

Nanostructured Materials for Sensor Applications (SE)

Oral Presentation

Nov. 7, 2011 (Mon.)

SE 1 (Nanostructured Materials for Sensor Applications 1)

Ballroom 1

Chairs: Prof. Andrei Kolmakov (Southern Illinois University at Carbondale, USA)
Prof. Jong-Heun Lee (Korea University, Korea)

15:00-16:10

SEIS1 Development of High-sensitive Gas Sensor based on Theoretical Material Design

15:00-15:30 Kengo Shimano, Masayoshi Yuasa, Tetsuya Kida, Noboru Yamazoe
Invited Speech *Kyushu University, Japan*

SE1482 Transparent Metal Oxide Gas Sensors

15:30-15:50 Ho Won Jang, Hi Gyu Moon, Young-Soek Shim, Do Hong Kim, Jin-Sang Kim, Seok-Jin Yoon
Korea Institute of Science and Technology, Korea

SE1382 Synthesis of Vertically Aligned Carbon-Nanotubes on Graphite Foil for Electrochemical Biosensors

15:50-16:10 Je-Hwang Ryu, Gi-Ja Lee, Kyu-Chang Park, Jin Jang, Hun-Kuk Park
Kyung Hee University, Korea

Nov. 7, 2011 (Mon.)

SE 2 (Nanostructured Materials for Sensor Applications 2)

Ballroom 1

Chairs: Prof. Andrei Kolmakov (Southern Illinois University at Carbondale, USA)
Prof. Jong-Heun Lee (Korea University, Korea)

16:30-17:50

SE1175 High Performance Gas Sensors with an Array of Vertically Aligned TiO₂ Nano-helices

16:30-16:50 Sun Yong Hwang¹, Sameer Chhajed¹, Ho Won Jang², Seok Jin Yoon², Jong Kyu Kim¹
¹POSTECH, Korea, ²Korea Institute of Science and Technology (KIST), Korea

SE490 Synthesis and Gas Sensing Performance of Nanocolumnar Nb₂O₅ Thin Films

16:50-17:10 Hi Gyu Moon^{1,2}, Young-Seok Shim¹, Seok-Jin Yoon¹, Hyung-Ho Park², Ho Won Jang¹
¹Korea Institute of Science and Technology (KIST), Korea, ²Yonsei University, Korea

SE477 Synthesis of Highly Self-ordered TiO₂ Nanotubes on Patterned Si Substrate and Applications to Chemical Sensors

17:10-17:30 Do Hong Kim^{1,2}, Young-Seok Shim¹, Hi Gyu Moon¹, Seok-Jin Yoon¹, Byeong-Kwon Ju², Ho Won Jang¹
¹Korea Institute of Science and Technology (KIST), Korea, ²Korea University, Korea

SE287 Detection of L - Dopa with PEG Assisted Tungsten Oxide (WO₃) Nanoparticles

17:30-17:50 C. Sekar¹, V. Hariharan², S. Radhakrishnan¹, M. Parthibavarmam²
¹Alagappa University, India, ²Periyar University, India

Nov. 8, 2011 (Tue.)

SE 3 (Nanostructured Materials for Sensor Applications 3)

Ballroom 1

Chairs: Prof. Kengo Shimanoe (Kyushu University, Japan)

09:10-10:10

Dr. Ho Won Jang (Korea Institute of Science and Technology, Korea)

SE389 Metal-oxide-nanowires-based Electronic Nose using Heterogeneous Catalysis and Multiple Nanowires

09:10-09:30

Jeong Min Baik^{1,2}, Won-Jeong Park¹, Myung Hwa Kim^{2,3}, Alec M. Wodtke², Martin Moskovits²¹Ulsan National Institute of Science and Technology (UNIST), Korea, ²University of California, USA, ³Ewha Womans University, Korea**SE367 Role of Surface Metal Nanoparticles in Gas Sensing Properties of Embossed TiO₂ Thin Films**

09:30-09:50

Young-Seok Shim^{1,2}, Hi Gyu Moon¹, Do Hong Kim¹, Ho Won Jang¹, Young Soo Yoon², Seok-Jin Yoon¹¹Korea Institute of Science and Technology (KIST), ²Yonsei University, Korea**SE284 Synthesis of Highly Ordered Mesoporous Co₃O₄ and its Gas Sensing Performance**

09:50-10:10

Dawei Su¹, Hao Liu², Guoxiu Wang¹¹University of Technology Sydney, Australia, ²University of Queensland, Australia

Nov. 8, 2011 (Tue.)

SE 4 (Nanostructured Materials for Sensor Applications 4)

Ballroom 1

Chairs: Prof. Kengo Shimanoe (Kyushu University, Japan)

10:40-11:50

Dr. Ho Won Jang (Korea Institute of Science and Technology, Korea)

SE152 Nanowire Based Electronic Noses: Evolution of Sensing Elements

10:40-11:10

Andrei Kolmakov¹, Victor Sysoev²

Invited Speech

¹Southern Illinois University, USA, ²Saratov State Technical University, Russia**SE84 Developing Specific Fluorescent Nanobeads for Detecting Nitric Oxide**

11:10-11:30

Eunhae Koo¹, Dong Sub Lee^{1,2}, Ji Hae Lee^{1,2}, Jong Hoon Lee²¹Korea Institute of Ceramic Engineering and Technology (KICET), Korea, ²Korea University, Korea**SE1050 Direct Electron Transfer Reactivity and the Catalytic Activity of Horseradish Peroxidase (HRP) Incorporated in Ni-doped SnO₂ Nanoparticles**

11:30-11:50

N. Lavanya¹, S. Radhakrishnan¹, M. Parthibavarman², V. Hariharan², C. Sekar¹¹Alagappa University, India, ²Periyar University, India

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SE 5 (Nanostructured Materials for Sensor Applications 5)

Ballroom 1

Chairs: Prof. Sekar Chinnathambi (Alagappa University, India)

15:30-16:40

Prof. Jeong Min Baik (Ulsan National Institute of Science and Technology, Korea)

SEIS3 Highly Sensitive Gas Sensors using Self-Assembled Oxide Nanostructures

15:30-16:00 Jong-Heun Lee

Invited Speech Korea University, Korea

SE1561 Nanocomposite NTC Thermistors by Aerosol Deposition at Room Temperature

16:00-16:20 Jungho Ryu¹, Joo-Eun Kang¹, Nam-Keun Oh¹, Woon-Ha Yoon¹, Jong-Jin Choi¹, Byung-Dong Hahn¹, Jong-Woo Kim¹, Joon Hwan Choi¹, Cheol-Woo Ahn¹, Dong-Soo Park¹, Jeong-Joo Kim²

¹Korea Institute of Materials Science (KIMS), Korea, ²Kyungpook Nat'l University, Korea

SE54 Studies on SnO₂/PSi Nano Structures for Ethanol Gas Sensor

16:20-16:40 G.V.M.Kiruthika, R.Ananthakumar, R.Thangamuthu, K.R.Murali, M.Jayachandran

CSIR-Central Electrochemical Research Institute, India

Poster Presentation

Nov. 7, 2011 (Mon.)

SEP 1 (Nanostructured Materials for Sensor Applications) Poster Presentation 1

Lobby 2F

Chair: Dr. Ho Won Jang (Korea Institute of Science and Technology, Korea)

13:30-15:00

SE1586 Optical and Structural Properties of Ag-Ta₂O₅ Nanocomposite

G. J. Lee¹, J. Kim^{1,2}, I. Park², H. -S. Kim¹, C. S. Yoon¹, H. Cheong³, Y. -P. Lee¹

¹Hanyang University, Korea, ²University of Seoul, Korea, ³Sogang University, Korea

SE1508 The Study for a Reliability Evaluation and Failure Mechanism of Eco-friendly Visible Light Sensor SrAl₂O₄ System

Sun-Hwa Han, Hyoung-Seuk Choi, In-Jung Cho, Won-Seon Seo

Korea Institute of Ceramic Engineering & Technology(KICET), Korea

SE1478 Formation of Vertically Aligned PN Junction in Silicon Sheets

Hyunhui Kim, Jaewoo Lee, Changbum Lee, Wooyoung Yoon

Korea University, Korea

SE1477 Improvement of the Metallurgical Grade Silicon Refining by Calcium Addition in Fractional Melting Process

Jaewoo Lee, Changbum Lee, Hyunhui Kim, Wooyoung Yoon

Korea University, Korea

- SE1449** **The Incorporation of Alloyed Quantum-Dots into Microbeads and Their Optical Characterization**
Jeong Ha Yoo, Jong Sung Kim
Kyungwon University, Korea
- SE1279** **Synthesis and Characterization of Luminescent Eu-complex for Detecting Water**
Pu-Reun Choi^{1,2}, Eunhae Koo², Hyung-Ho Park²
¹Korea Institute of Ceramic Engineering and Technology (KICET), Korea, ²Yonsei University, Korea
- SE1267** **Pyridylmethyl Tetraazamacrocycles Functionalization of a Porphyrin-based "Molecular Square" Induction of Fluorescence Sensitivity to Transition Metal Cations**
Seung Hyun Chang¹, Shin Geol Kang¹, Joseph T. Hupp²
¹Daegu University, Korea, ²Northwestern University, USA
- SE1254** **Mechanism of Fluorescence-based Nitric Oxide Sensors with Dirhodiumtetracarboxylate Complexes in Aqua**
Lan-Hee Yang^{1,2}, Eunhae Koo¹, Sangil Hyun¹, DongJune Ahn²
¹Korea Institute of Ceramic Engineering and Technology (KICET), Korea, ²Korea University, Korea
- SE1225** **Synthesis, Crystal Structure and Phase Transition of Potassium Sodium Niobate Nanopowders**
Haiyan Chen¹, Jilan Yang¹, Yixuan Zhang²
¹Shanghai Maritime University, China, ²Shanghai Jiaotong University, China
- SE1199** **Synthesis and Characterization of CeO₂ Doped ZrO₂ Nanoparticles by a Modified Hydrothermal Process**
Byung-Seo Bae, Dong-Sik Bae
Changwon National University, Korea
- SE1158** **Synthesis and Characterization of Water-soluble Quantum Dots for Highly Sensitive Chemo-sensor Applications**
Ji-Hye Lee^{1,2}, Eunhae Koo¹, Jong-Heun Lee²
¹Korea Institute of Ceramic Engineering and Technology (KICET), Korea, ²Korea University, Korea
- SE1090** **Study on the Properties of Interfacial Reactions for the Gold Thickness of ENIG Surface**
An-Seob Shin, Gi-Ho Jeong, Jin-Ho Kong, Cheol-Ho Heo
Samsung Electro-Mechanics, Korea
- SE1044** **Characterization of O₂ Ionosorption Induced Potential Changing Property of SnO₂ Nano-wire with Kelvin Force Microscopy(KFM)**
Jinhee Heo
Korea Institute of Materials Science, Korea

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SE128 Ionic Conductivity Study on Nanostructured Chromium Substituted Nickel Ferrites

M. K. Shobana, Hoon Kwon, Heeman Choe
Kookmin University, Korea

SE127 Electrical Studies on Nanostructured Yttrium Doped Cobalt Ferrites Nanopowders Synthesized by Sol-gel Combustion Technique

M. K. Shobana, Hoon Kwon, Heeman Choe
Kookmin University, Korea

SE1476 Curvature Design for CNT-based Field Emitter and Grid Mesh

Hyun Suk Kim, Edward Joseph D. Castro, Deok Yong Jin, Jin Young Ju, Yong Gyoong Hwang, Choong Hun Lee
Wonkwang University, Korea

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SEP 2 (Nanostructured Materials for Sensor Applications) Poster Presentation 2 Lobby 2F

Chair: Prof. Jeong Min Baik (Ulsan National Institute of Science and Technology, Korea) 14:00-15:30

SE798 Scattering Signals of Laser Irradiating on a Rectangular Nanogroove

Ching-Yen Ho¹, C-S Chen¹, Jing-Yi Liv¹, Mao-Yu Wen²
¹*Hwa-Hsia Institute of Technology, Taiwan*, ²*Cheng Shiu University, Taiwan*

SE638 The Optimization of Nano-phosphor Synthesis Process Including Sensitizer Doping for Medical X-ray Imaging

Ji-Na Kim¹, Jung-Wook Shin¹, Kyung-Min Oh¹, Seung-Pyo Jeon¹, Re-Na Lee², Sang-Hee Nam¹
¹*Inje University, Korea*, ²*Ewha Womans University Mokdong Hospital, Korea*

SE484 Plasmonic Resonance in Randomly Distributed Au Nanowells Array

Dong-Jin Lee, Min-Woo Lee, Bo-Soon Kim, Hae-Dong Yim, Seung-Gol Lee, Se-Geun Park, El-Hang Lee, Beom-Hoan O
Inha University, Korea

SE454 Effect of Zinc Phosphate Binder on Immobilization Properties of Photocatalytic ZnO Nanopowders by Solution Combustion Method

Sung Park¹, Gil Rak Choi¹, Yeon Cheol Kim², Jae Chun Lee¹, Ju-Hyeon Lee³
¹*Myongji University, Korea*, ²*Kongju National University, Korea*, ³*SunMoon University, Korea*

SE446 Growth of ZnO Photonic Crystals on InP Substrates Patterned with Laser Interference Lithography

Seon-Hoon Kim^{1,2}, Tae-Un Kim¹, Doo-Gun Kim¹, Hyun-Chul Ki¹, Geum-Yoon Oh³, Dong-Kil Lee¹, Won-Gun Jang¹, Hwe-Jong Kim¹, Jin-Hyeok Kim², Byung-Teak Lee²
¹*Korea Photonics Technology Institute, Korea*, ²*Chonnam National University, Korea*, ³*Chung-Ang University, Korea*

- SE440** **Thickness Dependence of the Crystallization of Au/Glass Ultrathin Films**
Tae-Sik Cho¹, Jin-Woo Kim², Sang-Geul Lee³
¹Kyungpook National University, Korea, ²GIST, Korea, ³Korea Basic Science Institute, Korea
- SE438** **On the Nature of Various Growth Facets at the Interfaces of Gold Catalyzed-silicon Nanowires**
Tae-Sik Cho¹, Soo-Hwan Lee², Gyeong S. Hwang²
¹Kyungpook National University, Korea, ²University of Texas, USA
- SE415** **Novel AAO Templates with Controllable Interpore Distance for Nanowire Array Growth**
Yoon-Cheol Ha¹, Ngyuen Nhat Truong^{1,2}, Min-Woo Kim³, Siyoung Choi¹, Doohun Kim¹, Jong-Uk Kim¹
¹Korea Electrotechnology Research Institute, Korea, ²University of Science and Technology, Korea, ³Pukyong National University, Korea
- SE396** **Sonochemical Synthesis and Characterization of Nano-sized Lead Zirconate (PbZrO₃) Powders**
Piyanut Charoonsuk, Wanwilai Vittayakorn, Banjong Boonchom, Naratip Vittayakorn
King Mongkut's Institute of Technology Ladkrabang, Thailand
- SE260** **Modeling of Anisotropic and Phonon Confinement Effects in Ge Nanowires**
A. Trejo, M. Cruz-Irisson
Instituto Politécnico Nacional, México
- SE111** **Highly Sensitive Ru(bpy)₃²⁺ ECL Sensor using PAN/PAA Nanofiber Matrix**
Sungyeol Park, Jun Beom Kim, Yong Shin Kim
Hanyang University, Korea
- SE79** **Shell Layer Thickness Controlled In₂O₃ Hollow Spheres and Their Enhanced Ethanol Gas Sensitivities**
Sun-Jung Kim¹, In-Sung Hwang¹, Yun Chan Kang², Jong-Heun Lee¹
¹Korea University, Korea, ²Konkuk University, Korea
- SE78** **Synthesis of Fe₂O₃ Hollow Spheres using Amino-acid-mediated Solvothermal Reaction**
Hyo-Joong Kim¹, Hae-Ryong Kim¹, Kwon-Il Choi¹, Il-Doo Kim², Jong-Heun Lee¹
¹Korea University, Korea, ²Korea Advanced Institute of Science & Technology, Korea
- SE76** **Synthesis of In₂O₃ & Co₃O₄ Nanosheet Structures using Solvothermal Self-assembly and Their Gas Sensing Properties**
Kwon-Il Choi, Jong-Heun Lee
Korea University, Korea
- SE38** **Preparation and Physical Properties of Single-crystal Zinc Stannate Nanowires**
Yuan-Chang Liang, Chiem-Lum Huang, Chia-Yen Hu
National Taiwan Ocean University, Taiwan

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SE25 **H₂S Sensing Properties of WO₃ Nanowires Sheathed with ZnO by Atomic Layer Deposition**

Changhyun Jin, Hyunsu Kim, Sunghoon Park, Chongmu Lee
Inha University, Korea