



International Workshop on
EEWS 2010

Energy, Environment, Water and Sustainability
Creating New Industries with EEWS

October 7(Thu) ~ 8(Fri)
KAIST Daejeon, Korea

In Cooperation with



Organized by
KAIST
EEWS Initiative

Korea Advanced Institute of Science and Technology

Invitation

We invite you to the Third International Workshop on EEWS, whose theme is "Creating New Industries with EEWS".

Recognizing the challenges in Energy, Environment, Water, and Sustainability problems, KAIST has launched a multi-disciplinary research and education initiative, entitled "**The EEWS Initiative**" which aims to explore new research areas and innovative technologies in alliance with leading research institutes and industry partners. This year, KAIST conducts 30 research projects including seven flagship projects. To exchange the research ideas and outcomes on EEWS, the EEWS Initiative has been organizing the international workshop since 2008. The theme of this year is "Creating New Industries with EEWS". The workshop that will be held during October 7-8th (Th, F) in Daejeon consists of 8 plenary talks and 12 sessions covering very hot issues in EEWS technology. You can find more information at <http://eews.kaist.ac.kr>

This workshop will be a very fruitful congregation in identifying the economic feasibility and business opportunity of EEWS technologies.

We cordially invite you to the International EEWS Workshop

Nam Pyo Suh

Honorary Conference Chair
President of KAIST



Jae Kyu Lee

Conference Chair
Dean, KAIST EEWS Initiative



Jeung Ku Kang

Program Chair
Head & Professor, Graduate School of EEWS



Organization

» Honorary Chair

- Nam Pyo Suh (President, KAIST)
- William A.Goddard III [Professor, Caltech]

» Conference Chair

- Jae Kyu Lee (Dean, KAIST EEWS Initiative)

» Program Chair

- Jeung Ku Kang (Head & Professor, Graduate School of EEWS)

» Program Committee

- Seong Ihl Woo (Professor, KAIST, Artificial Photosynthesis)
- Yoon Sung Nam (Ph.D, Argon National Laboratory, Artificial Photosynthesis)
- Chun-Taek Rim (Professor, KAIST, Wireless Power Transfer)
- Jung Goo Cho (CEO, Green Power Technologies, Wireless Power Transfer)
- Duck Joo Lee (Professor, KAIST, Green Aviation)
- Jechul Kim (Ph.D, KOTI, Green Aviation)
- Chan Bum Park (Professor, KAIST, Artificial Photosynthesis)
- Kee Chan Song (Director, KAERI, Safe Nuclear Fuel Reuse)
- Jong-Il Yun (Professor, KAIST, Safe Nuclear Fuel Reuse)
- Joosung Lee (Professor, KAIST, Green Aviation)
- Kwang Eui Yoo (Professor, HAU, Green Aviation)
- Sun Chang Kim (Professor, KAIST, Biofuel)
- Jong In Han (Professor, KAIST, Biofuel)
- Joongmyun Bae (Professor, KAIST, Fuel Cell)
- Duk Young Jeon (Professor, KAIST, LED 2.0)
- Mamadou Diallo (Professor, KAIST, Energy-Water Nexus)
- Yousung Jung (Professor, KAIST, Energy-Water Nexus)
- Ki Suk Kang (Professor, KAIST, Battery & Solar Cell)
- Bruce Dunn (Professor, UCLA, Battery & Solar Cell)
- Yong-Hoon Cho (Professor, KAIST, LED 2.0)

» Organizing Committee

- Jonghee Kim (Team Leader, Office of KAIST EEWS Initiative)
- Doojea Woo (Staff, Office of KAIST EEWS Initiative)
- DongHyub Shin (Staff, KAIST Graduate School of EEWS)
- Hee Jung Yoon (Staff, Office of KAIST EEWS Initiative)
- Jeongok Lee (Staff, Office of KAIST EEWS Initiative)

Plenary Speakers



Nam Pyo Suh
President, KAIST



“Creating New Industries with EEWS”
Jae Kyu Lee
Dean, EEWS Initiative, KAIST



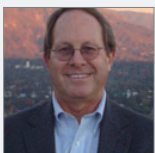
“Solar Fuel Production based on Photocatalytic Water Splitting”
Domen Kazunari
Professor, Tokyo University



“Potential of Nanomaterial for Future Energy”
Doyoung Seung
Senior Vice President, GS Caltex



“Challenges and Opportunities of CO₂ Polymer and Li-ion Batteries”
Dong Sub Kim
Head, SK Energy Institute of Technology



“Photoelectrochemical Water Treatment Coupled with Environmental Sustainability via Solar Fuels Production”
Michael Hoffman
Professor, Caltech



“The Coming Revolution in Water Impacting Energy and Health”
Mark Shannon
Director of National Science Foundation STC Water CAMPWS, Univ. of Illinois



“Solid State Lighting : Economics, Science and Technology”
Jung Han
Professor, Yale Univ.



“Recent Development of Solid Oxide Fuel Cells in Japan”
Harumi Yokokawa
Professor, Tokyo City University

Program at a glance

October 7(T)

Time	Contents		
08:00~09:30	Registration and Reception		
	Plenary session		
09:30~10:10	Creating New Industries with EEWS Nam Pyo Suh (President, KAIST) Jae Kyu Lee (Dean, EEWS Initiative, KAIST)		
10:10~10:50	Solar Fuel Production based on Photocatalytic Water Splitting Domen Kazunari (Prof. Tokyo Univ.)		
10:50~11:10	Break		
11:10~11:50	Potential of Nanomaterial for Future Energy Doyoung Seung (Senior Vice Presedent, GS Caltex)		
11:50~12:30	Challenges and Opportunities of CO₂ Polymer and Li-ion Batteries Dong Sub Kim (Head, SK Energy Institute of Technology)		
12:30~14:00	Lunch		
	Rm (Fusion Hall)	Rm [Lecture Room R (3F)]	Rm [Lecture Room G (4F)]
14:00~15:30	A1. Artificial Photosynthesis	B1. Wireless Power Transfer	C1. Green Aviation
15:30~16:00	Break		
16:00~17:30	A2. Artificial Photosynthesis	B2. Safe Nuclear Fuel Reuse	C2. Green Aviation
18:00~	BANQUET		

October 8(F)

Time	Contents		
09:00~09:30	Registration		
	Plenary session		
09:30~10:10	Photoelectrochemical Water Treatment Coupled with Environmental Sustainability via Solar Fuels Production Michael Hoffman (Professor, Caltech)		
10:10~10:50	The Coming Revolution in Water Impacting Energy and Health Mark Shannon (Director of National Science Foundation STC Water CAMPWS, Univ. of Illinois)		
10:50~11:10	Break		
11:10~11:50	Solid State Lighting : Economics, Science and Technology Jung Han (Prof. Yale Univ.)		
11:50~12:30	Recent Development of Solid Oxide Fuel Cells in Japan Harumi Yokokawa (Prof. Tokyo City Univ.)		
12:30~14:00	Lunch		
	Rm (Fusion Hall)	Rm [Lecture Room R (3F)]	Rm [Lecture Room R (4F)]
14:00~15:30	A3. Artificial Photosynthesis	B3. Fuel Cells in Action	C3. LED 2.0
15:30~16:00	Break		
16:00~17:30	A4. Foundation of Energy-Water Nexus	B4. Flexible Battery & Solar Cell	C4. LED 2.0

Parallel Track Sessions

October 7 (T), Time:14:00~15:30

A1. Artificial Photosynthesis: Generation of Sustainable Hydrogen & Hydrocarbons

Chairs: Seong Ihl Woo (Professor, KAIST), Yoon Sung Nam (Ph.D, Argon National Laboratory)

Hongxian Han (Professor, Dalian Institute of Chemical Physics)

Integration of Photocatalytic Cyclic Redox Systems for Efficient Water Splitting

Seong Ihl Woo (Professor, KAIST)

Water Oxidation Catalysts for Artificial Photosynthesis

Yoon Sung Nam (Ph.D, Argon National Laboratory)

Photocatalytic Nanostructures Assembled on Biological Scaffolds for Water Splitting

B1. Wireless Power Transfer

Chairs: Chun-Taek Rim (Professor, KAIST), Jung Goo Cho (CEO, Green Power Technologies)

Chun-Taek Rim (Professor, KAIST)

What are the Issues of Wireless Power Transfer?

Jung Goo Cho (CEO, Green Power Technologies)

Industry trend of Inductive Power Transfer?

Yong-Hoon Jeong (Professor, KAIST)

Electricity Supply and Wireless Power Transmission for EVs

Seung-Youl Kang (Ph.D, Electronics and Telecommunications Research Institute)

Wireless Power Transfer System via Magnetic Resonances and its Optimization of Efficiency

C1. Green Aviation: Global Movements and Korea's Response

Chairs: Duck Joo Lee (Professor, KAIST), Jechul Kim (Ph.D, KOTI)

Dae Sung Lee (Ph.D, Korea Aerospace Research Institute)

Trend of Green Aviation Technologies

Duck Joo Lee (Professor, KAIST)

Open Rotor Jet Engine for Low CO₂ and Low Noise

Chae-Myung Rhie (Principal Research Engineer, Pratt&Whitney)

Perspectives of P&W in Energy and Environment

Jechul Kim (Ph.D, Korea Transport Institute)

Study on Operational Plan for the Sustainable Low Carbon Green

Parallel Track Sessions

October 7 (T), Time: 16:00~17:30

A2. Artificial Photosynthesis: Generation of Sustainable Hydrogen & Hydrocarbons

Chairs: Jeung Ku Kang (Professor, KAIST), Chan Bum Park (Professor, KAIST)

Jeong Young Park (Professor, KAIST)

Metal-Oxide Hybrid Nanocatalytic Systems for CO₂ Reduction in Artificial Photosynthesis

Jeung Ku Kang (Professor, KAIST)

Integrated Artificial Photosynthesis Reactor: Generation of Sustainable Fuels from Water and Carbon Dioxide

Chan Bum Park (Professor, KAIST)

Biomimetic Artificial Photosynthesis: From Solar Energy to Fine Chemical Production

B2. Safe Nuclear Fuel Reuse

Chairs: Jong-Il Yun (Professor, KAIST), Kee Chan Song (Director, KAERI)

Yoon Il Chang (Professor, KAIST)

Future Prospects of Nuclear Energy for Sustainability

Yeong Il Kim (Vice President, Korea Atomic Energy Research Institute)

Status of SFR Technology Development at KAERI

Hansoo Lee (Director, Korea Atomic Energy Research Institute)

Key Issues in Pyroprocessing Technology

C2. Green Aviation: Global Movements and Korea's Response

Chairs: Joosung Lee (Professor, KAIST), Kwang Eui Yoo (Professor, HAU)

Chang-Heon Hyun (Team Manager, Asiana Airline)

Asiana Airlines' Strategy toward Green Aviation

Jin-Geun Yi (Director, Incheon International Airport)

Incheon International Airport, the Challenge for Green Growth

Lynnette Dray (Professor, Univ. of Cambridge)

Modelling Sustainable Aviation with Aviation Integrated Modeling

Parallel Track Sessions

October 8 (F), Time:14:00~15:30

A3. Artificial Photosynthesis: Biofuel Conversion

Chairs: Sun Chang Kim (Professor, KAIST), Jong In Han (Professor, KAIST)

Tae Kyu Ahn (Professor, Sung Kyun Kwan Univ.)

Energy Balances in Plants and Algae

Jong In Han (Professor, KAIST)

Generation of Biofuels from Biomass using the Electrochemical Method

Young Kuk Cho (CEO, Global Venture Network)

Bio-Energy Research and Commercialization Trend and Strategy

B3. Fuel Cells in Action

Chair: Joongmyun Bae (Professor, KAIST)

Jung Tae Hwang (Group Leader, Posco Power Research Center)

Localization and Strategic Development for Stationary Fuel Cell Applications

Sukwon Cha (Professor, Seoul National Univ.)

Micro Fuel Cells

Byungsun Hong (Vice President, Samsung Advanced Institute of Technology)

R&D Progress of PEM Fuel Cells for Residential Power Generator

C3. LED 2.0 : Toward Top in the World LED Market?

Chair: Duk Young Jeon (Professor, KAIST)

Jung Han (Yale Univ.)

New Frontiers of LED Research: an Academic View

Cheol-Su Son (Chief Engineer, Samsung LED)

Recent Progress of High-power GaN

Ung Chan Yoon (Professor, Pusan National Univ.)

Materials for Efficient White Organic Light Emitting Diodes (WOLEDs) and Light Sources

Parallel Track Sessions

October 8 (F), Time: 16:00~17:30

A4. Foundation of Energy-Water Nexus

Chairs: Mamadou Diallo (Professor, KAIST), Yousung Jung (Professor, KAIST)

Mamadou Diallo (Professor, KAIST)

Next Generation of Advanced Materials and Systems for Water Treatment, Desalination and Reuse

Insoo Kim (Professor, Gwangju Institute of Science and Technology)

Technology and Market for Seawater Desalination

Hyunwoong Park (Professor, Kyungpook National Univ.)

Electrochemical and Photoelectrochemical Systems for Oxidation of Water and Wastewater

B4. Flexible Battery & Solar Cell

Chairs: Kisuk Kang (Professor, KAIST), Bruce Dunn (Professor, UCLA)

Kisuk Kang (Professor, KAIST)

Flexible Lithium Rechargeable Battery Electrode

Sang Wook Kim (Professor, KAIST)

Soft Materials Nanoengineering for Energy Applications

Bruce Dunn (Professor, UCLA)

Three-Dimensional Battery Architectures

C4. LED 2.0 : Toward Top in the World LED Market?

Chair: Yong-Hoon Cho (Professor, KAIST)

Yong-Hoon Cho (Professor, KAIST)

Nanotechnologies for High Efficiency LEDs

Nam Hwang (Director, Korea Photonics Technology Institute)

Thermal Management Technology of LED Lighting Module and System

Kee Youn Jang (Senior Manager, LG Innotech)

Current Situation and Future Prospects of LED Applications

Registration

Classification	Admission / Person				
	On Line Registration			On Site	
International	Full	One Day	Early Bird	Full	One Day
Regular	\$200	\$120	50% Discount of Full or One Day Price by September 15, 2010	\$250	\$150
Professor	\$150	\$90		\$200	\$120
Student	\$50	\$30		\$60	\$40
Domestic				On Site	On Site
Regular	20만원	12만원		25만원	15만원
Professor	15만원	9만원		20만원	12만원
Student	5만원	3만원	6만원	4만원	

Online Payment : <http://www.eews.kaist.ac.kr>

Venue



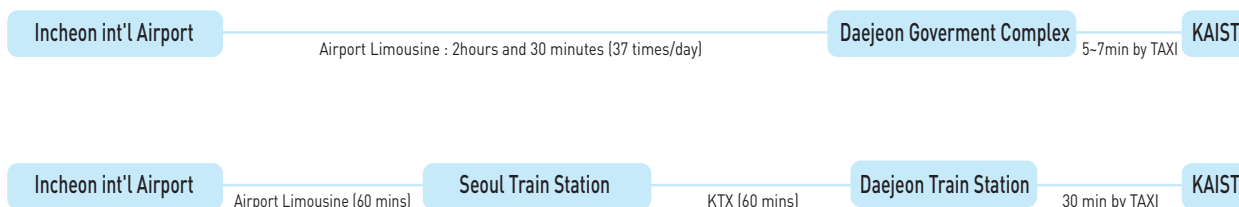
» KAIST Institute Building, KAIST Daejeon Campus
 335 Gwahak-ro(373-1 Guseong-dong), Yuseong-gu, Daejeon 305-701, Republic of Korea

Contact

Doojea Woo
 EEWS, KAIST, 87 Hoegiro, Dongdaemun-gu, Seoul, 130-722, Republic of Korea
 Te l : +82-2-958-3672 | Fax : +82-2-960-2102 | eews@kaist.ac.kr

DongHyub Shin
 Graduate School of EEWS, KAIST
 Te l : +82-42-350-1782 | shin79@kaist.ac.kr

Transportation to Daejeon KAIST KI BLd.



Accommodation

» Main Hotel with Conference Rate



<http://hotelspapia.com/>

Address

545-5, Bongmyung-dong, Yuseong-gu, Daejeon, Korea [305-301]

Tel 82-42-600-6000

Fax 82-42-600-6008

Room Type	Conference Room Rate
Standard Twin	KRW 99,120 (Approximately \$83)

- Deadline for Hotel reservation is September 27, 2010
- The above room rates include the 10% tax and 10% service charges.
- The above room rate is based on Korean Won.

» Other Hotels



<http://yousunghotel.com/>

Address 480, Bongmyung-dong, Yuseong-gu, Daejeon, Korea [305-301]

Tel 82-42-820-0100

Fax 82-42-822-0041



HOTEL RIVIERA
HOTEL RIVIERA YUSEONG

<http://www.hotelriviera.co.kr/>

Address 444-5, Bongmyung-dong, Yuseong-gu, Daejeon, Korea [305-301]

Tel 82-42-823-2111

Fax 82-42-822-5250

Organized by

KAIST

EEWS Initiative

Energy, Environment, Water and Sustainability
Korea Advanced Institute of Science and Technology