

Symposium Program

The 1st **RISE** Symposium on Solar and Sustainable Energies

June 23~24, 2009, Oryong Hall, GIST, Gwangju, Korea
<http://risse.kr/>

Themes
Solar Cells / Fuel Cells / Sustainable Energies

Honorary Symposium Chairman
Alan J. Heeger (University of California, Santa Barbara, USA)

Organized by
Research Institute for Solar and Sustainable Energies (RISE)
Gwangju Institute of Science and Technology (GIST)

RISE
Research Institute for
Solar and Sustainable Energies

GIST Gwangju Institute of
Science and Technology

H·C·A·M
HEEGER CENTER FOR ADVANCED MATERIALS

Tuesday, June 23, 2009			
Time	Network Room (101)	Lecture Room-A (103)	Lobby
~ 13:20	Registration		Poster Setting
13:20 ~ 13:50	Opening Ceremony		
13:50 ~ 14:30	Plenary Lecture 1		
14:30 ~ 15:10	Plenary Lecture 2		
15:10 ~ 15:20	Coffee Break		
	SC1A	FC1B	
15:20 ~ 16:30	Solar Cells (Organic / Hybrid)	Fuel Cells (System)	
16:30 ~ 16:40	Coffee Break		
	SC2A	FC2B	
16:40 ~ 18:10	Solar Cells (Thin Film / Application)	Fuel Cells (Catalyst / Membrane)	
18:10 ~ 19:00	GIST Energy Forum		
19:00 ~21:00	Banquet		

Wednesday, June 24, 2009	
09:00 ~ 12:00	Lab. tour (Heeger Center) / Working Group discussion

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Oryong Hall, GIST, Gwangju, Korea

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<http://risse.kr>

Key-Speaker Profile

Plenary lecture



Prof. Alan J. Heeger

Institute for Polymers and Organic Solids and
Department of Physics and Materials
University of California, Santa Barbara, USA.



Dr. M. Eiswirth

Fritz-Haber-Institut der
Max-Planck-Gesellschaft,
Berlin, Germany



Prof. Dr. G. Ertl

Fritz-Haber-Institut der
Max-Planck-Gesellschaft,
Berlin, Germany

Keynote speakers



Prof. Kilwon Cho

Dept. of Chemical Engineering,
Pohang University of Science and Technology, Korea



Prof. Byung Tae Ahn

Dept. of Materials Science and Engineering,
Korea Advanced Institute of Science and Technology, Korea



Dr. In-Hwan Oh

Center for Fuel Cell Research
Korea Institute of Science and Technology, Korea



Dr. Ho-Sung Kim

Energy & Applied Optics Team, Gwangju R&D Center
Korea Institute of Industrial Technology, Korea

Invited Speakers



Dr. Nam-Gyu Park

Solar Cell Research Center
Korea Institute of Science and Technology, Korea



Dr. Gu-Gon Park

Fuel Cell Research Center
Korea Institute of Energy Research, Korea



Dr. Changjin Lee

Device Materials Research Center
Korea Research Institute of Chemical Technology, Korea



Prof. Hye Jin Lee

Dept. of Chemistry
Kyungpook National University, Korea



Dr. Won Kyu Park

Department of Device Development
Korea Advanced Nano Fab Center, Korea



Prof. Hansung Kim

Dept. of Chemical Biomolecular Engineering
Yonsei University, Korea



Dr. Hyo Jin Kim

Photonics Device Team
Korea Photonics Technology Institute, Korea



Prof. Young Dok Kim

Dept. of Chemistry
Sungkyunkwan University, Korea



Prof. Chinho Park

School of Display and Chemical Engineering
Yeungnam University, Korea



Dr. Jin-Soo Park

Fuel Cell Research Center
Korea Institute of Energy Research, Korea



Symposium Program

Tuesday, June 23, 13:50 ~ 15:10

Network Room (101)

Plenary Lecture

13:50 ~ 14:30 (Plenary Lecture I)

Chair: Kwanghee Lee

Title

Alan J. Heeger (University of California, Santa Barbara, USA)

14:30 ~ 15:10 (Plenary Lecture II)

Chair: Jaeyoung Lee

Chemistry on Solid Surfaces

[M. Eiswirth and G. Ertl](#) (Fritz-Haber-Institut der MPG, Germany)

Tuesday, June 23, 15:20 ~ 16:30

Network Room (101)

Solar Cells (Organic & Hybrid)

[Keynote, Invited Session]

Chair: Kwanghee Lee

SC1A-1 15:20 ~ 15:50 (Keynote)

High Performance Organic Photovoltaics *via* Interface Engineering

Kilwon Cho (Pohang University of Science and Technology, Korea)

SC1A-2 15:50 ~ 16:10 (Invited)

Nano-Engineering for High Efficiency Dye-Sensitized Solar Cell

Nam-Gyu Park (Korea Institute of Science and Technology, Korea)

SC1A-3 16:10 ~ 16:30 (Invited)

Novel Fullerene Derivatives for the Acceptor Materials and Improvement of Photoconversion Efficiencies in Organic Photovoltaic Cells

Changjin Lee (Korea Research Institute of Chemical Technology, Korea)

Tuesday, June 23, 16:40 ~ 18:10

Network Room (101)

Solar Cells (Thin Film & Application)

[Keynote, Invited Session]

Chair: Yong-Tak Lee

SC2A-1 16:40 ~ 17:10 (Keynote)

Current Status of CdTe and CIGS Solar Cell Research

Byung Tae Ahn (Korea Advanced Institute of Science and Technology, Korea)

- SC2A-2 17:10 ~ 17:30 (Invited)
GaInP/GaAs Double Junction Solar Cells on N-type GaAs Substrates
Won Kyu Park (Korea Advanced Nano Fab Center, Korea)
- SC2A-3 17:30 ~ 17:50 (Invited)
Development for III-V semiconductor solar cell on Si substrate
Hyo Jin Kim (Korea Photonics Technology Institute, Korea)
- SC2A-4 17:50 ~ 18:10 (Invited)
Development for III-V semiconductor solar cell on Si substrate
Chinho Park (Yeungnam University, Korea)

Tuesday, June 23, 15:20 ~ 16:30

Lecture Room-A (103)

Fuel Cells (System)

- [Keynote, Invited Session] Chair: Jaeyoung Lee
- FC1B-1 15:20 ~ 15:50 (Keynote)
Current R&D Status and Industrialization Strategy of Fuel Cells
In-Hwan Oh (Korea Institute of Science and Technology, Korea)
- FC1B-2 15:50 ~ 16:10 (Invited)
Freeze condition durability of polymer electrolyte fuel cells
Gu-Gon PARK (Korea Institute of Energy Research, Korea)
- FC1B-3 16:10 ~ 16:30 (Invited)
Fuel Cell Sensor in DLFC
Hye Jin Lee (Kyungpook National University, Korea)

Tuesday, June 23, 16:40 ~ 18:10

Lecture Room-A (103)

Fuel Cells (Catalyst & Membrane)

- [Keynote, Invited Session] Chair: Won Bae Kim
- FC2B-1 16:40 ~ 17:10 (Keynote)
Fabrication Characteristics and Electrochemical Studies of Solid Oxide Fuel Cell
Ho-Sung Kim (Korea Institute of Industrial Technology, Korea)
- FC2B-2 17:10 ~ 17:30 (Invited)
Effect of operating conditions on carbon corrosion in polymer electrolyte membrane fuel cell
Hansung Kim (Yonsei University, Korea)

- FC2B-3 17:30 ~ 17:50 (Invited)
CO oxidation of transition metal nanostructures: Effects of particle size and metal-support interactions
Young Dok Kim (Sungkyunkwan University, Korea)
- FC2B-4 17:50 ~ 18:10 (Invited)
Development of Water Free Polymer Electrolyte Fuel Cell Membranes Based on Ionic Liquids and Sulfonated Polymers
Jin-Soo Park (Korea Institute of Energy Research, Korea)

Tuesday, June 23, 18:10 ~ 19:00

Lobby

Poster Session

- P-S01 **Vertical ZnO nanorods with density control as an efficient electron acceptor for hybrid solar cells**
Hun Soo Jang, Yong Seok Kim, Hee-Sang Shim, Jeong Won Kim, Woohyung Lee, and Won Bae Kim (Gwangju Institute of Science and Technology, Korea)
- P-S02 **Cathode-Independent High Performance of Organic Solar Cells with Novel Water-Soluble Polyfluorenes and an Interfacial Layer**
Seung-Hwan Oh, Seok-In Na, Jang Jo and Dong-Yu Kim (Gwangju Institute of Science and Technology, Korea)
- P-S03 **Characteristics of Polymer Solar Cell Using Mixture of PEDOT:PSS and Metal Particles**
Tae-Soo Kim, Seok-In Na, Jo Jang (Gwangju Institute of Science and Technology, Korea), Seok-Soon Kim (Kunsan Nat'l Univ., Korea), Fevzihan Basarir, Tae-Ho Yoon, Dong-Yu Kim (Gwangju Institute of Science and Technology, Korea)
- P-S04 **Highly Conductive Polymer Films and Their Application in ITO-Free Organic Solar Cells**
Seok-In Na, Gunuk Wang (Gwangju Institute of Science and Technology, Korea), Seok-Soon Kim (Kunsan Nat'l Univ., Korea), Tae-Wook Kim, Takhee Lee, Jang Jo, Seung-Hwan Oh, Byung-Kwan Yu, and Dong-Yu Kim (Gwangju Institute of Science and Technology, Korea)
- P-S05 **Sequent Spray Deposition of Secondary Solvent for Efficient Organic Solar Cells**
Byung-Kwan Yu (Gwangju Institute of Science and Technology, Korea), Doojin Vak (Univ. of Melbourne, Australia), Jang Jo, Seok-In Na (Gwangju Institute of Science and Technology, Korea), Seok-Soon Kim (Kunsan Nat'l Univ., Korea), and Dong-Yu Kim (Gwangju Institute of Science and Technology, Korea)

- P-S06 **Three-Dimensional Nanoscale Blend Morphology for Enhancing the Performance of Bulk Heterojunction Polymer Solar Cells**
Jang Jo, Seok-In Na, Byung-Kwan Yu (Gwangju Institute of Science and Technology, Korea), Tae-Woo Lee (POSTECH, Korea), Youngsu Chung (Samsung Advanced Institute of Technology, Korea), Seok-Ju Kang, and Dong-Yu Kim (Gwangju Institute of Science and Technology, Korea)
- P-S07 **Preparation of quasi-solid-state dye-sensitized solar cells using functionalized electrospun nanofibers**
Seok-Jun Seo, Jung-Je Woo, Sung-Hyun Yun (Gwangju Institute of Science and Technology, Korea), Moon-Sung Kang (Samsung SDI, Korea), Seung-Hyeon Moon (Gwangju Institute of Science and Technology, Korea)
- P-S08 **Solution Processed Niobium Doped Titanium Oxide Layer in Polymer Solar Cells**
Youna Choi, Heejoo Kim, Sun Hee Kim, In-wook Hwang, Young-hee Kim, Kwanghee Lee (Gwangju Institute of Science and Technology, Korea)
- P-S09 **The Mechanism of High Open-Circuit Voltage in Tandem Polymer Solar Cell Incorporated with Titanium Oxide/PEDOT:PSS Inter-layers**
Jae Min Kong, Jongjin Lee, Geunjin Kim, Youna Choi, Kwanghee Lee (Gwangju Institute of Science and Technology, Korea)
- P-S10 **Large area and low-cost polymer-based devices printed by doctor blade technique**
Jung-Hwan Kim, Hongkyu Kang, Kwanghee Lee (Gwangju Institute of Science and Technology, Korea)
- P-S11 **Characterization of Alternating Copolymers with Donor-Acceptor Structure for Photovoltaic Cell**
Jinyoung Yu, Sunhee Kim (Gwangju Institute of Science and Technology, Korea), Inhwan Jung, Inwook Hwang (Korea Advanced Institute of Science and Technology, Korea), Hanyoung Woo (Pusan Nat'l Univ., Korea), Hongku Shim (Korea Advanced Institute of Science and Technology, Korea), Kwanghee Lee (Gwangju Institute of Science and Technology, Korea)
- P-F01 **The polythiophene composited Pd electrocatalyst for PEMFC**
Eun Ja Lim, Min Ho Seo, Sung Mook Choi, Hyung Ju Kim, Won Bae Kim (Gwangju Institute of Science and Technology, Korea)
- P-F02 **Improvement of oxidative stability of styrene/ DVB membranes with stable comonomers**
Jung-Je Woo, Seok-Jun Seo, Sung-Hyun Yun, Seung-Hyeon Moon (Gwangju Institute of Science and Technology, Korea)
- P-F03 **High performance polymer electrolyte membrane reinforced by electrospun nanofiber porous substrate (NFPS) in H₂/O₂ fuel cell**
Sung-Hyun Yun, Jung-Je Woo, Seok-Jun Seo, Seung-Hyeon Moon (Gwangju Institute of Science and Technology, Korea)

- P-F04 **Investigation of performance with H₂/CO partial pressure in polymer electrolyte fuel cells**
Jae-Young Lee, Jiyong Joo (Gwangju Institute of Science and Technology, Korea), Nam-Ki Kim (Sungkyunkwan Univ., Korea), Jaeyoung Lee (Gwangju Institute of Science and Technology, Korea)
- P-F05 **Regeneration of Pd catalysts for formic acid oxidation**
Beomgyun Jeong, Hongrae Jeon, Jaeyoung Lee (Gwangju Institute of Science and Technology, Korea)
- P-F06 **Electrodeposited Ni catalyst for ethanol oxidation in alkaline media**
Youngmi Yi, Ye Eun Kim, Jaeyoung Lee (Gwangju Institute of Science and Technology, Korea)
- P-F07 **Nanostructured Pt-based electrocatalysts for cyclohexane fueled polymer electrolyte membrane fuel cell**
Hyung Ju Kim, Sung Mook Choi, Min Ho Seo, Eun Ja Lim and Won Bae Kim (Gwangju Institute of Science and Technology, Korea)
- P-F08 **End-Group Crosslinked Poly(arylene ether) for Proton Exchange Membranes**
Kwan-Soo Lee, Myung-Hwan Jeong, Jung-Pil Lee, and Jae-Suk Lee (Gwangju Institute of Science and Technology, Korea)
- P-F09 **Fluorinated Aromatic Polyethers Containing Crosslinking Moiety for Proton Exchange Membranes**
Myung-Hwan Jeong, Kwan-Soo Lee, and Jae-Suk Lee (Gwangju Institute of Science and Technology, Korea)
- P-B01 **Nano-architected Electrode Configuration for Lithium Ion Battery**
Youn-Su Kim, Sang Hoon Nam, Sang-Ho Lee, Jong-Guk Kim, and Won Bae Kim (Gwangju Institute of Science and Technology, Korea)
- P-B02 **Enhanced lithium storage performance of nanostructured silicon sphere via catalytic etching**
Sang Hoon Nam, Youn-Su Kim, Sang Ho Lee, Jong Guk Kim, Tae Jin Park, Won Bae Kim (Gwangju Institute of Science and Technology, Korea)