mixed Metaloxide Nanotubes**

Doohun Kim<sup>1</sup>, Yoon-Cheol Ha<sup>1</sup>, Si-Young Choi<sup>1</sup>, Jonguk Kim<sup>1</sup>, Yoon-Chae Nah<sup>2</sup>  
<sup>1</sup>*Korea Electrotechnology Research Institute, Korea*, <sup>2</sup>*Korea University of Technology and Education, Korea*

**ED48**     **Structural and Optical Properties of ZnO Nanostructures on Mg<sub>x</sub>Zn<sub>1-x</sub>O Thin Films with Various Thickness Grown by Hydrothermal Method**

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**ED27**     **Preparation and Thermoelectric Properties of Ag-dispersed Bi<sub>0.5</sub>Sb<sub>1.5</sub>Te<sub>3</sub>**

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