

# **ENGE 2010**

**International Conference on Electronic Materials and  
Nanotechnology for Green Environment**

## **Program**

**November 21-24, 2010  
Jeju Island, Korea**

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# Welcome to ENGE 2010

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On behalf of the ENGE 2010 organizing committee, I am very much honored and pleased to invite you to participate in the first International Conference on Electronic Materials and Nanotechnology for Green Environment (ENGE 2010) organized by the Korean Institute of Metals and Materials, which will be held in beautiful Jeju Island, Korea from November 21<sup>st</sup> to 24<sup>th</sup>, 2010.

I am very delighted that the first ENGE is being held in Korea. Jeju Island, called Hawaii of Korea, which is a small volcanic island, but recognized as one of the best natural resort places in Korea. We have put a great effort to make the first ENGE valuable and memorable in terms of the technical and social programs. In this conference more than 550 technical papers will be presented, covering a wide range of research topics such as energy, nano engineering, semiconductor processing, and display. I think this is the first gathering of Korean electronic materials scientists and strongly believe that this conference will provide an excellent platform to present and discuss the most recent exciting results. The organizing committee has decided to hold the conference every other year to keep up the most recent information on the electronic materials.

While attending the ENGE 2010, I suggest you not to miss the charm of quiet and lovely scenery, delicious foods, and various activities all around the island. It will be no doubt that you will enjoy this conference equipped with a valuable technical program and an interesting social program.

I would like to express special thanks and appreciation to the members of the Organizing Committee, Program Committee, and International Advisory Board for their great contributions to make the ENGE 2010 successful.

Once again, I heartily welcome you to the first ENGE 2010 and wish your pleasant stay in Jeju.

**Seung-Ki Joo**  
**General Chair**  
**ENGE 2010**

# Organizing Committee

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## **General Chair**

Seung-Ki Joo (Seoul National University)

## **General Vice-Chair**

Dong Hyuk Shin (Hanyang University)

## **General Secretary**

Heon Lee (Korea University)

## **Publication Chair**

Byungwoo Park (Seoul National University)

## **Publicity Chair**

Jang-Sik Lee (Kookmin University)

## **Finance Chair**

Hyun Suk Jung (Kookmin University)

## **Local Committee Chair**

Kyung-Ho Shin (KIST)

## **Local Committee Members**

Pyungwoo Jang (Cheongju University)

Jin-Seung Jung (Gangneung-Wonju National University)

CheolGi Kim (Chungnam National University)

Sang Sub Kim (Inha University)

Kee-Won Kwon (Sungkyunkwan University)

Woong Lee (Changwon National University)

Bong-ki Ryu (Pusan National University)

Kyu-Hwan Shim (Chonbuk National University)

# International Advisory Board

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Paul S. Ho (University of Texas-Austin)

Sungho Jin (UC San Diego)

Sung K. Kang (IBM T.J. Watson Research Center)

Ki Nam Kim (Samsung Advanced Institute of Technology)

Nack J. Kim (POSTECH)

Paul A. Kohl (Georgia Institute of Technology)

Oh-Kyong Kwon (Hanyang University)

Young Pak Lee (Hanyang University)

Shad Roundy (Atmel)

Hajime Tomokage (Fukuoka University)

Yutaka Tsukada (i-PACS)

King-Ning Tu (UCLA)

Ehrenfried Zschech (Fraunhofer Institute for Non-Destructive Testing)

# Program Committee

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## **Program Committee Chair**

Young-Ho Kim (Hanyang University)

## **Symposium Chairs**

### **1. Energy Program**

#### **A. Devices and Materials for Energy Harvesting and Storage**

Sunyong Caroline Lee (Hanyang University)

Shad Roundy (Atmel)

#### **B. Novel Fuel-Cell and Battery Materials**

Sung-Yoon Chung (Inha University)

Pei-Chen Su (National Taiwan University)

#### **C. Photovoltaic Science and Engineering**

Se-Hee Lee (University of Colorado)

Masakazu Sugiyama (The University of Tokyo)

Hiroshi Imahori (Kyoto University)

Jin Zhai (Beijing University of Aeronautics and Astronautics)

#### **D. Thermoelectric Materials**

Wooyoung Lee (Yonsei University)

Renkun Chen (UC San Diego)

### **2. Nano Engineering**

#### **A. Nano Dot, Nano Wire and Nano Processes**

Woong Kim (Korea University)

Guozhen Shen (Huazhong University of Science and Technology)

#### **B. Carbon Nano Materials**

Byung Hee Hong (Sungkyunkwan University)

Barbaros Özyilmaz (National University of Singapore)

#### **C. Nano Devices and Structures**

Dae-Hong Ko (Yonsei University)

Raj Jammy (SEMATECH)

# Program Committee (cont.)

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## 3. Semiconductor Processing

### A. Non-Volatile Memory Materials and Processes

Hyunsang Hwang (GIST)  
Yukiharu Uraoka (Nara Institute of Science and Technology)

### B. Advanced Patterning Technology

Jinho Ahn (Hanyang University)  
Shinji Matsui (University of Hyogo)  
Grace Ho (National University of Kaohsiung)  
Sang Hoon Kim (LG Electronics)

### C. Advanced Packaging and Interconnection

Young-Bae Park (Andong National University)  
Yutaka Tsukada (i-PACS)  
Hajime Tomokage (Fukuoka University)  
Chee Lip Gan (Nanyang Technological University)  
Junichi Koike (Tohoku University)

### D. Oxide Semiconductor

Sang Yeol Lee (KIST)  
Toshio Kamiya (Tokyo Institute of Technology)  
Wei Gao (The University of Auckland)  
Quanxi Jia (Los Alamos National Laboratory)

## 4. Display

### A. Materials and Devices of Flexible Displays and Printed Electronics

Chung-Kun Song (Dong-A University)  
Kiyohi Yase (AIST)  
Kazuhiro Kudo (Chiba University)

### B. Materials and Processes for Highly Efficient LED

Jong-Lam Lee (POSTECH)  
Rong Zhang (Nanjing University)  
Ching-Chung Yang (National Taiwan University)  
Tae-Yeon Seong (Korea University)  
S. F. Chichibu (Tohoku University)

### C. OLED Materials and Devices

Myeongkyu Lee (Yonsei University)  
Shizuo Tokito (Yamagata University)

# Timetable

<i>Sunday, November 21, 2010</i>	
15:00-18:00	Registration
18:00~	Welcome Reception (Ballroom Lobby, 2F)

<i>Monday, November 22, 2010</i>					
Room (2F)	Ballroom 2	Ballroom 3	Ballroom 4	Mara	Main Lobby
09:00-09:05	Opening Ceremony (Ballroom 1)				
09:05-09:45	Plenary 1 (Ballroom 1) Joo-Tae Moon (Samsung Electronics, Korea)				
09:45-10:30	Plenary 2 (Ballroom 1) Hee Gook Lee (LG Siltron, Korea)				
10:30-10:45	Coffee				
10:45-12:00	AA	AB	AC	AD	
12:00-13:30	Lunch Break				
13:30-15:30	BA	BB	BC	BD	Poster Session 1 (13:30-17:45)  BP / BQ / BR / BS / BT
15:30-15:45	Coffee				
15:45-17:45	CA	CB	CC		

<i>Tuesday, November 23, 2010</i>					
Room (2F)	Ballroom 2	Ballroom 3	Ballroom 4	Mara	Main Lobby
09:00-09:45	Plenary 3 (Ballroom 1) Sumio Iijima (Meijo University, Japan)				
09:45-10:30	Plenary 4 (Ballroom 1) Koki Takanashi (Tohoku University, Japan)				
10:30-10:45	Coffee				
10:45-12:00	DA	DB	DC	DD	
12:00-13:30	Lunch Break				
13:30-15:30	EA	EB	EC	ED	Poster Session 2 (13:30-17:45)  EP / EQ / ER / ES / ET
15:30-15:45	Coffee				
15:45-17:45	FA	FB	FC	FD	
19:00~	Banquet (Ballroom 1)				

<i>Wednesday, November 24, 2010</i>					
Room (2F)	Ballroom 2	Ballroom 3	Ballroom 4	Mara	Main Lobby
09:00-10:30	GA	GB	GC	GD	Poster Session 3 (09:00-12:00)  GP / GQ / GR / GS / GT
10:30-10:45	Coffee				
10:45-12:00	HA	HB	HC	HD	
12:00-13:30	Lunch Break				
13:30-15:30	IA	IB	IC	ID	Poster Session 4 (13:30-17:45)  IP / IQ / IR / IS / IT
15:30-15:45	Coffee				
15:45-17:45	JA	JB			

# Session Title

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## Oral Sessions

AA: Oxide Semiconductor 1  
AB: Advanced Patterning Technology 1  
AC: Novel Fuel-Cell and Battery Materials 1  
AD: OLED Materials and Devices 1  
BA: Oxide Semiconductor 2  
BB: Advanced Patterning Technology 2  
BC: Advanced Packaging and Interconnection 1  
BD: OLED Materials and Devices 2  
CA: Oxide Semiconductor 3  
CB: Thermoelectric Materials 1  
CC: Advanced Packaging and Interconnection 2  
(Special Session on Platform Technology of Packaging and Interconnection for Mobile Electronic Devices)  
DA: Novel Fuel-Cell and Battery Materials 2  
DB: Carbon Nano Materials 1  
DC: Advanced Packaging and Interconnection 3  
DD: Thermoelectric Materials 2  
EA: Non-Volatile Memory Materials and Processes  
EB: Carbon Nano Materials 2  
EC: Advanced Packaging and Interconnection 4  
ED: Thermoelectric Materials 3  
FA: Oxide Semiconductor 4  
FB: Carbon Nano Materials 3  
FC: Advanced Packaging and Interconnection 5  
FD: Nano Dot, Nano Wire and Nano Processes 1  
GA: Devices and Materials for Energy Harvesting and Storage 1  
GB: Nano Devices and Structures 1  
GC: Photovoltaic Science and Engineering 1  
GD: Materials and Processes for Highly Efficient LED 1  
HA: Devices and Materials for Energy Harvesting and Storage 2  
HB: Nano Devices and Structures 2  
HC: Photovoltaic Science and Engineering 2  
HD: Materials and Processes for Highly Efficient LED 2  
IA: Materials and Devices of Flexible Displays and Printed Electronics 1  
IB: Nano Dot, Nano Wire and Nano Processes 2  
IC: Photovoltaic Science and Engineering 3  
ID: Materials and Processes for Highly Efficient LED 3  
JA: Materials and Devices of Flexible Displays and Printed Electronics 2  
JB: Nano Dot, Nano Wire and Nano Processes 3

## Poster Sessions

BP: Devices and Materials for Energy Harvesting and Storage 1  
BQ: Novel Fuel-Cell and Battery Materials  
BR: Photovoltaic Science and Engineering 1  
BS: Nano Dot, Nano Wire and Nano Processes 1  
BT: Materials and Devices of Flexible Displays and Printed Electronics 1  
EP: Photovoltaic Science and Engineering 2  
EQ: Thermoelectric Materials  
ER: Advanced Patterning Technology  
ES: Materials and Processes for Highly Efficient LED  
ET: OLED Materials and Devices  
GP: Nano Dot, Nano Wire and Nano Processes 2  
GQ: Carbon Nano Materials  
GR: Advanced Packaging and Interconnection 1

## Session Title (cont.)

GS: Oxide Semiconductor 1

GT: Materials and Devices of Flexible Displays and Printed Electronics 2

IP: Devices and Materials for Energy Harvesting and Storage 2

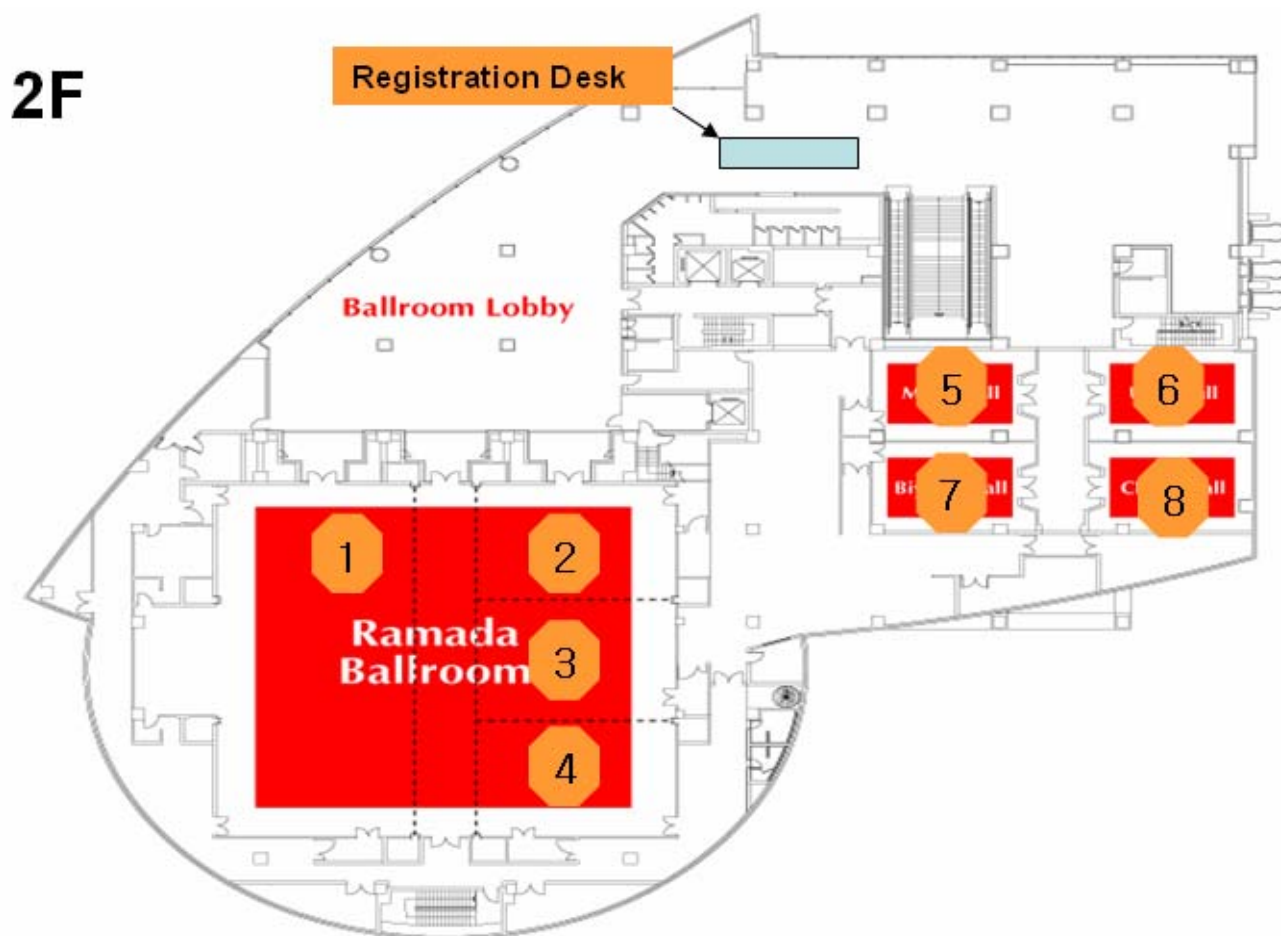
IQ: Photovoltaic Science and Engineering 3

IR: Nano Devices and Structures

IS: Advanced Packaging and Interconnection 2

IT: Oxide Semiconductor 2

## Floor Map



#	Room	Usage
1	Ballroom 1	Plenary / Banquet
2	Ballroom 2	
3	Ballroom 3	Oral Sessions
4	Ballroom 4	
5	Mara	Internet Cafe
6	Udo	
7	Biyang	VIP Room
8	Chuja	Secretariat
	Ballroom Lobby	Welcome Reception Poster Sessions

# Plenary 1

09:05am-09:45am / Monday, November 22, 2010

Room: Ballroom 1

## **Futures on Display industry: What do we need and Where are we heading for?**

### **Joo-Tae Moon**

Senior Vice President, Director of LCD R&D Center, Samsung Electronics

### **Abstract**

In this talk, it is mentioned that the display industry will be growing up continuously to the larger size and the faster frame rate, even though the fundamental technology and the materials are facing many difficulties. In order to achieve the future display industry expansion, it is defined what material should be found or developed, and what kind of the process technology should be prepared. At the same time, environmental issues are concerned.

### **Biography**

**Joo-Tae Moon** is the vice president and the director of LCD R&D center as of 2010. 05. Before joining LCD industry, he was the head of process development team of Samsung Semiconductor R&D center. He received the B.S. degree in metallurgical engineering from Seoul National University, Seoul, Korea, in 1984, and the M.S. and Ph.D. degree in material engineering from Korea Advanced Institute of Science and Technology, Daejeon, Korea, in 1986 and 1989, respectively. Since joining Samsung Electronics Co., Ltd., Gyeonggi-Do, Korea, in 1989, he has developed semiconductor fabrication technologies (mainly lithography) of 64M, 256M, 1G, 4G, and 16G DRAM devices. His research interests are in the areas of LCD device processing and fabrication, and of emerging technology for new displays. He has published more than 200 technical papers and holds dozens of patents.

# Plenary 2

09:45am-10:30am / Monday, November 22, 2010

Room: Ballroom 1

## Perfecting Silicon Crystal Technology for ULSI

**Hee Gook Lee**

CEO, LG Siltron

### Abstract

The continuing expansion of world economy since the end of world -war II has been in large part due to global business improvements based on the rapid technology developments which has helped creating the increasing demand of new goods and services. One of the most prominent technologies which contributed to such trend has been the semiconductor integrated device and circuits technology, enabling a large scope of Information Technology and Business developments. We are now so accustomed to the use of various home, office and mobile systems which are all enabled by ever improving ULSI chips.

It is well known that all such ULSI chips are fabricated on silicon wafers. It may not be so well recognized, however, that the technical specifications and quality of such silicon wafers are constantly upgraded in crystal perfection, dopant and impurity distribution, and the mechanical properties and structures. As the ULSI technology is evolved into sub-20 nanometer geometry, the transistors, capacitors and interconnect structures are sensitively affected by any tiny imperfections in the bulk and surface abnormalities. Metallic contaminations also affect the operation of circuits or storage of electrons in tiny nodes which may cause errors in the information processing. The yield of the chips is also sensitively affected by the tiny particles or surface structure imperfections, which have not been critical in larger dimension process technologies.

In this paper, the history of the 40 years of constant technical developments in silicon wafers will be reviewed. The wafers are also evolving into various different structures; namely annealed wafers, epitaxial wafers and various types of artificially doped, damaged and controlled imperfection wafers, which are tailored to the specific needs of fabrication processes, final circuit operation, reliability needs and manufacturing yield improvements. To better develop such high technology and nano level wafers, the adoption of various analytical measurement techniques are imperative in the design and optimization of the wafer technologies.

### Biography

#### Academic Background

- \* February, 1974: Electronics Engineering, Bachelor of Seoul National University
- \* January, 1977: Stanford University in Electrical Engineering Masters
- \* August, 1980: Stanford University Ph.D. in Electrical Engineering
- \* February, 2004: Seoul National University Business School CEO Course Completed

#### Major Experience

- \* January, 2008~Now: CEO and President, Siltron
- \* January, 2005: LG Electronics CTO (Chief Technology Officer)
- \* January, 2001: Chief of LG Electronics Institute of Technology
- \* August, 1999: Vice-president of LG Electronic Institute
- \* March, 1994: Head of Managing of LG Semicon Institute
- \* March, 1987: Chief of Strategic Planning of LG Semicon
- \* April, 1986: Foreman of MOS of LG Semicon
- \* January, 1983: Entered LG Semicon
- \* May, 1980 ~Dec, 1982: Worked Hewlett-Packard of Cupertino, CA. USA.

# Plenary 3

09:00am-09:45am / Tuesday, November 23, 2010

Room: Ballroom 1

## Synthesis and structural characterization of nano-carbon materials for their industrial applications

**Sumio Iijima**

Meijo University

### Abstract

Firstly, the state of the art of synthesis of various nano-carbon materials that we have studied so far will be reviewed with the emphasis on the key points of the synthesis. One of challenge in the formation of SWCNT is to control its diameter and chirality, for which we tried to grow SWCNTs using metal catalyst of uni-sized metal clusters. The usual size of carbon nanohorn (CNH) aggregates, which might be used for drug carrier for drug delivery system, potable super-capacitor, etc., is about 80 nm in diameter but its smaller size of less than 30nm is needed for a bio-medical application purpose because of their higher permeation through biological cell membranes [1]. The small CNHs have been successfully realized by optimizing parameters for the growth of CNHs in CO<sub>2</sub> laser ablation method of a carbon rod.

Formation of a large size graphene sheet by thermal CVD method using a copper substrate foil has been reported [2]. The method requires a high temperature CVD reactor (near 1000°C), so that it cannot be used in a conventional Si device process and therefore an alternative low temperature synthesis of graphene is needed. For this purpose we developed a new micro-wave CVD method which has been developed originally for the nano-diamond film growth at low temperature down to room temperature [3]. We shall demonstrate the growth of an A4-size graphene sheet grown at 300°C.

In the last half part of the presentation will be concerned with structural characterization of nano-carbon materials using atom-resolution electron microscopes as well as other characterization methods of Raman, photoluminescence and optical absorption spectroscopy, etc The advantage of high resolution electron microscopy (HRTEM) over other techniques is to be able to characterize local atomic structures such as lattice defects and edge structures of nano materials which cannot be studied in conventional techniques. Another emphasis of HRTEM will be on dynamic observation of a reaction process which is not available for other high resolution probe microscope techniques such as STM. Some examples of above mentioned observations will be demonstrated [4-12].

### Biography

#### Education

- \* 1965-1968: Tohoku University, Sendai, Majoring in Physics; Ph.D.

#### Professional Record

- \* 1968-1974: Research Associate, Research Institute for Scientific Measurements, Tohoku University, Sendai
- \* 1970-1982: Senior Research Associate, Center for Solid State Science, Arizona State University, Arizona
- \* 1979. 3-1979. 9: Visiting Senior Scientist, Department of Metallurgy and Materials Science, University of Cambridge, Cambridge
- \* 1982-1987: Group Leader, ERATO Program, Research Development Corporation of Japan, Nagoya
- \* 1987-Present: Senior Research Fellow, NEC Corporation, Tsukuba  
(Joined NEC in 1987 as Senior Principal Researcher)
- \* 1999-Present: Professor, Meijo University, Nagoya (Visiting Lecturer, 1998 – 1999)
- \* 2001-Present: Director, Nanotube Research Center, National Institute of Advanced Industrial Science and Technology (AIST), Tsukuba
- \* 2005-Present: Dean, Sungkyunkwan University, Advanced Institute of Nanotechnology (SAINT)
- \* 2007-Present: Distinguished Invited University Professor of Nagoya University, Nagoya

# Plenary 4

09:45am-10:30am / Tuesday, November 23, 2010

Room: Ballroom 1

## Spin current and spintronics

**Koki Takanashi**

Tohoku University

### Abstract

Spintronics has been attracting much attention as a new electronics useful for reducing energy consumption and keeping green environment. “Spin current”, i.e., the flow of spin, in magnetic nanostructures has emerged as a fascinating physical concept during the recent development of spintronics study. In magnetic nanostructures, magnetism correlates strongly with electronic transport and also other physical properties, leading to the mutual control of magnetic, transport, and other physical properties. Spin current is the most basic concept relevant to the mutual control, which is utilized in spintronics.

In contrast to electric current, i.e., the flow of charge, the spin current is the flow of angular momentum, and changes through the transfer of angular momentum. The spin current, which is usually generated through the phenomena such as spin injection and spin accumulation, annihilates through spin relaxation and spin diffusion. The generation and the annihilation of spin current is accompanied by the transformation with other physical quantities; therefore the spin current can be controlled by a physical signal (magnetic, electric, optical, etc.), and conversely the physical signal can be controlled by the spin current. Efficient generation and precise control of spin current in magnetic nanostructures are key technologies for the further development of spintronics. For a recent few years, spin current has been extensively investigated, and the understanding of spin current has dramatically developed.

In my talk, the concept, historical background, and recent progress in research of spin current including materials research will be reviewed in relation to future prospect of spintronics that is expected to contribute to green innovation.

### Biography

#### Academic Background

- \* 1981: B. S., Physics, University of Tokyo
- \* 1983: M. S., Physics, University of Tokyo
- \* 1986: Ph.D., Physics, University of Tokyo

#### Professional Career

- \* 1986.4-1994.1: Research Associate, Tohoku University, Sendai, Japan
- \* 1994.2-2000.10: Associate Professor, Tohoku University, Sendai, Japan
- \* 2000.11-Present: Professor, Tohoku University, Sendai, Japan

# Invited Speakers

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## 1. Energy

### A. Devices and Materials for Energy Harvesting and Storage

Shad Roundy (Atmel)

### B. Novel Fuel-Cell and Battery Materials

Jang-Kyo Kim (Hong Kong University of Science & Technology)

Sivaram Arepalli (Sungkyunkwan University)

### C. Photovoltaic Science and Engineering

Masakazu Sugiyama (The University of Tokyo)

Jin Zhai (Beijing University of Aeronautics and Astronautics)

Pyuck-Pa Choi (Max-Planck-Institute for Iron Research)

### D. Thermoelectric Materials

Wooyoung Lee (Yonsei University)

Su Dong Park (Korea Electrotechnology Research Institute)

Woosuck Shin (AIST)

## 2. Nano Engineering

### A. Nano Dot, Nano Wire and Nano Processes

Guozhen Shen (Huazhong University of Science and Technology)

Takhee Lee (Gwangju Institute of Science and Technology)

Moon-Ho Jo (POSTECH)

Jong-Hyun Ahn (Sungkyunkwan University)

### B. Carbon Nano Materials

Antonio H. Castro Neto (Boston University)

Kian Ping Loh (National University of Singapore)

Takazumi Kawai (NEC Corporation)

Barbaros Oezylimaz (National University of Singapore)

Sunae Seo (Samsung Advanced Institute of Technology)

### C. Nano Devices and Structures

Seok-Hee Lee (KAIST)

# Invited Speakers (cont.)

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## 3. Semiconductor Processing

### A. Non-Volatile Memory Materials and Processes

Yukiharu Uraoka (Nara Institute of Science and Technology)

### B. Advanced Patterning Technology

Shinji Matsui (University of Hyogo)

Sang Hoon Kim (LG Electronics)

Hye-Keun Oh (Hanyang University)

Jong-Chan Lee (Seoul National University)

### C. Advanced Packaging and Interconnection

Bioh Kim (EV Group)

Kangwook Lee (Tohoku University)

Sung Yi (Portland State University)

Hyungjun Kim (Yonsei University)

Young-Chang Joo (Seoul National University)

J. Koike (Tohoku University)

A.S. Budiman (Formerly of Spansion, Inc.)

### D. Oxide Semiconductor

Sang Yeol Lee (KIST)

Toshio Kamiya (Tokyo Institute of Technology)

Wei Gao (The University of Auckland)

Dong Chan Shin (Chosun University)

Chul-Hong Park (Pusan National University)

Jun Souk (Samsung Electronics)

## 4. Display

### A. Materials and Devices of Flexible Displays and Printed Electronics

Kiyohi Yase (AIST)

Kazuhiro Kudo (Chiba University)

Yong-Young Noh (Hanbat National University)

Young-Rae Cho (Pusan National University)

### B. Materials and Processes for Highly Efficient LED

Jong-Lam Lee (POSTECH)

Ching-Chung Yang (National Taiwan University)

Rong Zhang (Nanjing University)

Tae-Yeon Seong (Korea University)

Mok-Soon Kim (Inha University)

Jong Kyu Kim (POSTECH)

### C. OLED Materials and Devices

Sangyoon Lee (Samsung Advanced Institute of Technology)

Hai-Ching Su (National Chiao Tung University)

Jiun-Haw Lee (National Taiwan University)

Shizuo Tokito (Yamagata University)

# General Information

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## Official Language

The official language of the conference is English.

## Registration Desk

The registration desk on the main lobby (2nd Floor) in the venue will be open as follow:

Sunday, November 21, 2010 15:00-18:00

Monday, November 22, 2010 08:30-18:00

Tuesday, November 23, 2010 08:30-19:00

Wednesday, November 24, 2010 08:30-18:00

## Oral Presentation

Every room is equipped with LCD projector and Windows Laptop, with PowerPoint and Acrobat PDF reader. Please make your best to use the room laptop and upload your presentation file on it before the beginning of the session. If you really need to use your laptop (only in the case you need special software for your presentation or in case of major compatibility problems), check the connection with the projector before the session starts. Notice: time lost in setting up your laptop during the session cannot be recovered: this will end up in a shorter time available for yours presentation. Greet/meet the session chair before the session starts. Please arrive early enough, to find out the session chair and to tell him/her your name, affiliation and the title of your paper.

Time assignment including discussion is as follow:

Plenary: 45 minutes

Invited: 30 minutes

Regular: 15 minutes

## Poster Presentation

**Place: Ballroom Lobby (2nd Floor)**

The dimensions of the poster board are 100 cm (width) X 136 cm (length). You need to attach your poster on the poster board on the ballroom lobby (2nd Floor) at least 15 minutes before the poster session starts, and then remove your poster after the poster session finishes. You should preside at your poster board throughout the poster session for anticipated discussion with participants.

## Wireless Internet Access

Wireless internet access will be available for all participants during Conference dates, and this access is free of charge. Those wishing to use this wireless network are required to use their own laptops equipped with wireless LAN card.

## Welcome Reception

**Time: 18:00 ~**

**Date: Sunday, November 21, 2010**

**Place: Ballroom Lobby (2nd Floor)**

An invitation to the welcome reception is extended to all participants including registered students.

## Banquet

**Time: 19:00 ~**

**Date: Tuesday, November 23, 2010**

**Place: Ballroom 1**

We hope this banquet will offer you a good opportunity to promote friendship with participants. Delicious food, and fusion Korean traditional music performance will be offered at the banquet. A banquet ticket is included in the Regular Registration (R1). Student Registration (R2) does not include the banquet ticket.

## Monday, November 22, 2010

Mon. 09:00-09:05 **Ballroom 1**  
**Opening Ceremony**

Mon. 09:05-09:45 **Ballroom 1**  
**Plenary 1**  
**Futures on Display industry: What do we need and Where are we heading for?**  
Joo-Tae Moon (Samsung Electronics, Korea)

Mon. 09:45-10:30 **Ballroom 1**  
**Plenary 2**  
**Perfecting Silicon Crystal Technology for ULSI**  
Hee Gook Lee (LG Siltron, Korea)

Mon. 10:45-12:00 **Ballroom 2**  
**AA: Oxide Semiconductor**  
Chair: Dong Chan Shin (Chosun University, Korea)

**AA01 (Invited)** 10:45-11:15  
**First-Principles Study of Microscopic Properties of the O-deficient amorphous InGaZnO**  
Chul-Hong Park, Il-Joon Kang (Pusan National University, Korea)

**AA02** 11:15-11:30  
**Characteristics of a-IGZO/ITO Hybrid Layer Deposited by Magnetron Sputtering**  
Joon Ho Bang, Pung Keun Song (Pusan National University, Korea)

**AA03** 11:30-11:45  
**Characteristics of Ga-doped ZnO based thin film transistors using RF magnetron sputter**  
Hyojun Bae, Sunglyong Yun, Jaeho Jang, Hyonkwang Choi, Minhyon Jeon (Inje University, Korea)

**AA04** 11:45-12:00  
**Conducting or insulating interfaces in epitaxial SrTiO<sub>3</sub>/RO (R = La, Pr, Nd, Sm, Y)/SrTiO<sub>3</sub> heterostructures**  
Ho Won Jang<sup>1,2</sup>, D. A. Felker<sup>3</sup>, C. W. Bark<sup>1</sup>, Y. Wang<sup>4</sup>, M. K. Niranjana<sup>4</sup>, C. T. Nelson<sup>5</sup>, Y. Zhang<sup>5</sup>, D. Su<sup>6</sup>, C. M. Folkman<sup>1</sup>, S. H. Baek<sup>1</sup>, S. Lee<sup>1</sup>, K. Janicka<sup>4</sup>, Y. Zhu<sup>6</sup>, X. Q. Pan<sup>5</sup>, D. D. Fong<sup>7</sup>, E. Y. Tsybal<sup>4</sup>, M. S. Rzchowski<sup>3</sup>, C. B. Eom<sup>1</sup>  
(<sup>1</sup>University of Wisconsin, USA; <sup>2</sup>Korea Institute of Science and Technology, Korea; <sup>3</sup>University of Wisconsin, USA; <sup>4</sup>University of Nebraska, USA; <sup>5</sup>University of Michigan, Ann Arbor, USA; <sup>6</sup>Brookhaven National Laboratory, USA; <sup>7</sup>Argonne National Laboratory, USA)

Mon. 10:45-12:15 **Ballroom 3**  
**AB: Advanced Patterning Technology**  
Chair: N.-E. Lee (Sungkyunkwan University, Korea)

**AB01 (Invited)** 10:45-11:15  
**Research and Development on High-Throughput UV Nanoimprint**  
Shinji Matsui (University of Hyogo, Japan)

**AB02 (Invited)** 11:15-11:45  
**Applications of Biomimetic Structures Combined with Nano Patterning Technology**  
Sang Hoon Kim (LG Electronics, Korea)

**AB03** 11:45-12:00  
**Fabrication of FePt patterned media for ultra-high density magnetic recording**  
Hyunsu Kim<sup>1</sup>, Jin-Seo Noh<sup>1</sup>, Jong Wook Roh<sup>1</sup>, Dong Won Chun<sup>2</sup>, Sungman Kim<sup>2</sup>, Sang Hyun Jung<sup>3</sup>, Ho Kwan Kang<sup>3</sup>, Won Yong Jeung<sup>2</sup>, Wooyoung Lee<sup>1</sup> (<sup>1</sup>Yonsei University, Korea; <sup>2</sup>Korea Institute of Science and Technology, Korea; <sup>3</sup>Korea Advanced Nano Fab. Center, Korea)

**AB04** 12:00-12:15  
**Consecutive and selective deposition of Pt/Al bilayers on perfluorodecyltrichlorosilane (PFS) monolayer-printed TiO<sub>2</sub> surfaces using chemical vapor deposition**  
Jaegab Lee, Ara Kim, Kyunghoon Jeong (Kookmin University, Korea)

Mon. 10:45-12:00 **Ballroom 4**  
**AC: Novel Fuel-Cell and Battery Materials**  
Chair: Sung-Yoon Chung (Inha University, Korea)

**AC01 (Invited)** 10:45-11:15  
**Carbon nanotube-based composites as electrode materials for rechargeable Li-ion batteries**  
Jang-Kyo KIM (Hong Kong University of Science & Technology, China)

**AC02 (Invited)** 11:15-11:45  
Withdrawn

**AC03** 11:45-12:00  
**Development of Bimetallic (Ni-Fe) Anode Supported SOFC Unit Cells for methane fuels at Low-temperature (650 oC)**  
Hyun Jun Ko, Jong-Jin Lee, Sang-Hoon Hyun (Yonsei University, Korea)

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Mon. 10:45-12:15

Mara

**AD: OLED Materials and Devices**

Chair: Hai-Ching Su (National Chiao Tung University, Taiwan)

**AD01 (Invited)** 10:45-11:15

**Emitting layer design of white organic light-emitting device**

Chih-Hung Hsiao<sup>1</sup>, Yi-Hsin Lan<sup>1</sup>, Shun-Wei Liu<sup>2</sup>, Mao-Kuo Wei<sup>3</sup>, Chin-Ti Chen<sup>2</sup>, Man-Kit Leung<sup>4</sup>, Jiun-Haw Lee<sup>1</sup> (<sup>1</sup>National Taiwan University, Taiwan; <sup>2</sup>Academia Sinica, Taiwan; <sup>3</sup>National Dong Hwa University, Taiwan; <sup>4</sup>National Taiwan University, Taiwan)

**AD02 (Invited)** 11:15-11:45

**Highly stable oxide-TFTs for large area and high resolution displays**

Sangyoon Lee (Samsung Electronics Co., LTD., Korea)

**AD03** 11:45-12:00

**Research on Photophysical Properties of White-light Copolymers Based on Poly(9,9-dioctylfluorene)**

Hua Wang, Yang Xu, Chunli Song, Bingshe Xu (Taiyuan University of Technology, China)

**AD04** 12:00-12:15

**An advanced seamless foldable AM-OLED display composed of multi display panels**

Myoung Seop Song<sup>1</sup>, Jong Soo Kim<sup>1</sup>, Sang Kyun Cho<sup>1</sup>, Myung Ho Lee<sup>1</sup>, Dong Won Han<sup>1</sup>, Jin Ho Kwack<sup>1</sup>, Woong Sik Choi<sup>2</sup>, In Seo Kee<sup>3</sup>, Hong Shik Shim<sup>3</sup>, Sun Kook Kim<sup>3</sup>, Sung Chul Kim<sup>1</sup> (<sup>1</sup>SAMSUNG MOBILE DISPLAY, Korea; <sup>2</sup>SAMSUNG MOBILE DISPLAY, Korea; <sup>3</sup>SAIT, Korea)

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Mon. 13:30-15:30

Ballroom 2

**BA: Oxide Semiconductor**

Chair: Sang Yeol Lee (KIST, Korea)

**BA01 (Invited)** 13:30-14:00

**FPD Evolution and Oxide TFTs**

Jun Souk (Samsung Electronics, Korea)

**BA02 (Invited)** 14:00-14:30

**Why is amorphous oxide semiconductor expected for next-generation displays?**

Toshio Kamiya, Kenji Nomura, Hideo Hosono (Tokyo Institute of Technology, Japan)

**BA03** 14:30-14:45

**Relation between processing parameters and performance of novel amorphous silicon-indium-zinc oxide thin film transistors**

Eugene Chong<sup>1,2</sup>, Seung-Han Kim<sup>1</sup>, Da Woon Jung<sup>1</sup>, Yoon Soo Chun<sup>1</sup>, Sang Yeol Lee<sup>1,2</sup> (<sup>1</sup>Korea Institute of Science and Technology, Korea; <sup>2</sup>University of Science and Technology, Korea)

**BA04** 14:45-15:00

**Effects of wet etching solution on the electrical characteristics of zinc tin oxide thin film transistors**

Min Suk Oh, Yong Hoon Kim, Sang Jun Oh, Yoon Kwon Kyung (Korea Electronics Technology Institute, Korea)

**BA05** 15:00-15:15

**Study of IZO-based transparent thin film transistor using high-K LaAlO<sub>3</sub> as gate insulator**

Kou-Chen Liu, Po-Hsiu Chien, Wen-Sheng Feng, Jung-Ruey Tsai (Chang Gung University, Taiwan)

**BA06** 15:15-15:30

**Back-channel etching process of amorphous IGZO thin film transistors using Cu-based electrodes**

Pilsang Yun, Junichi Koike (Tohoku University, Japan)

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Mon. 13:30-15:00

Ballroom 3

**BB: Advanced Patterning Technology**

Chair: Hye-Keun Oh (Hanyang University, Korea)

**BB01 (Invited)** 13:30-14:00

**Applications of Advanced Lithography Simulation**

Hye-Keun Oh (Hanyang University, Korea)

**BB02 (Invited)** 14:00-14:30

**Synthesis of polymers for ArF photoresist by reversible addition-fragmentation chain transfer (RAFT) polymerization with three methacrylate monomers**

Jong-Chan Lee, Hae-Sung Sohn, Dong-Gyun Kim, Aeri Lee (Seoul National University, Korea)

**BB03** 14:30-14:45

**Analysis of imaging performance on EUV mask using EUV CSM/ICS**

Chang Young Jeong<sup>1</sup>, Sangsul Lee<sup>1</sup>, Jong Gul Doh<sup>1</sup>, Jae Uk Lee<sup>1</sup>, Inhwon Lee<sup>1</sup>, Dong Geun Lee<sup>2</sup>, Seong-Sue Kim<sup>2</sup>, Han-Ku Cho<sup>2</sup>, Seung-yu Rah<sup>3</sup>, Jinho Ahn<sup>1</sup> (<sup>1</sup>Hanyang University, Korea; <sup>2</sup>Samsung Electronics Co. Ltd., Korea; <sup>3</sup>Pohang Accelerator Laboratory, Korea)

**BB04** 14:45-15:00

**Directed Self-Assembly Lithography and Its Application Based on Simulation Approach**

Sang-Kon Kim, H.-K Oh, I. An, Y.-D. Jung (Hanyang University, Korea)

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Mon. 13:30-15:30

Ballroom 4

**BC: Advanced Packaging and Interconnection**

Chair: Kangwook Lee (Tohoku University, Japan)

**BC01 (Invited)** 13:30-14:00

**Atomic Layer Deposition for Nanoscale Contact Applications**

Hyungjun Kim (Yonsei University, Korea)

**BC02 (Invited)** 14:00-14:30  
**Cu-Mn Alloy Electrodes for Advanced Electronic Devices**  
J. Koike, S. M. Chung, N.M. Phuong, P. S. Yun, Y. Sutou  
(Tohoku University, Japan)

**BC03** 14:30-14:45  
**Modeling of filling aspect of trenches in catalyst-enhanced chemical vapor deposition coupled with plasma treatment**  
Chang-Gyu Kim, Won-Jong Lee (KAIST, Korea)

**BC04** 14:45-15:00  
**A diffusion barrier layer of manganese oxide formed by chemical vapor deposition on TEOS-SiO<sub>2</sub> substrates**  
Nguyen Mai Phuong, Junichi Koike (Tohoku University, Japan)

**BC05** 15:00-15:15  
**TSV filling via vacuum assisted wave soldering**  
Young-Ki Ko, Sehoon Yoo, Chang-Woo Lee (KITECH, Korea)

**BC06** 15:15-15:30  
**Effects of Additives and Current Mode on Copper Via Filling in TSV**  
Jae-Ho Lee, Myoung-Won Jung (Hongik University, Korea)

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Mon. 13:30-15:30

**Mara**

**BD: OLED Materials and Devices**  
Chair: Jiun-Haw Lee (National Taiwan University, Taiwan)

**BD01 (Invited)** 13:30-14:00  
**Nondispersive ambipolar charge transport in phosphorescent polymers**  
Shizuo Tokito, Genichi Motomura (Science & Technology Research Laboratories, NHK, Japan)

**BD02 (Invited)** 14:00-14:30  
**Solid-state light-emitting electrochemical cells based on cationic transition metal complexes**  
Hai-Ching Su<sup>1</sup>, Ken-Tsung Wong<sup>2</sup>, Chung-Chih Wu<sup>3</sup>  
(<sup>1</sup>National Chiao Tung University, Taiwan; <sup>2</sup>National Taiwan University, Taiwan; <sup>3</sup>National Taiwan University, Taiwan)

**BD03** 14:30-14:45  
**The effect of micro-cavity by Ag ink structures on Bottom emission in AMOLED panel**  
In-young Jung, Wonpil Lee (Samsung Mobile Display, Korea)

**BD04** 14:45-15:00  
**Cyano-Containing Pyridine Derivatives with Tunable HOMO Energy Levels as Efficient Electron-Transporting Materials for OLEDs**  
Juanjuan You, Weimin Liu, Pengfei Wang (Chinese Academy of Sciences, China)

**BD05** 15:00-15:15  
**Improvement of phosphorescent white organic light-emitting diode by optimizing blue iridium complex and orange-red osmium complex doping concentration**  
Teh-Chao Liao, Fuh-Shyang Juang, Yu-Sheng Tsai, Shun-Hsi Wang, Zong-Sian Tsai (National Formosa University, Taiwan)

**BD06** 15:15-15:30  
**Light Extraction from Organic Light Emitting Diode Using Chemically Etched Glasses**  
Doo-Hee Cho, Jin-Wook Shin, Jeong-Ik Lee, Jonghee Lee, Jun-Han Han, Hye Yong Chu (ETRI, Korea)

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Mon. 13:30-17:45

**Poster**

**BP: Devices and Materials for Energy Harvesting and Storage**  
Chair: Kee-Won Kwon (Sungkyunkwan University, Korea)

**BP01**  
**Analysis of the electron transport properties in dye-sensitized solar cells using highly ordered TiO<sub>2</sub> nanotubes and TiO<sub>2</sub> nanoparticles**  
Ho Chang<sup>1</sup>, Chin-Guo Kuo<sup>2</sup>, Kung-Ching Cho<sup>3</sup>, Kuohsiu-David Huang<sup>4</sup>, Shi-Sheng Liang<sup>1</sup> (<sup>1</sup>National Taipei University of Technology, Taiwan; <sup>2</sup>National Taiwan Normal University, Taiwan; <sup>3</sup>Texas A&M University, USA; <sup>4</sup>National Taipei University of Technology, Taiwan)

**BP02**  
**Improvement of the Electrochemical Performance of LiMnPO<sub>4</sub> by Application of Ionic Liquid-based Gel Polymer Electrolyte**  
Jae-Kwang Kim<sup>1</sup>, Aleksandar Matic<sup>1</sup>, Per Jacobsson<sup>1</sup>, Jou-Hyeon Ahn<sup>2</sup> (<sup>1</sup>Chalmers University of Technology, Sweden; <sup>2</sup>Gyeongsang National University, Korea)

**BP03**  
**Effects of PbTiO<sub>3</sub> Insertion layer on the Morphological and Electromechanical Characteristics of Sol-gel driven 0.2PZN-0.8PZT Piezoelectric Films for Energy Harvesters**  
Jin Moo Byun<sup>1</sup>, Jae-Hyoung Park<sup>2</sup>, Seong Eui Lee<sup>1</sup>, Hee Chul Lee<sup>1</sup> (<sup>1</sup>Korea Polytechnic University, Korea; <sup>2</sup>Dankook University, Korea)

**BP04**  
**The Kinetics Behavior of Hydrogenation on Mg-based Composites by Addition of BaTiO<sub>3</sub>**  
Kyeong-il Kim, Tae-Whan Hong (Chungju National University, Korea)

**BP05**  
**Application of CIP processing and Sol-gel surface coating to PZN-PZT piezoelectric ceramics for energy harvesters**  
So Hee Lee, Jeong Sun Han, Seong Eui Lee, Hee Chul Lee (Korea Polytechnic University, Korea)

**BP06****Development of MEMS energy harvester operated by using PZN-PZT piezoelectric cantilever**

Jeong Sun Han<sup>1</sup>, Jin Moo Byun<sup>1</sup>, Jae-Hyoung Park<sup>2</sup>, Hee Chul Lee<sup>1</sup> (<sup>1</sup>Korea Polytechnic University, Korea; <sup>2</sup>DanKook University, Korea)

**BP07****The Hydrogenation behaviors of V-Al Alloys by Mechanical Alloying**

Kyeong-Il Kim, Tae-Whan Hong (Chungju National University, Korea)

**BP08****Electro-Reduction of Carbon Dioxide on the Nano Structured Cu Electrode Fabricated by Using AAO**

Ji-Hong Kim, Sung-Uk Jang, Soon-Ju Kwon (Pohang University of Science and Technology, Korea)

**BP09****Fabrication of Ti-Fe-O Nanotube Arrays by Anodic Oxidation of Ti-Fe alloys for Photoconversion Cell**

Jin Woo Park, Dong Joo Kwak, Youl Moon Sung, Min Woo Park1 (Kyungsung University, Korea)

**BP10****Effects of vanadium content in co-precipitated  $Ti_{1-x}V_xO_2$  nanoparticles on phase transition and band gap for photoelectrochemical cell application**

Hye Jin Kwon, Joo Sin Lee, Youl Moon Sung, Min Woo Park (Kyungsung University, Korea)

**BP11****Thermal Behavior of High Rate Capable  $Li[Li_x(Ni_{0.3}Co_{0.1}Mn_{0.6})_{1-x}]O_2$  ( $x=0.09, 0.11$ ) Cathode Materials for Lithium Rechargeable Batteries**

Kumaran VEDIAPPAN<sup>1</sup>, C Ahmed Basha<sup>1</sup>, Hyun-Soo Kim<sup>2</sup>, Chang Woo Lee<sup>1</sup> (<sup>1</sup>Kyung Hee University, Seochun, Gihung, Yongin, Korea; <sup>2</sup>Korea Electrotechnology Research Institute, Korea)

**BP12****Sn-W co-doping effect on VO<sub>2</sub> film deposited by PLD**

Man Gyu Hur, Dae Ho Yoon (Sungkyunkwan University, Korea)

**BP13****Electrochemical Characterization of Super P Carbon Black as Anode Active Materials for High Energy Lithium Batteries**

RM Gnanamuthu, Chang Woo Lee (Kyung Hee University, Korea)

**BP14****Molecular Hydrogen Adsorption on Li metal in Covalent Organic Framework - 5 with metal substitution: Ab initio investigation**

Hong-Lae Park, Yong-Chae Chung (Hanyang University, Korea)

**BP15****The Electrochemical Properties of Solid Polymer Electrolytes Prepared by HSAB Principle**

Min-Young Park, Yu-Jin Lee, Nam-Ju Jo (Pusan National University, Korea)

**BP16****Electrochemical Performance of Poly(vinyl alcohol)-based Solid Polymer Electrolyte for Lithium Polymer Battery**

Young-Deok Kim, Yun-Kyung Jo, Nam-Ju Jo (Pusan National University, Korea)

**BP17****Effects of conductivity of Si nanorod on the performance of hybrid solar cells based on conjugated polymer and single crystalline Si nanorod**

SungHo Woo<sup>1</sup>, EunJoo Kwak<sup>2,1</sup>, Hongkun Lyu<sup>1</sup>, Kangpil Kim<sup>1</sup>, Youngkyoo Kim<sup>2</sup>, Yoon Soo Han<sup>1</sup> (<sup>1</sup>DGIST, Korea; <sup>2</sup>Kyungpook National University, Korea)

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Mon. 13:30-17:45

Poster

**BQ: Novel Fuel-Cell and Battery Materials**

Chair: Sung-Yoon Chung (Inha University, Korea)

**BQ01****Fabrication and characterization of  $ZrO_2-Al_2O_3$  nanocomposite films by pulsed laser ablation**

Masaaki Nagashima<sup>1</sup>, Toshio Takiya<sup>2</sup>, Shinya Furuta<sup>3</sup>, Hisao Yoshida<sup>4</sup>, Yukifumi Oda<sup>4</sup>, Kazuyuki Ichimori<sup>4</sup>, Shigeo Ueguri<sup>4</sup> (<sup>1</sup>Tottori University, Japan; <sup>2</sup>Hitachi Zosen Corporation, Japan; <sup>3</sup>Tomoe-Works Co., LTd, Japan; <sup>4</sup>The Advanced Material Processing Institute Kinki Japan, Japan)

**BQ02****Lithium powder anodes using microcage structures in lithium secondary cells**

Jin Wook Kim<sup>1</sup>, Jin Woo Cho<sup>1,2</sup>, Dae Gun Jin<sup>1</sup>, Young Keun Kim<sup>1</sup>, Woo Young Yoon<sup>1</sup> (<sup>1</sup>Korea University, Korea; <sup>2</sup>Korea Electronics Technology Insitute, Korea)

**BQ03****Li ion conducting  $Li_2O-B_2O_3-SiO_2$  solid electrolyte for thin film batteries**

Hyeon Cheol Hwang<sup>1</sup>, Ji-Woong Moon<sup>2</sup>, Hae Jin Hwang<sup>1</sup> (<sup>1</sup>Inha University, Korea; <sup>2</sup>Research Institute of Industrial Science and Technology, Korea)

**BQ04****Hydorgen Separation Properties of TiN-20wt.%Co Composites Membrane by Hot Press Sintering**

Kyeong-Il Kim<sup>1</sup>, Whan-Gi Kim<sup>2</sup>, Sang-Hern Kim<sup>3</sup>, Tae-Whan Hong<sup>1</sup> (<sup>1</sup>Chungju National University, Korea; <sup>2</sup>KonKuk University, Korea; <sup>3</sup>Hanbat national university, Korea)

- BQ05**  
**Fabrication of a Dense Ceramic Interconnect Thin Layer on a Porous NiO-YSZ Support for Flat Tubular Solid Oxide Fuel Cells**  
 Da Hae Lee<sup>1</sup>, Rak-Hyun Song<sup>2</sup>, Ji-Woong Moon<sup>3</sup>, Hae Jin Hwang<sup>1</sup> (<sup>1</sup>Inha University, Korea; <sup>2</sup>Korea Institute of Energy Research, Korea; <sup>3</sup>Research Institute of Industrial Science and Technology, Korea)
- BQ06**  
**Microstructure and Electrical Conductivity of Yttria-stabilized Zirconia Thin Film Prepared by Pulsed Laser Deposition**  
 Hyung Suk Park, Dae-Joon Kim, Won-Jun Lee (Sejong University, Korea)
- BQ07**  
**Characteristics of Cobalt Oxide Films Grown by Atomic Layer Deposition**  
 Jae-Kyung Kim, Kwang-Min Park, Kyu-Ha Choi, Won-Jun Lee (Sejong University, Korea)
- BQ08**  
**Anode supported Solid Oxide Fuel Cells with electrolyte thin film fabricated by using Electrostatic Slurry Spray Deposition**  
 Jungmin Ahn, Jongmo Im, Inyu Park, Dongwook Shin (Hanyang University, Korea)
- BQ09**  
**Preparation and characterization of membrane-electrolyte assembly (MEA) with porous Pt/Ru/MWCNT nanocomposite for direct methanol fuel cell (DMFC)**  
 Ho Chang<sup>1</sup>, Chen-Yu Hsieh<sup>1</sup>, Kung-Ching Cho<sup>2</sup>, Kuohsiu-David Huang<sup>3</sup> (<sup>1</sup>National Taipei University of Technology, Taiwan; <sup>2</sup>Texas A&M University, USA; <sup>3</sup>National Taipei University of Technology, Taiwan)
- BQ10**  
**Electroless Nickel Plating on Fibers for the Highly Porous Electrode**  
 Jae-Ho Lee, So-Young Chun, So-Yeon Park (Hongik University, Korea)
- BQ11**  
**Synthesis of Sn-Co/CNTs nanocomposites for Anode Active Material of LIB**  
 Jae Hun Jeong, Dong-Won Jung, Eun-Suok Oh (University of Ulsan, Korea)
- BQ12**  
**The effect of processing temperatures on the characteristics of surface layers of low temperature plasma nitrocarburized austenitic 310S stainless steel**  
 Insup Lee (Donggeui University, Korea)
- BQ13**  
**The effect of processing temperatures on the characteristics of surface layers of low temperature plasma carburized 321 austenitic stainless steel**  
 Insup Lee (Donggeui University, Korea)
- BQ14**  
**Low Temperature Plasma Carburizing of AISI 316L Austenitic Stainless Steel**  
 Insup Lee (Donggeui University, Korea)
- BQ15**  
**Systematic Investigation on Formation of LiFePO<sub>4</sub> Nanocrystals during Solvothermal Reaction**  
 Jinsub Lim<sup>1</sup>, Jungwon Kang<sup>1</sup>, Jihyeon Gim<sup>1</sup>, Donghan Kim<sup>1</sup>, Vinod Mathew<sup>1</sup>, Docheon Ahn<sup>2</sup>, Jaekook Kim<sup>1</sup> (<sup>1</sup>Chonnam National University, Korea; <sup>2</sup>Pohang Accelerator Laboratory, Korea)
- BQ16**  
**A modified solid-state synthesis of carbon coated LiFePO<sub>4</sub> for lithium-ion batteries**  
 Chulhong Woo, Jinsub Lim, Jungwon Kang, Jihyeon Gim, Donghan Kim, Vinod Mathew, Jaekook Kim (Chonnam National University, Korea)
- BQ17**  
**High-Surface-Area Grafoil Electrodes for Rechargeable Li Ion Batteries**  
 Seung-Hun Lee, Seung-Deok Seo, Yun-Ho Jin, Hyun-Woo Shim, Jae-Hwan Ahn, Dong-Wan Kim (Ajou University, Korea)
- BQ18**  
**Nano-structured Cathode with Inorganic Dispersant For Solid Oxide Fuel Cell**  
 Haekyoung Kim<sup>1</sup>, Ju-Hee Kim<sup>2</sup>, Young Min Park<sup>3</sup> (<sup>1</sup>Yeungnam University, Korea; <sup>2</sup>Yeungnam University, Korea; <sup>3</sup>Research Institute of Industrial Science and Technology, Korea)
- BQ19**  
**Electrochemical properties of patterned Si film electrodes on Ni intermediate layer**  
 Ho-jin Sung, Gyu-bong Cho, Jung-pil Noh, Ki-won Kim (Gyeongsang National University, Korea)
- BQ20**  
**The Electrochemical Properties of Metal Oxide Electrode by ESD**  
 Ho Suk Ryu, Ki Young Lee, Jin Soo Park, Ki Won Kim, Jou Hyeon Ahn, Hyo Jun Ahn (Gyeongsang National University, Korea)

**BR: Photovoltaic Science and Engineering**

Chair: Kwang-Soon Ahn (Yeungnam University, Korea)

**BR01****Highly efficient polymer solar cell using all solution-processed nanostructure G200 as electron extraction interlayer**

Yu-Chun Wang, Ten-Chin Wen, Yu-Chun Wang (National Cheng Kung University, Taiwan)

**BR02****Effect of temperature and illumination intensity on the PPV based polymer solar cells**Manisha Bajpai<sup>1,2</sup>, Ritu Srivastava<sup>1</sup>, M.N. Kamalasanan<sup>1</sup>, R.S. Tiwari<sup>2</sup>, Suresh Chand<sup>1</sup> (<sup>1</sup>National Physical Laboratory, India; <sup>2</sup>Bananras Hindu University, India)**BR03****Analysis of Light Trapping Effects in Si Solar Cells with Textured Surface by Ray-Tracing Simulation**Seok-Joo Byun<sup>1,2</sup>, Seok Yong Byun<sup>1,3</sup>, Jangkyo Lee<sup>1</sup>, Jae Wan Kim<sup>1</sup>, Taek Sung Lee<sup>4</sup>, Won Mok Kim<sup>4</sup>, Kyuman Cho<sup>2</sup>, Dongwoo Sheen<sup>3</sup>, Sung Ju Tark<sup>5</sup>, Donghwan Kim<sup>5</sup> (<sup>1</sup>INSIDEOPTICS Co. LTD, Korea; <sup>2</sup>Sogang University, Korea; <sup>3</sup>Seoul National University, Korea; <sup>4</sup>Korea Institute of Science and Technology, Korea; <sup>5</sup>Korea University, Korea)**BR04****Study on Grain-size Control of ZnO Film Grown by Remote PECVD**Sung Ku Kwon<sup>1</sup>, Hyun-Young Jeong<sup>2</sup>, Won-Kook Choi<sup>3</sup> (<sup>1</sup>Kunsan National University, Korea; <sup>2</sup>Kunsan National University, Korea; <sup>3</sup>Korea Institute of Science and Technology, Korea)**BR05****An Efficient Ray Tracing Algorithm for Simulation of Light Trapping Effects in Si Solar Cells with Textured Surface**Seok Yong Byun<sup>1,2</sup>, Seok-Joo Byun<sup>1,3</sup>, JangKyo Lee<sup>1</sup>, Jae Wan Kim<sup>1</sup>, Taek Sung Lee<sup>4</sup>, Won Mok Kim<sup>4</sup>, Dongwoo Sheen<sup>2</sup>, Kyuman Cho<sup>3</sup>, Sung Ju Tark<sup>5</sup>, Donghwan Kim<sup>5</sup> (<sup>1</sup>INSIDEOPTICS Co. LTD, Korea; <sup>2</sup>Seoul National University, Korea; <sup>3</sup>Sogang University, Korea; <sup>4</sup>Korea Institute of Science and Technology, Korea; <sup>5</sup>Korea University, Korea)**BR06****Effect of Carrier Injection Stress in Boron Doped Amorphous Silicon Oxide Films and Thin Film Solar Cells**

Sunhwa Lee, Seungman Park, Jinjo Park, Youngkuk Kim, Seungsin Baek, Chonghoon Shin, Younjung Lee, Junsin Yi (Sungkyunkwan University, Korea)

**BR07****The quality analysis on amorphous and microcrystalline silicon thin films by spectroscopic ellipsometry**

Jinjo Park, Youngkuk Kim, Seungman Park, Sunwha Lee, Chonghoon Shin, Seungsin Baek, Junsin Yi (Sungkyunkwan University, Korea)

**BR08****Growth and characterization of CuIn<sub>0.7</sub>Ga<sub>0.3</sub>Se<sub>2</sub> thin films by pulse laser deposition**

Vita Astini, Eung-Ryul Baek (Yeungnam University, Korea)

**BR09****Electrical and Optical properties of Cu<sub>2</sub>ZnSnSe<sub>4</sub> thin films grown by selenization of single ternary precursor layer**

M. Ikhlasul Amal, Yun-Jung Jang, Muhammad H. Alfaruqi, Kyoo-Ho Kim (Yeungnam University, Korea)

**BR10****Crystallization of amorphous silicon layer deposited on the aluminum substrate**

Young Kwan Kim, Kwangpil Jeong, Wontae Yun (University of Incheon, Korea)

**BR11****Synthesis and characterization of a organic semiconducting polymer for organic solar cells**Ji-Hoon Kim<sup>1</sup>, Yun Tae Kim<sup>1</sup>, In-Nam Kang<sup>2</sup>, Jung Min Cho<sup>3</sup>, Won Suk Shin<sup>3</sup>, Sung Cheol Yoon<sup>3</sup>, Sang-Jin Moon<sup>3</sup>, Changjin Lee<sup>3</sup>, Do-Hoon Hwang<sup>1</sup> (<sup>1</sup>Pusan National University, Korea; <sup>2</sup>The Catholic University, Korea; <sup>3</sup>Korea Research Institute of Chemical Technology, Korea)**BR12****Thermal Modelling and Measurement of Junction in Photovoltaic Packages**

Sun Ho Jang, Moo Whan Shin (Myong Ji University, Korea)

**BR13****Molecular design of dual heteroleptic electron donor with triphenylamine and indoline moieties for dye-sensitized solar cells**

Joo Young Kim, Young Sik Kim (Hongik University, Korea)

**BR14****Heteroleptic ruthenium complexes with dcby and cdppz ligands for DSSC**Yong Hwa Kim<sup>1</sup>, Joo Young Kim<sup>2</sup>, Young Sik Kim<sup>3</sup> (<sup>1</sup>Carnegie Mellon University, USA; <sup>2</sup>Hongik University, Korea; <sup>3</sup>Hongik University, Korea)**BR15****Novel phenothiazine-based organic dyes with dual heteroleptic electron acceptor for Dye-Sensitized Solar Cell**

Kyung Yoon Jung, Joo Young Kim, Young Sik Kim (Hongik University, Korea)

**BR16****Surface modification of glass substrates for the application to thin film solar cells**

Hyung Soo Kim<sup>1</sup>, Byung Woo Gil<sup>1</sup>, Heon Lee<sup>2</sup>, Hee Chul Lee<sup>1</sup> (<sup>1</sup>Korea Polytechnic University, Korea; <sup>2</sup>Korea University, Korea)

**BR17****Synthesis and Photovoltaic Performance of Long Wavelength Absorption Dyes for the Dye Sensitized Solar Cell**

Sang ah Kim, Jeong Gwan Lee, Myeong Seok Kim, Jae Hong Kim (Yeungnam University, Korea)

**BR18****Synthesis and Structural Modification Containing Triphenylamine-Based Organic Sensitizers for Dye Sensitized Solar Cell**

Hyun Sik Yang<sup>1</sup>, Mi Ran Jung<sup>1</sup>, Yu Seok Yang<sup>1</sup>, Yoon Soo Han<sup>2</sup>, Jae Hong Kim<sup>1</sup> (<sup>1</sup>Yeungnam University, Korea; <sup>2</sup>DGIST, Korea)

**BR19****Enhanced Photovoltaic Performance of DSSC using the Fluorescence Materials added TiO<sub>2</sub>**

Jong Hun Cheon<sup>1</sup>, JeongGwan Lee<sup>1</sup>, Jea Hong Kim<sup>1</sup>, Bae In Kim<sup>2</sup>, Sun-Uk Choi<sup>2</sup> (<sup>1</sup>Yeungnam University, Korea; <sup>2</sup>Toray Advanced Materials Korea Inc., Korea)

**BR20****Photovoltaic Performance of Organic Photosensitizers based on Dendritic dyes for Dye Sensitized Solar Cells**

Myeong Seok Kim, Dae young Jung, Joo young Yoon, Jae Hong Kim (Yeungnam University, Korea)

**BR21****Photovoltaic Performance of DSSC on low-temperature growth of ZnO nanorods by chemical bath deposition**

Jeong Gwan Lee<sup>1</sup>, Jong Hun Gheon<sup>1</sup>, Young Cheol Choi<sup>2</sup>, Do-Kyung Lee<sup>2</sup>, Jae Hong Kim<sup>1</sup> (<sup>1</sup>Yeungnam University, Korea; <sup>2</sup>Gumi Electronics and Information Technology Research Institute, Korea)

**BR22****Formation of silicon sheet on rotating substrate**

Jaewoo Lee<sup>1</sup>, Changbum Lee<sup>1</sup>, Joonsoo Kim<sup>2</sup>, Bo-yun Jang<sup>2</sup>, Youngsoo Ahn<sup>2</sup>, Heon Lee<sup>1</sup>, Wooyoung Yoon<sup>1</sup> (<sup>1</sup>Korea University, Korea; <sup>2</sup>Korea Institute of Energy Research, Korea)

**BR23****Investigation of the influence of calcium addition on the purification of metallurgical grade silicon by fractional melting process**

Jaewoo Lee, Changbum Lee, Heon Lee, Wooyoung Yoon (Korea University, Korea)

**BR24****Verification of an electrical power loss model for large-area monolithic organic photovoltaic module**

Hong-Kun Lyu, Jun Hyoung Sim, Seonju Jeong, Sung-Ho Woo, Yoon Soo Han (Daegu Gyeongbuk Institute of Science & Technology, Korea)

**BR25****Characterization of transparent conductive ITO, ITiO and FTO films for photovoltaic application**

Sung-Hwan Paeng<sup>1</sup>, Dong-Joo Kwak<sup>1</sup>, Youl-Moon Sung<sup>1</sup>, Cha-Soo Park<sup>2</sup>, Don-Kyu Lee<sup>3</sup> (<sup>1</sup>Kyungsung University, Korea; <sup>2</sup>Donggeui Institute of Technology, Korea; <sup>3</sup>Donggeui University, Korea)

**BR26****Fabrication of sub-module of dye-sensitized solar cells and its photovoltaic characteristics**

Ki-Young JUNG, Seon-Hee Park, Dong-Joo Kwak, Youl-Moon Sung, Min-Woo Park (Kyungsung University, Korea)

**BR27****Mechanically Grooved Buried-Contact Silicon Solar Cells**

Pyungwoo Jang, Kyu Seomoon, Chi-sup Jung, Kwangho Kim, Sooyong Ju (Cheongju University, Korea)

**BR28****The photoacoustic study of laser scribing in a thin film silicon solar cell**

Chi Sup Jung, In Tae Lee, Pyung Woo Jang, Kyu Seomoon, Kwang Ho Kim (Cheongju University, Korea)

**BR29****Properties of low-temperature passivation of silicon with ALD Al<sub>2</sub>O<sub>3</sub> films and their PV applications**

Kwang-Ho Kim, Hyun-Jun Kim, Pyungwoo Jang, Chisup Jung, Kyu Seomoon (Cheongju University, Korea)

**BR30****Synthesis and characterization of ZnO:Al thin films deposited by PE-MOCVD**

Kyu Seomoon, Jongin Lee, Pyungwoo Jang, Chisup Jung, Kwangho Kim (Cheongju University, Korea)

**BR31****Inductively-coupled plasma post-treatment of Al-doped ZnO thin films**

Kyu Seomoon, Joonyeong Kim, Suyong Ju, Pyungwoo Jang, Kwangho Kim (Cheongju University, Korea)

**BS: Nano Dot, Nano Wire and Nano Processes**

Chair: Woong Kim (Korea University, Korea)

**BS01****Enhancement of the photoluminescence properties of ZnO nanowires by MgO coating**

Changhyun Jin, Hyunsoo Kim, Kyungjoon Baek, Chongmu Lee (Inha University, Korea)

**BS02****Electrochemical Preparation of Ionic Liquid – stabilized Palladium NPs**Wan-Kyu Kang<sup>1</sup>, Yong Gi Kim<sup>1</sup>, Sanghyun Kim<sup>1</sup>, Hyunjoon Lee<sup>2</sup>, Jeong Won Kang<sup>3</sup>, Ki-Sub Kim<sup>1</sup> (<sup>1</sup>Chungju National University, Korea; <sup>2</sup>Korea Institute of Science and Technology, Korea; <sup>3</sup>Chungju National University, Korea)**BS03****A Facile Synthesis of Size-Controlled Gold Nanoparticles via Green Chemistry Approach**

Venu Reddy, Sri Ramulu Torati, Anandakumar Sarella, Sudha Rani Vishnubhotla, CheolGi Kim (Chungnam National University, Korea)

**BS04****Film growth characterization of Fe and Cu on Cu(111) surface in the early stage of the deposition process: a molecular dynamics simulation**

Heechae Choi, Soon-Gun Lee, Yong-Chae Chung (Hanyang University, Korea)

**BS05****Fabrication of p-type Silicon Nanowire Arrays with High Aspect Ratio using Electrochemical and Alkaline Etching**

Hwan Soo Jang, Ho-Jin Choi, Byeong-Yun Oh, Jae Hyun Kim (Daegu-Gyeongbuk Institute of Science and Technology, Korea)

**BS06****Colloidal preparation of highly fluorescent InP/ZnS quantum dots using a greener phosphorus precursor**

Ho-June Byun, Woo-Seuk Song, Hee-Jeong Kim, Heesun Yang (Hongik University, Korea)

**BS07****Highly efficient ZnS-passivated CuInS<sub>2</sub> ternary quantum dots as down-converters in white light-emitting diode**

Da-Eun Nam, Ji-Hye Kwon, Joo-Seob Ahn, Heesun Yang (Hongik University, Korea)

**BS08****Evolution of surface morphology of chalcogenide glass under uniaxial pressure**Byeong Kyou Jin<sup>1</sup>, Joon Jae Oh<sup>1</sup>, Woon Jin Chung<sup>2</sup>, Dong Wook Shin<sup>3</sup>, Yong Gyu Choi<sup>1</sup> (<sup>1</sup>Korea Aerospace University, Korea; <sup>2</sup>Kongju National University, Korea; <sup>3</sup>Hanyang University, Korea)**BS09****Compositional dependent formation of ZnSe nanocrystal in sodium silicate glasses**Woon Jin Chung<sup>1</sup>, Jeon Choi<sup>1</sup>, Yong Gyu Choi<sup>2</sup>, Jong Heo<sup>3</sup> (<sup>1</sup>Kongju National University, Korea; <sup>2</sup>Korea Aviation University, Korea; <sup>3</sup>POSTECH, Korea)**BS10****Optical Band Gap of Electrodeposited ZnO Thin Film on Self-assembled SiO<sub>2</sub> Photonic Crystals**

Yong Taeg OH, Keon Ung LEE, Dong Chan SHIN (Chosun University, Korea)

**BS11****Optical Band Gap of Self-Assembled TiO<sub>2</sub>-SiO<sub>2</sub> Photonic Crystals**

Yong Taeg OH, Bo Ra KOO, Dong Chan SHIN (Chosun University, Korea)

**BS12****Synthesis of silver chloride nanocubes and size selection**

Seungwook Kim, Woong Kim (Korea University, Korea)

**BS13****Effect of buffer layer thickness on controlling ZnO nanostructures of hydrothermal growth**

Tran Viet Cuong, Van Hoang Luan, Huynh Ngoc Tien, Eui Jung Kim, Seung Hyun Hur (University of Ulsan, Korea)

**BS14****Multifunctional CdSe/ZnS quantum dots and their biomedical application**

Jinhoo Jeong, Woong Kim (Korea university, Korea)

**BS15****Helical coiled gold nanowires for molecular sensing platforms**Weon-Sik Chae<sup>1</sup>, Eun-Mee Kim<sup>1</sup>, Hyunung Yu<sup>2</sup>, Seokwoo Jeon<sup>3</sup>, Jin-Seung Jung<sup>4</sup> (<sup>1</sup>Korea Basic Science Institute, Korea; <sup>2</sup>Korea Research Institute of Standards and Science, Korea; <sup>3</sup>Korea Advanced Institute of Science and Technology, Korea; <sup>4</sup>Gangneung-Wonju National University, Korea)**BS16****Effect of Igepal-CO 520 in Sonochemical Synthesis of Monodisperse Superparamagnetic Fe<sub>3</sub>O<sub>4</sub> Nanoparticles**

Md. Nazrul Islam, Le Van Phong, Tran Quang Hung, Vo Thanh Son, CheolGi Kim, Jong-Ryul Jeong (Chungnam National University, Korea)

**BS17****The nano-sized V<sub>2</sub>O<sub>5</sub>, Dy<sub>2</sub>O<sub>3</sub> and MgO particles synthesis by LPP method**

Mangyu Hur, Takaki Masaki, DaeHo Yoon (Sungkyunkwan University, Korea)

**BS18**

**Study on the Characteristic of Amorphous Low-k Thin Film for Solar Cell**

Teresa Oh (Cheongju University, Korea)

**BS19**

**Electro-optical properties of nano-thickness polymer film**

Chi Sup Jung, In Tae Lee (Cheongju University, Korea)

**BS20**

**Interfacial structure of ferromagnetic FePt thin films grown on Si substrate**

Pyungwoo Jang, Kyu Seomoon, Chi-Sup Jung, Kwangho Kim (Cheongju University, Korea)

**BS21**

**Properties of VF<sub>2</sub>-TrFE/Al<sub>2</sub>O<sub>3</sub>/Si(100) Structures for Nonvolatile Memory Application**

Sang-Hyun Jeong, Kwang-Ho Kim (Cheongju University, Korea)

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Mon. 13:30-17:45

**Poster**

**BT: Materials and Devices of Flexible Displays and Printed Electronics**

Chair: Jihoon Kim (Korea Institute of Ceramic Engineering and Technology, Korea)

**BT01**

Withdrawn

**BT02**

**Comparison of thickness dependent properties of ITO and GZO thin films grown on glass and PET substrates**

Jin Soo Kim<sup>1,2</sup>, Jeung-hyun Jeong<sup>3</sup>, Jong-Keuk Park<sup>1</sup>, Kyeong-Seok Lee<sup>1</sup>, Young Joon Baik<sup>1</sup>, Tae-Yeon Seong<sup>2</sup>, Won Mok Kim<sup>1</sup> (<sup>1</sup>Korea Institute of Science and Technology, Korea; <sup>2</sup>Korea University, Korea; <sup>3</sup>Korea Institute of Science and Technology, Korea)

**BT03**

**A New a-Si TFT Process Architecture to Improve the TFT Performance for High Voltage Bias-Stress**

Jeong-Hwan Kim, Kihong Kim, Yongjae Jang, Junghyun Kim, Taean Seo, Joo-Sun Yoon, Keehan Uh (Samsung Mobile Display Co., LTD., Korea)

**BT04**

**Fabrication of Printed Ag metal electrode for Organic Thin Film Transistor**

Minseok Kim<sup>1,2</sup>, Jae Bon Koo<sup>1</sup>, Yong-Young Noh<sup>3</sup>, Yong Suk Yang<sup>1</sup>, Soon-Won Jung<sup>1</sup>, Hong-Bae Kim<sup>2</sup>, In-Kyu You<sup>1</sup> (<sup>1</sup>Electronics and Telecommunications Research Institute, Korea; <sup>2</sup>Cheongju University, Korea; <sup>3</sup>Hanbat National University, Korea)

**BT05**

**The approach for the trade-off study between field-effect mobility and current on/off ratio in P3HT field-effect transistors.**

Shin Woo Jeong, Tae yeon Oh, Seongpil Chang, Seung Jun Lee, Byeong Kwon Ju (Korea University, Korea)

**BT06**

**Low-voltage-driven pentacene thin-film transistors with cross-linked poly(4-vinylphenol)/high-k Bi<sub>5</sub>Nb<sub>3</sub>O<sub>15</sub> hybrid dielectric for phototransistor application**

Seongpil Chang<sup>1</sup>, Myung-Ho Chung<sup>1</sup>, Jae-Hong Kwon<sup>1</sup>, Sang-Il Shin<sup>2</sup>, Tae-Yeon Oh<sup>1</sup>, Hyeon-Seok Bae<sup>1</sup>, Kyung-Hoon Cho<sup>3</sup>, Shan Nahm<sup>3</sup>, Byeong-Kwon Ju<sup>1</sup> (<sup>1</sup>Korea University, Korea; <sup>2</sup>LG Display Co., Ltd., Korea; <sup>3</sup>Korea University, Korea)

**BT07**

**Source and Drain Electrodes of OTFT printed by Brush Painting Process**

Jae Cheol Choi, Myung Won Lee, Eung Kwan Lee, Jong Seung Park, Chung Kun Song (Dong-A University, Korea)

**BT08**

**Ag Metal lines printed by Roll-type micro-contact printing**

Jun Hak Kim, Mi Yung Lee, Yun Jong Park, Chung Kun Song (Dong-A University, Korea)

**BT09**

**Temperature effects on Morphology of TIPS-Pentacene**

Min-Jung Kim, Gi-Seong Ryu, Jung-won Hwang, Chung-Kun Song (Dong-A University, Korea)

**BT10**

**Fabrication of gate electrodes of OTFT-backplane with reverse off-set printing combined by Screen printing**

Ji-Eun Park, Mi-Young Lee, Chung-kun Song (Dong-A University, Korea)

**BT11**

**Analysis of Trap density in Pentacene thin film**

Seung-Hyeon Jeong, Chung-Kun Song (Dong-A University, Korea)

**BT12**

**Fabrication of color electronic paper display by using toner particles**

Gi Seong Ryu, Jung Won Hwang, Chung Kun Song (Dong-A University, Korea)

**BT13**

**The effect of electrical stress on the leakage current of Poly-Si TFTs fabricated by Metal Induced lateral crystallization**

Min-kyu Lee, Bong-kwan Shin, Chang-woo Byun, Sang-joo Lee, Yong-woo Lee, Seung-ki Joo (Seoul National University, Korea)

**BT14**  
**Pixel-Isolation Walls of Liquid Crystal Display based on Prepolymer containing Vinyl Cinnamate**  
Eun Ae Jung, Shi-Joon Sung, Dae-Hwan Kim, Dae-Ho Son, Jin-Kyu Kang (Daegu Gyeongbuk Institute of Science & Technology, Korea)

**BT15**  
**Fabrication of fine metal line by patterning screen-printed silver layer with roll type microcontact printed etching resist**  
Mi-young Lee, Chung-Kun Song (Dong-A University, Korea)

**BT16**  
**Hybrid Gate Insulator for OTFT Using Dip-Coating Method**  
Jina Hwang, Jinho Lee, Yeonok Kim, Eunju Lee, Hongdoo Kim (KyungHee University, Korea)

**BT17**  
**Study on the Characteristic of SiOC Low-k Thin Film used DMDMOS precursor**  
Teresa Oh (Cheongju University, Korea)

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Mon. 15:45-17:45 **Ballroom 2**

**CA: Oxide Semiconductor**  
Chair: Toshio Kamiya (Tokyo Institute of Technology, Japan)

**CA01 (Invited)** 15:45-16:15  
**Stability and enhanced performance of Zn oxide-based thin film transistors**  
Sang Yeol Lee<sup>1,2</sup> (<sup>1</sup>Korea Institute of Science and Technology, Korea; <sup>2</sup>University of Science and Technology, Korea)

**CA02 (Invited)** 16:15-16:45  
**TCO Related Key Issues and Solution of OLED Lighting Device**  
Jong Won Park<sup>1</sup>, Dong Chan Shin<sup>2</sup> (<sup>1</sup>Korea Institute of Industrial Technology, Korea; <sup>2</sup>Chosun University, Korea)

**CA03** 16:45-17:00  
**Parameter extraction from a-IGZO TFT fabricated by etch stop process**  
Jaewook Jeong, Yongtaek Hong (Seoul National University, Korea)

**CA04** 17:00-17:15  
**Development of B (BN) doped ZnO-In<sub>2</sub>O<sub>3</sub> oxide semiconductors: application to oxide thin-film transistors**  
Woo-Seok Cheong<sup>1</sup>, Mi-Hee Lee<sup>1,2</sup>, Ihwan Lee<sup>2</sup>, Jun-Yong Bak<sup>1,3</sup>, Hong Seung Kim<sup>3</sup>, Sung Mook Chung<sup>1</sup>, Chi-Sun Hwang<sup>1</sup> (<sup>1</sup>ETRI, Korea; <sup>2</sup>Chonbuk National University, Korea; <sup>3</sup>Korea Maritime University, Korea)

**CA05** 17:15-17:30  
**Effects of Channel Dimension on Transfer Characteristics of Amorphous IGZO Thin-film Transistors**  
Young-Woo Heo<sup>1</sup>, Sang-Yun Sung<sup>1</sup>, Se-Yun Kim<sup>1</sup>, Kwang-Min Cho<sup>1</sup>, Joon-Hyung Lee<sup>1</sup>, Jeong-Joo Kim<sup>1</sup>, S.J. Pearton<sup>2</sup>, D.P. Norton<sup>2</sup> (<sup>1</sup>Kyungpook National University, Korea; <sup>2</sup>University of Florida, USA)

**CA06** 17:30-17:45  
**Optical and Electrical Properties of Amorphous ZnO and Ag-based Multilayer for the Application of Transparent Electrodes**  
Dong-Hoon Park, Kyongwon Kim, Pulak Chandra Debnath, Dong-Yun Lee, Sang Yeol Lee (Korea Institute of Science and Technology, Korea)

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Mon. 15:45-17:00 **Ballroom 3**  
**CB: Thermoelectric Materials**  
Chair: Woosuck Shin (AIST, Japan)

**CB01 (Invited)** 15:45-16:15  
**On-Film Formation of Nanowires for High-efficiency Thermoelectric Devices**  
Wooyoung Lee (Yonsei University, Korea)

**CB02** 16:15-16:30  
**Enhanced Seebeck coefficient of an individual single-crystalline Bi nanowire grown by on-film formation of nanowires (OFF-ON) method**  
Seunghyun Lee, Jeongmin Kim, Jinhee Ham, Jin-Seo Noh, Wooyoung Lee (Yonsei University, Korea)

**CB03** 16:30-16:45  
**Implementation of silicon nanowire based thermoelectric device using top-down approach**  
Moongyu Jang<sup>1</sup>, Youngsam Park<sup>1</sup>, Myungsim Jun<sup>1</sup>, Younghoon Hyun<sup>1</sup>, Sung-Jin Choi<sup>2</sup>, Taehyoung Zyung<sup>1</sup> (<sup>1</sup>ETRI, Korea; <sup>2</sup>KAIST, Korea)

**CB04** 16:45-17:00  
**Quantum oscillations in an individual single-crystalline Bi nanowire grown by on-film formation of nanowires**  
Jeongmin KIM, Seunghyun Lee, Jinhee Ham, Wooyoung Lee (Yonsei University, Korea)

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Mon. 15:45-17:45 **Ballroom 4**  
**CC: Advanced Packaging and Interconnection (Special Session on Platform Technology of Packaging and Interconnection for Mobile Electronic Devices)**  
Chair: Sehoon Yoo (KITECH, Korea)

**CC01** 15:45-16:00  
**Thermal resistivity of LED PCB with Thermal Vias**  
Hyeong Won Shin, Hyo Soo Lee (KITECH, Korea)

**CC02** 16:00-16:15  
**Warpage Characteristics of Thin Packages for Mobile Devices**  
Cha Gyu Song, Jin Young Choi, Sung Hoon Choa (Seoul National University of Technology, Korea)

**CC03** 16:15-16:30  
**Optimization of solder printing process for 0402 chip bonding**  
Sang-Hyun Kwon, Chang-Woo Lee, Sehoon Yoo (KITECH, Korea)

**CC04** 16:30-16:45  
**Mechanical Reliability Evaluation of the Interface between PCB Surface Finishes and BGA Lead Free Solder (Sn-3.0Ag-0.5Cu) Using a High Speed Shear Test**  
Jae-Myeong Kim<sup>1</sup>, Myeong-Hyeok Jeong<sup>1</sup>, Sehoon Yoo<sup>2</sup>, Chang-Woo Lee<sup>2</sup>, Young-Bae Park<sup>1</sup> (<sup>1</sup>Andong National University, Korea; <sup>2</sup>KITECH/Micro-Joining Center, Korea)

**CC05** 16:45-17:00  
**Effects of Triethanolamine and Polyethylene Glycol Additives in Electroplating of Sn-Ag Solder Alloy**  
Chul-Wung Kim (Korea Polytechnic University, Korea)

**CC06** 17:00-17:15  
**Experimental Study on the Underfill Properties for Silicon Die Flipchip Package**  
Jae-Won Jang<sup>1</sup>, A-Mi Yu<sup>1</sup>, Yong-Ho Ko<sup>1</sup>, Mok-Soon Kim<sup>2</sup>, Jun-Ki Kim<sup>1</sup> (<sup>1</sup>KITECH, Korea; <sup>2</sup>Inha University, Korea)

**CC07** 17:15-17:30  
**High temperature NCP bonding process for COF package**  
Kyung-Eun Min<sup>1</sup>, Jun-Sik Lee<sup>1</sup>, Je-Seog Jeon<sup>2</sup>, Mok-Soon Kim<sup>3</sup>, Jun-Ki Kim<sup>1</sup> (<sup>1</sup>KITECH, Korea; <sup>2</sup>STECO, LTD., Korea; <sup>3</sup>Inha University, Korea)

**CC08** 17:30-17:45  
**The microstructure and reflectance of metal coatings by sputtering on PC substrate**  
Young Sik Song (KITECH, Korea)

**Tuesday, November 23, 2010**

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Tue. 09:00-09:45 **Ballroom 1**  
**Plenary 3**  
**Synthesis and structural characterization of nano-carbon materials for their industrial applications**  
Sumio Iijima (Meijo University, Japan)

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Tue. 09:45-10:30 **Ballroom 1**  
**Plenary 4**  
**Spin current and spintronics**  
Koki Takanashi (Tohoku University, Japan)

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Tue. 10:45-12:00 **Ballroom 2**  
**DA: Novel Fuel-Cell and Battery Materials**  
Chair: Sung-Yoon Chung (Inha University, Korea)

**DA01 (Invited)** 10:45-11:15  
**Type Separated Single Wall Carbon Nanotubes for Fuel Cell and Supercapacitor Applications**  
Sivaram Arepalli (Sungkyunkwan University, Korea)

**DA02** 11:15-11:30  
**Modification of Pt Catalysis with Iron Phosphate for Enhanced Electrocatalytic Properties**  
Yuhong Oh, Yejun Park, Byungjoo Lee, Chunjoong Kim, Seunghoon Nam, Byungwoo Park (Seoul National University, Korea)

**DA03** 11:30-11:45  
**Electroreduction of H<sub>2</sub>O<sub>2</sub> by Co<sub>3</sub>O<sub>4</sub>, NiCo<sub>2</sub>O<sub>4</sub> nanowires and β-Ni(OH)<sub>2</sub> nanoplates grown on Ni foam and its application for fuel cell cathodes**  
Cuilei Yin<sup>1</sup>, K.N. Hui<sup>2</sup>, K.S. Hui<sup>1</sup> (<sup>1</sup>City University of Hong Kong, Hong Kong; <sup>2</sup>Pusan National University, Korea)

**DA04** 11:45-12:00  
**Fullerene C<sub>60</sub> coated Si Nanowires as Anode Materials for Lithium Secondary Batteries**  
Arenst Andreas Arie<sup>1,2</sup>, Joong Kee Lee<sup>1,2</sup> (<sup>1</sup>Korea Institute of Science and Technology, Korea; <sup>2</sup>University of Science and Technology, Korea)

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Tue. 10:45-12:00 **Ballroom 3**  
**DB: Carbon Nano Materials**  
Chair: Byung Hee Hong (Sungkyunkwan University, Korea)

**DB01 (Invited)** 10:45-11:15  
**Simulations for the Formation Dynamics and Electronic States of Carbon Nano Materials**  
Takazumi Kawai<sup>1,2</sup> (<sup>1</sup>NEC corporation, Japan; <sup>2</sup>University of Tsukuba, Japan)

**DB02** 11:15-11:30  
**High-Performance Toxic gas Sensors using Single-Walled Carbon Nanotube Networks with Metal contacts**  
Yeonju Kim, Hyanghee Choi, Seung Hyun Lee, Wooyoung Lee (Yonsei University, Korea)

**DB03** 11:30-11:45  
**Synthesis of Carbon Nanotube Incorporated Passivation Layer on 7075 Al Alloy by Plasma Electrolytic Oxidation**  
Bongyoung Yoo<sup>1</sup>, Kang-Min Lee<sup>1</sup>, Young Gun Ko<sup>2</sup>, Dong Hyuk Shin<sup>1</sup> (<sup>1</sup>Hanyang University, Korea; <sup>2</sup>Yeungnam University, Korea)

**DB04** 11:45-12:00  
**Hydrogen sensing mechanism of Pd nanoparticle-grafted single-walled carbon nanotubes with dendrimers**  
Jun Min Lee<sup>1</sup>, Hayoung Kim<sup>2</sup>, Sung-Jin Kim<sup>2</sup>, Wooyoung Lee<sup>1</sup> (<sup>1</sup>Yonsei University, Korea; <sup>2</sup>Ewha Womans University, Korea)

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Tue. 10:45-12:15 **Ballroom 4**

**DC: Advanced Packaging and Interconnection**

Chair: Young-Chang Joo (Seoul National University, Korea)

**DC01 (Invited)** 10:45-11:15  
**Probing Plasticity in Advanced Cu Interconnects and Through-Silicon Vias (TSV) using Synchrotron-based White-Beam (Laue) X-ray Microdiffraction**  
A.S. Budiman<sup>1</sup>, R. Morusupalli<sup>2</sup>, T.-K. Lee<sup>2</sup>, Y.-L. Shen<sup>3</sup>, S.-H. Hwang<sup>4</sup>, N. Tamura<sup>5</sup>, M. Kunz<sup>5</sup>, Y.-C. Joo<sup>4</sup> (<sup>1</sup>Formerly of Spansion, Inc., USA; <sup>2</sup>Component Quality and Technology (CQT), CISCO Systems, USA; <sup>3</sup>University of New Mexico, USA; <sup>4</sup>Seoul National University, Korea; <sup>5</sup>Lawrence Berkeley National Laboratory, USA)

**DC02** 11:15-11:30  
**Stress analysis of stacked Si wafer in 3D-WLP**  
Youngrae Kim<sup>1</sup>, Sung-Geun Kang<sup>1</sup>, Ki-Ho Maeng<sup>2</sup>, Sung-Dong Kim<sup>3</sup>, Sarah Eunhyung Kim<sup>2</sup> (<sup>1</sup>Seoul Technopark, Korea; <sup>2</sup>Seoul National University of Technology, Korea; <sup>3</sup>Seoul National University of Technology, Korea)

**DC03** 11:30-11:45  
**CMP Aided Dimple Etching for Self Alignment**  
Moon-Ki Jeong<sup>1</sup>, Sung-Ha Choi<sup>1</sup>, Chang-Suk Lee<sup>1</sup>, Jae-Hong Park<sup>2</sup>, Hyun-Seop Lee<sup>1</sup>, Hae-Do Jeong<sup>1</sup> (<sup>1</sup>Pusan National University, Korea; <sup>2</sup>NITTA HAAS Incorporated, Japan)

**DC04** 11:45-12:00  
**Thermomechanical analysis of Fine Pitch Interconnections in the Flip Chip Package**  
Seunghyun Cho<sup>1</sup>, Youngbae Ko<sup>2</sup>, Hyungpil Park<sup>2</sup>, GyunMyoung Park<sup>3</sup> (<sup>1</sup>Dongyang Mirae University, Korea; <sup>2</sup>Korea Institute of Industrial Technology, Korea; <sup>3</sup>Korea Institute of Industrial Technol, Korea)

**DC05** 12:00-12:15  
**Comparison of Stress for the Via Array Type using FEM**  
Sung-Ha Choi, Moon-Ki Jeong, Ho-Bin Jeong, Yong-Chang Guo, Hae-Do Jeong (Pusan National University, Korea)

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Tue. 10:45-12:00 **Mara**

**DD: Thermoelectric Materials**  
Chair: Su Dong Park (KERI, Korea)

**DD01 (Invited)** 10:45-11:15  
**Planar-type thermoelectric microdeives using ceramic catalytic combustor**  
Woosuck Shin, Takaomi Nakashima, Maiko Nishibori, Noriya Izu, Toshio Itoh, Ichiro Matsubara (AIST, Japan)

**DD02** 11:15-11:30  
**Crystalline orientation and size-dependent thermal conductivity of individual single crystalline Bi nanowires**  
Wooyoung Lee<sup>1</sup>, Jong Wook Roh<sup>1</sup>, Kedar Hippalgaonkar<sup>2</sup>, Jin Hee Ham<sup>1</sup>, Renkun Chen<sup>3</sup>, Arun Majumdar<sup>2</sup>, Woochul Kim<sup>4</sup> (<sup>1</sup>Yonsei University, Korea; <sup>2</sup>University of California, Berkeley, USA; <sup>3</sup>University of California, San Diego, USA; <sup>4</sup>Yonsei University, Korea)

**DD03** 11:30-11:45  
**Electrodeposition of Thermoelectric Materials**  
Jae-Hong Lim, Mi Yeong Park, Dong Chan Lim, Dong Ho Kim, Kyu Hwan Lee (Korea Institute of Materials Science, Korea)

**DD04** 11:45-12:00  
**Co-Nanoparticle-Embedded Bi Nanowires Synthesis Using On-Film Formation of Nanowires Method**  
Minkyung Lee, Jeongmin Kim, Jinhee Ham, Wooyoung Lee (Yonsei University, Korea)

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Tue. 13:30-15:15 **Ballroom 2**

**EA: Non-Volatile Memory Materials and Processes**  
Chair: Hyunsang Hwang (GIST, Korea)

**EA01 (Invited)** 13:30-14:00  
**New Functional Devices Fabricated by Bio Nano Process**  
Yukiharu Uraoka (Nara Institute of Science and Technology, Japan)

**EA02** 14:00-14:15  
Withdrawn

**EA03** 14:15-14:30  
**Highly asymmetric bipolar resistive memory for cross point application**  
Biju K. P, X. J. Liu, Bourim E. M, Insung Kim, Seungjae Jung, Joonmyoung Lee, Manzar Siddik, Hyunsang Hwang (Gwangju Institute of Science and Technology, Korea)

**EA04** 14:30-14:45  
**Electrical resistance change with crystallization in Ge-Cu-Te phase change material**  
Yuta Saito, Toshiya Kamada, Masashi Sumiya, Yuji Sutou, Junichi Koike (Tohoku University, Japan)

**EA05** 14:45-15:00  
**Study on the phase change characteristics of  $[\text{In}_x\text{Sb}_{40-x}]\text{Te}_{60}$**   
Jae-jin Yun, Won-Jong Lee (KAIST, Korea)

**EA06** 15:00-15:15  
**Fabrication and characterization of top-gate-type MFS(metal-ferroelectric-semiconductor) memory diodes using pentacene as a semiconductor film**  
Takaya Mabuchi<sup>1</sup>, Sung-Min Yoon<sup>2,1</sup>, Hiroshi Ishiwara<sup>1,3</sup>  
(<sup>1</sup>Tokyo Institute of Technology, Japan; <sup>2</sup>Electronics and Telecommunications Research Institute, Korea; <sup>3</sup>Konkuk University, Korea)

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Tue. 13:30-15:30 **Ballroom 3**

**EB: Carbon Nano Materials**  
Chair: Barbaros Özyilmaz (National University of Singapore, Singapore)

**EB01 (Invited)** 13:30-14:00  
**The Carbon New Age**  
Antonio H. Castro Neto (Boston University, USA)

**EB02 (Invited)** 14:00-14:30  
**Graphene-Based Ferroelectric Devices**  
Barbaros Özyilmaz (National University of Singapore, Singapore)

**EB03 (Invited)** 14:30-15:00  
**Chemistry of Graphene**  
Kian Ping Loh (National University of Singapore, Singapore)

**EB04 (Invited)** 15:00-15:30  
**RF Performance of Pre-patterned Locally-embedded-Back-Gate Graphene Device**  
Sunae Seo (Samsung Advanced Institute of Technology, Korea)

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Tue. 13:30-15:30 **Ballroom 4**

**EC: Advanced Packaging and Interconnection**  
Chair: Junichi Koike (Tohoku University, Japan)

**EC01 (Invited)** 13:30-14:00  
**3D Integration and Packaging Technology for New-Generation Semiconductor Now and in Future**  
Kangwook Lee, Takafumi Fukushima, Tetsu Tanaka, Mitsumasa Koyanagi (Tohoku University, Korea)

**EC02 (Invited)** 14:00-14:30  
**Advances in Thin Wafer Handling and Processing for TSV Integration**  
Bioh Kim (EV Group, USA)

**EC03** 14:30-14:45  
**Interfacial Reaction of Sn-3.0Ag-0.5Cu solder with sputtered Ni-Zn under bump metallurgy during Soldering and Aging**  
Tae Jin Kim, Young Min Kim, Min Young Choi, Young-Ho Kim (Hanyang University, Korea)

**EC04** 14:45-15:00  
**Size Effect on Intermetallic Compound Growth Kinetics of Cu Pillar/Sn-3.5Ag Bump**  
Byung-Hyun Kwak<sup>1</sup>, Myeong-Hyeok Jeong<sup>1</sup>, Kiwook Lee<sup>2</sup>, Jaedong Kim<sup>2</sup>, Young-Bae Park<sup>1</sup> (<sup>1</sup>Andong National University, Korea; <sup>2</sup>Amkor Technology Korea Inc, Korea)

**EC05** 15:00-15:15  
**Effect of crystallinity of ENP layer on electrochemical migration property of ENIG surface finish**  
Q. V. Bui, S. B. Jung (Sungkyunkwan University, Korea)

**EC06** 15:15-15:30  
**Evaluation of Drop Impact Reliability of Sn-Ag-Cu-In Solder Joint with Various Test Method**  
A-Mi Yu<sup>1</sup>, Jae-Won Jang<sup>1</sup>, Jong-Hyun Lee<sup>2</sup>, Jun-Ki Kim<sup>3</sup>, Mok-Soon Kim<sup>1</sup> (<sup>1</sup>Inha University, Korea; <sup>2</sup>Seoul National University of Technology, Korea; <sup>3</sup>KITECH, Korea)

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Tue. 13:30-14:45 **Mara**

**ED: Thermoelectric Materials**  
Chair: Moongyu Jang (ETRI, Korea)

**ED01 (Invited)** 13:30-14:00  
**A optimizing ZT in LAST-m system developing nano-dots**  
Su Dong Park, Min Wook Oh, Jae Ki Lee, Bong Seo Kim, Bok Gee Min, Hee Woong Lee (Korea Electrotechnology Research Institute, Korea)

**ED02** 14:00-14:15  
**Size-controllable Single-crystalline Bi Nanowires Grown by On-Film Formation of Nanowire**  
Jinhee Ham, Jin-Seo Noh, Wooyoung Lee (Yonsei University, Korea)

**ED03** 14:15-14:30  
**Effect of microstructure on thermoelectric properties of multi-phase Bi<sub>2</sub>Te<sub>3</sub>-PbTe compounds**  
Kyooho Jung<sup>1</sup>, Ju-Hyuk Yim<sup>1,2</sup>, Won Chel Chel<sup>1</sup>, Jin-Sang Kim<sup>1</sup> (<sup>1</sup>Korea Institute of Science and Technology, Korea; <sup>2</sup>Yonsei University, Korea)

**ED04** 14:30-14:45  
**Reduced thermal conductivity of core-shell nanowires grown by on-film formation of nanowires**  
Jooheon Kang, Jong Wook Roh, Jinhee Ham, Wooyoung Lee (Yonsei University, Korea)

Tue. 13:30-17:45

Poster

**EP: Photovoltaic Science and Engineering**

Chair: Hyun Suk Jung (Kookmin University, Korea)

**EP01**

**Nanocrystalline indium tin oxide materials for electrochemical luminescence application**

Accarat Chaoumead, Hyuk-Moon Kwon, Youl-Moon Sung, Min-Woo Park (Kyungsoong University, Korea)

**EP02**

**Annealing Time and Temperature Effect on the Properties of CuInS<sub>2</sub> Grown by Colloidal Route**

Jun Young Park, Hong Tak Kim, Chinho Park (Yeungnam University, Korea)

**EP03**

**A Novel Protective Glass of Si-base Solar Cells Using Sol-Gel Derived Silica Films As Anti-Reflective Coatings**

Jin-Ho Jang<sup>1</sup>, Yook-Joong Kim<sup>2</sup>, Ki-Chul Kim<sup>3,4</sup> (<sup>1</sup>Energy & Environment Research Center, Korea; <sup>2</sup>Energy & Environment Research Center, Korea; <sup>3</sup>Mokwon University, Korea; <sup>4</sup>Electronics and Telecommunications Research Institute, Korea)

**EP04**

**Punch-through Ag contact formation for crystalline Si solar cells by single-step Ag inkjet printing**

Hyun-Gang Kim<sup>1</sup>, Sung-Bin Cho<sup>1</sup>, Bo-Mook Chung<sup>1,2</sup>, Joo-Youl Huh<sup>1</sup> (<sup>1</sup>Korea University, Korea; <sup>2</sup>KPMTECH, Korea)

**EP05**

**Enhanced Charge Transport Of Graphene-TiO<sub>2</sub> Nanocomposite Electrodes For Dye-Sensitized Solar Cell**

Jeong-Hyun Park, Sang-Yeob An, Sung-Woo Jung, Woo-Sic Jung, Sang-Won Seo, Kwang-Soon Ahn (Yeungnam University, Korea)

**EP06**

**Characterization of dye-sensitized solar cells with TiO<sub>2</sub> blocking layer prepared by sol-gel combustion method**

Woo-Jin Choi<sup>1</sup>, Youl-Moon Sung<sup>1</sup>, Min-Woo Park<sup>2</sup>, Chi-Hwan Han<sup>3</sup> (<sup>1</sup>Kyungsoong University, Korea; <sup>2</sup>Kyungsoong University, Korea; <sup>3</sup>Korea Institute of Energy Research; Korea)

**EP07**

**Effect of sulphur addition on Cu<sub>2</sub>ZnSnSe<sub>4</sub> thin film by Pulsed Laser Deposition**

Yoon-Jung Jang, M. Ikhlusal Amal, Kyoo-Ho Kim (Yeungnam University, Korea)

**EP08**

**Development of TMB doped as SiC window layer for thin film solar cells**

Chen-Wei Kuo, Wei-Ping Chu, Yu-Sheng Tsai, Fuh-Shyang Juang (National Formosa University, Taiwan)

**EP09**

**Growth and Characterization Cu(In<sub>1-x</sub>Al<sub>x</sub>)Se<sub>2</sub> Thin Films Prepared by Pulsed Laser Deposition and Selenization**

Muhammad Hilmy Alfaruqi, Kyoo Ho Kim (Yeungnam University, Korea)

**EP10**

**Next-generation laser microfabrications for high efficiency solar cell**

Pyung-ho Choi<sup>1</sup>, Tae-Hoon Kim<sup>2</sup>, Kwang-Ryul Kim<sup>1</sup>, Sun-yong Kim<sup>1</sup>, Seok-il Kwon<sup>1</sup>, Jun-sin Yi<sup>1</sup>, Byeong-deog Choi<sup>1</sup> (<sup>1</sup>Sungkyunkwan University, Korea; <sup>2</sup>Samsung Electronics Co. LTD, Korea)

**EP11**

**Development of hetero-junction(HIT) solar cells by VHF-PECVD**

Chin-Lung Cheng, Wen Feng Hsieh, Wei-Ping Chu, Fuh-Shyang Juang (National Formosa University, Taiwan)

**EP12**

**Effect of post-annealing on the structure of CdTe thin films electro-deposited on CdS/ITO substrates**

Hyung Min Lee, Hong Tak Kim, Chinho Park (Yeungnam University, Korea)

Tue. 13:30-17:45

Poster

**EQ: Thermoelectric Materials**

Chair: Jin-Sang Kim (KIST, Korea)

**EQ01**

**Microstructures and thermoelectric properties of nanocrystalline Bi<sub>2</sub>Te<sub>3</sub> synthesized via solution process**

Jang Jung Kim<sup>1,2</sup>, Seung Wook Suh<sup>1</sup>, Young Seak Lee<sup>2</sup>, Byung Ki Park<sup>1</sup> (<sup>1</sup>Korea Research Institute of Chemical Technology, Korea; <sup>2</sup>Chung-Nam National University, Korea)

**EQ02**

**Seebeck coefficient measurements on silicon based thermoelectric device**

Yoonhoon Hyun<sup>1</sup>, Moongyu Jang<sup>1</sup>, Youngsam Park<sup>1</sup>, Myungsim Jun<sup>1</sup>, Sung-Jin Choi<sup>2</sup>, Taehyoung Zyung<sup>1</sup>, Yil-Suk Yang<sup>1</sup>, Jong-Dae Kim<sup>1</sup> (<sup>1</sup>ETRI, Korea; <sup>2</sup>KAIST, Korea)

**EQ03**

**Temperature coefficient of resistance (TCR) characteristics of platinum heaters for silicon thermoelectric device applications**

Young-Sam Park<sup>1</sup>, Moongyu Jang<sup>1</sup>, Myungsim Jun<sup>1</sup>, Yoonhoon Hyun<sup>1</sup>, Sung-Jin Choi<sup>2</sup>, Taehyoung Zyung<sup>1</sup>, Yil-Suk Yang<sup>1</sup>, Jong-Dae Kim<sup>1</sup> (<sup>1</sup>ETRI, Korea; <sup>2</sup>KAIST, Korea)

**EQ04**

**Ca<sub>3</sub>Co<sub>4-x</sub>Ni<sub>x</sub>O<sub>9</sub> (0 ≤ x ≤ 0.3) thermoelectric materials for power generation**

Kyeongsoon Park, S. W. Nam (Sejong University, Korea)

**EQ05**

**High-temperature thermoelectric properties of  $\text{Na}(\text{Co}_{0.91}\text{Ni}_{0.09})_2\text{O}_4$  fabricated by solution combustion method for power generation**

Kyeongsoo Park, J. W. Choi (Sejong University, Korea)

**EQ06**

**Thermoelectric properties of nanostructured  $(\text{GeTe})_x(\text{AgSbTe}_2)_{1-x}$  pseudobinary thermoelectric compounds fabricated by RSP**

Bong-seo Kim<sup>1</sup>, In-Hye Kim<sup>2</sup>, Jae-Ki Lee<sup>2</sup>, Bok-Ki Min<sup>1</sup>, Min-Wook Oh<sup>1</sup>, Su-Dong Park<sup>1</sup>, Hee-Woong Lee<sup>1</sup>, Myeong-Ho Kim<sup>2</sup> (<sup>1</sup>Korea Electrotechnology Research Institute, Korea; <sup>2</sup>Changwon National University, Korea)

**EQ07**

**Thermoelectric Characteristics of In-Plane Thermopiles Processed with Bismuth-Telluride and Antimony-Telluride Thin-Film Legs**

Min-Young Kim, Tae-Sung Oh (Hongik University, Korea)

**EQ08**

**Thermoelectric Characteristics of the p-type  $(\text{Bi,Sb})_2\text{Te}_3$  Nanocomposites Processed with Nano Dispersion and Grain-boundary Modification Treatments**

Yong-Hee Yeo, Min-Young Kim, Tae-Sung Oh (Hongik University, Korea)

**EQ09**

**Thermoelectric Energy-Conversion Characteristics of the n-type  $\text{Bi}_2(\text{Te,Se})_3$  Nanocomposites Processed with Nano Particle Dispersion**

Dong-Hyun Park, Myung-Rae Rho, Min-Young Kim, Tae-Sung Oh (Hongik University, Korea)

**EQ10**

**Thermoelectric properties of Nano-structured  $\text{Bi}_2\text{Te}_3$ - $\text{PbTe}$  Alloys**

Jae-Yeol Kim<sup>1</sup>, O-Jong Kwon<sup>1</sup>, HyunWoo You<sup>1,2</sup>, Ju-Hyuk Yim<sup>2</sup>, Jin-Sang Kim<sup>2</sup>, Chan Park<sup>1,3</sup> (<sup>1</sup>Seoul National University, Korea; <sup>2</sup>Korea Institute of Science and Technology, Korea; <sup>3</sup>Seoul National University, Korea)

**EQ11**

**Growth of  $\text{Bi}_2\text{Te}_3/\text{In}_2\text{Se}_3$  multi-layered structure for obtaining enhanced thermoelectric figure of merit in nanostructured thin film**

Hyo-Jung Kim<sup>1,2</sup>, Kwang-Chon Kim<sup>1,3</sup>, Won Chel Choi<sup>1</sup>, Chan Park<sup>2</sup>, Jin-Sang Kim<sup>1</sup> (<sup>1</sup>Korea Institute of Science and Technology, Korea; <sup>2</sup>Seoul National University, Korea; <sup>3</sup>Yonsei University, Korea)

**EQ12**

**Preparation of quaternary indium selenide – bismuth telluride and their thermoelectric properties**

Ju-Hyuk Yim<sup>1,2</sup>, Kyooho Jung<sup>1</sup>, Hyung-Ho Park<sup>2</sup>, Chan Park<sup>3</sup>, Myong-Jae Yoo<sup>4</sup>, Jin-Sang Kim<sup>1</sup> (<sup>1</sup>KIST, Korea; <sup>2</sup>Yonsei University, Korea; <sup>3</sup>Seoul National University, Korea; <sup>4</sup>KETI, Korea)

**EQ13**

**Thermoelectric properties of  $\text{Bi}_2\text{Te}_3 - \text{In}_2\text{Se}_3$  composite thin films prepared by co sputtering method**

Kwang-Chon Kim<sup>1,2</sup>, Won Chel Choi<sup>1</sup>, Hyo-Jung Kim<sup>1,3</sup>, Hyun Jae Kim<sup>2</sup>, Seong Il Kim<sup>4</sup>, Chan Park<sup>3</sup>, Jin-Sang Kim<sup>1</sup> (<sup>1</sup>Korea Institute of Science and Technology, Korea; <sup>2</sup>Yonsei University, Korea; <sup>3</sup>Seoul National University, Korea; <sup>4</sup>Korea Institute of Science and Technology, Korea)

**EQ14**

**Growth of nano structured  $\text{Bi}_2\text{Te}_3$  films using modified MOCVD system and their thermoelectric properties.**

HyunWoo You<sup>1,2</sup>, Kyooho Jung<sup>1</sup>, Hyo-Jung Kim<sup>1,2</sup>, Chan Park<sup>2</sup>, Jin-Sang Kim<sup>1</sup> (<sup>1</sup>Korea Institute Of Science and Technology, Korea; <sup>2</sup>Seoul National University, Korea)

**EQ15**

**Electron Density Distribution of Zn-Sb Alloy using X-ray Powder Diffraction**

Yong-Il Kim<sup>1</sup>, Seungmin Hyun<sup>2</sup>, Yun-Hee Lee<sup>1</sup>, Sang Hyeob Kim<sup>3</sup> (<sup>1</sup>Korea Research Institute of Standards and Science, Korea; <sup>2</sup>Korea Institute of Machinery & Materials, Korea; <sup>3</sup>Electronics and Telecommunications Research Institute, Korea)

**EQ16**

**Seebeck Coefficient of Sr partially substituted  $\text{Ca}_3\text{Co}_4\text{O}_9$  Thermoelectric Material**

O-Jong Kwon<sup>1</sup>, Jae-Yeol Kim<sup>1</sup>, HyunWoo You<sup>1,2</sup>, Jin-Sang Kim<sup>2</sup>, Chan Park<sup>1,3</sup> (<sup>1</sup>Seoul National University, Korea; <sup>2</sup>Korea Institute of Science and Technology, Korea; <sup>3</sup>Seoul National University, Korea)

Tue. 13:30-17:45

Poster

**ER: Advanced Patterning Technology**

Chair: Shinji Matsui (University of Hyogo, Japan)

**ER01**

**Study of New Phase Shift Mask for the Reduction of Shadow Effect in 16 nm Node**

Eun-Jin Kim<sup>1</sup>, Jee-Hye You<sup>1</sup>, Bobae Kim<sup>1</sup>, Seong-Sue Kim<sup>2</sup>, Han-Ku Cho<sup>2</sup>, Jinho Ahn<sup>3</sup>, Ilsin An<sup>1</sup>, Hye-Keun Oh<sup>1</sup> (<sup>1</sup>Hanyang University, Korea; <sup>2</sup>Samsung Electronics Co., LTD., Korea; <sup>3</sup>Hanyang University, Korea)

**ER02**

**Surface patterning of glass by electrostatic imprinting using platinum mold**

Sung-Won Youn, Hideki Takagi, Masaharu Takahashi, Ryutaro Maeda (National Institute of Advanced Industrial Science and Technology, Japan)

**ER03**

**Optical Performance of Absorber Materials for Extreme Ultraviolet Lithography Masks**

Hee Young Kang<sup>1</sup>, Sungjin Park<sup>1</sup>, Jang Hoon Lee<sup>1</sup>, Chang Kwon Hwangbo<sup>1</sup>, Hwan-Seok Seo<sup>2</sup>, Seong-Su Kim<sup>2</sup>, Han-Ku Cho<sup>2</sup>, Jinho Ahn<sup>3</sup> (<sup>1</sup>Inha University, Korea; <sup>2</sup>Samsung Electronics Co., Ltd., Korea; <sup>3</sup>Hanyang University, Korea)

**ER04****Etching characteristics of silicon oxide layer using amorphous carbon hard mask in dual-frequency capacitively coupled plasma**

J.H. Lee, B.S. Kwon, N.-E. Lee (Sungkyunkwan University, Korea)

**ER05****Ultra-high selectivity etching of SnO<sub>2</sub> binary mask in the new absorber material for EUVL using ICP**

S. J. Lee<sup>1</sup>, C. Y. Jung<sup>1</sup>, N.-E. Lee<sup>1</sup>, S. J. Park<sup>2</sup>, C. K. Hwangbo<sup>2</sup>, Hwan Seok Seo<sup>3</sup> (<sup>1</sup>Sungkyunkwan University, Korea; <sup>2</sup>Inha University, Korea; <sup>3</sup>Samsung Electronics Co., Ltd, Korea)

**ER06****EUV resist development concepts and performances**

Jeongsik Kim, Jae Woo Lee, Deogbae Kim, Jaehyun Kim (Dongjin Semichem Co., Ltd., Korea)

**ER07****Fabricated of deplicated polymer mold for Hot-embossing lithography**

Kang-in Kim, Ki-yeon Yang, Kang-soo Han, Ju-hyeon Shin, Sang-chul Oh, Heon Lee (Korea University, Korea)

**ER08****Study of optical and structural changes in silica photomask glass by laser irradiation**

Minkyung Kang, Hunhyeong Lee, Inyu Park, Dongwook Shin (Hanyang University, Korea)

**ER09****Contact Hole Position Shift Behavior with Resist Reflow Process**

Jee-Hye You, Eun-Jin Kim, Bobae Kim, Hye-Keun Oh (Hanyang University, Korea)

**ER10****Influence of the Various Defects on 16 nm Pattern in Extreme Ultra-Violet Mask**

Bobae Kim, Eun-Jin Kim, Jee-Hye You, Hye-Keun Oh (Hanyang University, Korea)

**ER11****Nonlithographic patterning of via holes by inkjet printing process**

Yong Suk Yang<sup>1</sup>, In-Kyu You<sup>1</sup>, Jae Bon Koo<sup>1</sup>, Soon Won Jung<sup>1</sup>, Kang Dae Kim<sup>1</sup>, Yong-Young Noh<sup>2</sup> (<sup>1</sup>Electronics and Telecommunications Research Institute, Korea; <sup>2</sup>Hanbat National University, Korea)

**ER12****Electrical properties of soluble zinc oxide nanoparticle semiconductor by inkjet printing**

Sang Chul Lim, Seong Youl Kang, Ji Young Oh, Seong Deok Ahn, Hee-Ok Kim, Sang Seok Lee, Kyung Soo Suh (Electronics and Telecommunications Research Institute, Korea)

**ER13****A Stress-induced Micropatterning on a Zr-based Amorphous Alloy at Ambient Temperature**

Yun-Hee Lee, Yong-il Kim, Jong Seo Park, Seung Hoon Nahm (Korea Research Institute of Standards and Science, Korea)

**ER14****Etching Properties of the TiO<sub>2</sub> Thin Film for Resistive Random Access Memory**

Young-Hee Joo, Chang-Il Kim (Chung-Ang University, Korea)

**ER15****The Properties of Surface Thin Films during the Etch of ZrO<sub>2</sub> in HBr/SF<sub>6</sub> Plasmas**

Jong-Chang Woo, Chang-Il Kim (Chung-Ang University, Korea)

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Tue. 13:30-17:45

Poster

**ES: Materials and Processes for Highly Efficient LED**

Chair: In-Hwan Lee (Chonbuk National University, Korea)

**ES01****Transparent and low resistance Dielectric-Metal-Dielectric Multilayer contact on n-GaN with metal injection layer**

Buem Joon Kim, Jun Ho Son, Yang Hee Song, Jong-Lam Lee (Pohang University of Science and Technology, Korea)

**ES02****Improvement of light reflectance and thermal stability in Ag(In) contacts on p-type GaN**

Gwan Ho Jung, Jun Ho Son, Yang Hee Song, Jong-Lam Lee (Pohang University of Science and Technology, Korea)

**ES03****Photoluminescence Properties and Synthesis of Nano-sized YAG: Ce<sup>3+</sup> Phosphor via New Synthesis Technology**

Young Hyun Song, Tae Young Choi, Dae Ho Yoon (Sungkyunkwan University, Korea)

**ES04****Enhancement of light-extraction efficiency of the GaN-based light-emitting diodes by applying selectively-grown ZnO nanorod array**

Hyoungwon Park, Kyeong-Jae Byeon, Joong-Yeon Cho, Seong-Hwan Lee, Sung-Hoon Hong, Heon Lee (Korea University, Korea)

**ES05****The electronic structure and band gap of Eu doped  $\beta$ -SiAlON with a semilocal exchange-correlation potential**

Dong Su Yoo, Yong-Chae Chung (Hanyang University, Korea)

**ES06****Patterned growth of a vertically well-aligned ZnO nanorods for tunable light extraction in VLEDs**

Byeong Uk Ye, Jeong Min Baik (Ulsan National Institute of Science and Technology, Korea)

**ES07****Efficiency enhancement in a-plane InGaN/GaN light emitters with carbon nanotubes**

Hooyoung Song<sup>1,2</sup>, Jooyoung Suh<sup>1</sup>, Eun Kyu Kim<sup>1</sup>, Kwonwoo Shin<sup>2</sup>, Jong Hun Han<sup>2</sup>, Sung-Min Hwang<sup>2</sup>, Keun Man Song<sup>3</sup> (<sup>1</sup>Hanyang University, Korea; <sup>2</sup>Korea Electronics Technology Institute, Korea; <sup>3</sup>Korea Advanced Nano Fab Center, Korea)

**ES08****The characterization studies of substrate misorientation effects of p-type GaN grown on r-plane sapphire**

Ji-su Son<sup>1,2</sup>, Hooyoung Song<sup>1</sup>, Kwang-Hyun Baek<sup>1</sup>, Sung-Ho Lee<sup>1</sup>, Ji Hoon Kim<sup>1</sup>, Tae-Geun Kim<sup>2</sup>, Sung-Min Hwang<sup>1</sup> (<sup>1</sup>Korea Electronics Technology Institute, Korea; <sup>2</sup>Korea University, Korea)

**ES09****Characteristics on Higher Brightness Non Polar a-plane GaN LED using Metal Oxide Nanoparticles**

Ji Hoon Kim<sup>1,2</sup>, Ji-Su Son<sup>1,2</sup>, Sung Ho Lee<sup>1</sup>, Kwang Hyeon Baik<sup>1</sup>, Jung Ho Park<sup>2</sup>, Sung-Min Hwang<sup>1</sup> (<sup>1</sup>Korea Electronics Technology Institute, Korea; <sup>2</sup>Korea University, Korea)

**ES10****Light-extraction enhancement of vertical GaN-based light-emitting diodes with high refractive index polymer nano-pattern**

Kyeong-Jae Byeon, Hyoungwon Park, Joong-Yeon Cho, Seong-Hwan Lee, Heon Lee (Korea University, Korea)

**ES11****Thermal characteristics of LED lighting system**

Min-Sun Kim<sup>1</sup>, Hyun Min Cho<sup>1</sup>, Min Kyung Kang<sup>1</sup>, C. J. Lee<sup>1</sup>, Bongkwan Shin<sup>1</sup>, Kyo Yang Park<sup>2</sup> (<sup>1</sup>Korea Electronics Technology Institute, Korea; <sup>2</sup>HAREX, Korea)

**ES12****CrB<sub>2</sub>/Ti/Al Ohmic contacts to N-face n-type GaN for thermally stable vertical light-emitting diodes**

Seong-Han Park, Joon-Woo Jeon, Tae-Yeon Seong (Korea University, Korea)

**ES13****Formation of nonalloyed Ti/Al Ohmic contacts to N-face n-type GaN for vertical-structure light-emitting diodes by surface passivation**

Se-Yeon Jung, Jae-Seong Park, Minkyoung Joo, Tae-Yeon Seong (Korea University, Korea)

**ES14****The effect of dislocation density on the efficiency droop of GaInN-based light-emitting diodes**

Woo Jin Ha<sup>1</sup>, Martin F. Schubert<sup>2</sup>, Sameer Chhajed<sup>2</sup>, E. Fred Schubert<sup>2</sup>, Jong Kyu Kim<sup>1</sup> (<sup>1</sup>Pohang University of Science and Technology, Korea; <sup>2</sup>Rensselaer Polytechnic Institute, USA)

**ES15****Improved quantum efficiency of UV-LEDs using electron beam irradiated TCO layers as a highly transparent p-type electrode**

Chan Hwa Hong, Young Je Jo, Hyeng Ae Kim, Joon Seop Kwak (Sunchon National University, Korea)

**ES16****Effect of thermal degradation on GaN-based light-emitting device from violet to blue emission**

Sung-Nam Lee<sup>1</sup>, Hyunsoo Kim<sup>2</sup> (<sup>1</sup>Korea Polytechnic University, Korea; <sup>2</sup>Chonbuk National University, Korea)

**ES17****Reduction of the yellow halo emitting from YAG-based white LEDs by laser scribed electrophoretic phosphor plate**

Wen-Ray Chen<sup>1</sup>, Chen-Yu Yang<sup>2</sup>, Chien-Jung Huang<sup>3</sup> (<sup>1</sup>National Formosa University, Taiwan; <sup>2</sup>National Formosa University, Taiwan; <sup>3</sup>National University of Kaohsiung, Taiwan)

**ES18****Structural Chemistry of M<sub>2</sub>Si<sub>5</sub>N<sub>8-x</sub>O<sub>x</sub>:Eu<sup>2+</sup> (M=Ca, Sr, Ba) Phosphor by Combined Structural Refinement**

Yong-Il Kim<sup>1</sup>, Kwang Bok Kim<sup>2</sup>, Kwon-Sang Ryu<sup>3</sup>, Ki-Bok Kim<sup>3</sup> (<sup>1</sup>Korea Research Institute of Standards and Science, Korea; <sup>2</sup>Kumho Electric Inc, Korea; <sup>3</sup>Korea Research Institute of Standards and Science, Korea)

**ES19****Growth of diamond-like carbon film and aluminum nitride film on silicon for high power LED smart submount application**

Wen-Ray Chen<sup>1</sup>, Yueh-Lin Chiang<sup>2,3</sup>, Chien-Jung Huang<sup>4</sup> (<sup>1</sup>National Formosa University, Taiwan; <sup>2</sup>KOGAKU TECHNOLOGY INC., Taiwan; <sup>3</sup>National Formosa University, Taiwan; <sup>4</sup>National University of Kaohsiung, Taiwan)

**ES20****Improved thermal stability of InGaN/GaN LEDs with ITO/Ag reflectors**

Yong Deok Kim<sup>1</sup>, Seong Min Moon<sup>2</sup>, Min Joo Park<sup>1</sup>, Joon Seop Kwak<sup>1</sup> (<sup>1</sup>Sunchon National University, Korea; <sup>2</sup>Gwangju Intops Co., Ltd, Korea)

**ES21****Suppression of Ag agglomeration in Ag-Mg alloy Ohmic contact to p-GaN by Mg oxidation**

Yang Hee Song, Jung Ho Son, Gwan ho Jung, Jong-Lam Lee (POSTECH, Korea)

**ET: OLED Materials and Devices**

Chair: Myeongkyu Lee (Yonsei University, Korea)

**ET01****Efficient fluorescent top-emitting organic light-emitting diode based on MoO<sub>x</sub>-modified Si anode and semitransparent Ag cathode**

Xiao-Wen Zhang, Jun Li, Liang Zhang, Hua-Ping Lin, Dong-Bin Yu, Xue-Yin Jiang, Zhi-Lin Zhang (Shanghai University, China)

**ET02****Simple structured white organic light-emitting devices by solution processing of small molecule host layer**

Yu-seok Seo, Min-ki Kang, Dae-Gyu Moon (Soonchunhyang University, Korea)

**ET03****Low Temperature Polycrystalline Silicon Thin Film Transistor crystallized by Metal Induced Crystallization using Ni catalyst deposited by metal organic chemical vapor deposition**

Se Wan Son, Chang Woo Byun, Eun Ae Yun, Min Kyu Lee, Seung Ki Joo (Seoul National University, Korea)

**ET04****Effect of electric field and Temperature on hole mobility in 2,2',7,7'-tetra-kis(N,N-diphenylphenylamino)-9,9'-spirobifluorene.**Omwati Rana<sup>1,2</sup>, Ritu Sivastava<sup>1</sup>, M. Zulfequar<sup>2</sup>, M. Husain<sup>2</sup>, M. N. Kamalasanan<sup>1</sup> (<sup>1</sup>National Physical laboratory, India; <sup>2</sup>Jamia Millia Islamia University, India)**ET05****Charge transport study in Aluminium (III) bis (2-methyl-8-quinolato) 4-phenylphenolate (BALq)**Rakhi Grover<sup>1,2</sup>, Ritu Srivasrava<sup>1</sup>, D.S. Mehta<sup>2</sup>, M.N. Kamalasanan<sup>1</sup> (<sup>1</sup>National Physical Laboratory, India; <sup>2</sup>Indian Institute of Technology Delhi, India)**ET06****Synthesis, characterization and optoelectronic properties of hetero leptic iridium complexes containing substituted 1,3,4-oxadiazole as primary and  $\beta$ -diketone as secondary ligand**Amit Kumar<sup>1,2</sup>, Ritu Srivastava<sup>1</sup>, Partap S. Kadyan<sup>2</sup>, Devender Singh<sup>2</sup>, Kapoor Singh<sup>2</sup>, Ishwar Singh<sup>2</sup>, Modeeparampil N. Kamalasanan<sup>1</sup> (<sup>1</sup>National Physical Laboratory, India; <sup>2</sup>M.D.University, India)**ET07****Optoelectronic studies of the WOLED based on 2-Methyl-8-hydroxyquinolinatolithium**Devender Singh<sup>1</sup>, Amit Kumar<sup>1,2</sup>, Ritu Shrivastava<sup>2</sup>, Kapoor Singh<sup>1</sup>, P. S. Kadyan<sup>1</sup>, Ishwar Singh<sup>1</sup>, M.N. Kamalasanan<sup>2</sup> (<sup>1</sup>M.D.University, India; <sup>2</sup>National Physical Laboratory, India)**ET08****Co-sputtered oxide thin film encapsulated organic electronic devices with prolonged lifetime**

F.L. Wong, M.K. Fung, C.Y. Ng, A. Ng, I. Bello, C.S. Lee, S.T. Lee (City University of Hong Kong, Hong Kong)

**ET09****Efficient Deep-Blue Organic Light-Emitting Diodes Using Double-Emitting Layer**Ji Hoon Seo<sup>1</sup>, Bo Min Seo<sup>1</sup>, Seok Jae Lee<sup>1</sup>, Se Jin Moon<sup>1</sup>, Kum Hee Lee<sup>2</sup>, Seung Soo Yoon<sup>2</sup>, Young Kwan Kim<sup>1</sup> (<sup>1</sup>Hongik University, Korea; <sup>2</sup>Sungkyunkwan University, Korea)**ET10****Highly efficient and stable blue organic light emitting diode incorporating an assistant dopant**

Hua-Ping Lin, Xue-Yin Jiang, Zhi-Lin Zhang (Shanghai University, China)

**ET11****Efficient carrier- and exciton-confinement of white phosphorescent organic light-emitting diode using a buffer layer of TCTA material**Seok Jae Lee<sup>1</sup>, Ji Hoon Seo<sup>1</sup>, Kum Hee Lee<sup>2</sup>, Seung Soo Yoon<sup>2</sup>, Young Kwan Kim<sup>1</sup> (<sup>1</sup>Hongik University, Korea; <sup>2</sup>Sungkyunkwan University, Korea)**ET12****Diphenylamino-fluorenylethylene Derivatives with the Various Aromatic End-capping groups for Highly efficient Blue Organic Light-Emitting Diodes**Kum Hee Lee<sup>1</sup>, Hyun Ju Kang<sup>1</sup>, Young Kwan Kim<sup>2</sup>, Seung Soo Yoon<sup>1</sup> (<sup>1</sup>Sungkyunkwan University, Korea; <sup>2</sup>Hongik University, Korea)**ET13****Pre-Metal Induced Lateral Crystallized Polycrystalline Silicon Thin-Film Transistor**

Chang-Woo Byun, Se-Wan Son, Min-Kyu Lee, Seung-Jae Yun, Seung-Ki Joo (Seoul National University, Korea)

**ET14****Crystallization of a-Si:H by metal-induced vertical crystallization (MIVC) on glass for high performance Active mode display**BongKwaan Shin<sup>1</sup>, MinKyu Lee<sup>1</sup>, Tae Young Hwang<sup>2</sup>, SeWan Son<sup>1</sup>, Young Seok Kim<sup>3</sup>, Seung-Ki Joo<sup>1</sup> (<sup>1</sup>Seoul National University, Korea; <sup>2</sup>Samsung Fine Chemicals, Korea; <sup>3</sup>Korea Electronics Technology Institute, Korea)**ET15****The exciplex/electroplex emission from the interface between 2-(4-trifluoromethyl-2-hydroxyphenyl) benzothiazole|zinc and N,N'-diphenyl-N,N'-bis(1-naphthyl)-(1,1'-biphenyl)-4,4'-diamine**

Yuying Hao, Weixin Meng, Huixia Xu, Hua Wang, Bingshe Xu (Taiyuan University of Technology, China)

**ET16**

**Al<sub>2</sub>O<sub>3</sub>-Ag-Al<sub>2</sub>O<sub>3</sub> multilayer passivation grown by linear facing target sputtering for organic light emitting diodes**  
Jin-A Jeong, Chung-Ki Cho, Han-Ki Kim (Kyung Hee University, Korea)

**ET17**

**Multilayer organic light-emitting diodes based on conjugated polymers**  
Yirang Im<sup>1,2</sup>, Kyeong K. Lee<sup>1</sup>, Eunhee Lim<sup>1</sup>, Sungkoo Lee<sup>1</sup>  
(<sup>1</sup>Korea Institute of Industrial Technology, Korea; <sup>2</sup>Dankook University, Korea)

**ET18**

**Strong Ligand Field Effects of blue phosphorescent Ir(III) complexes with phenylpyrazole and phosphines**  
Se Won Park, Ho Wan Ham, Young Sik Kim (Hongik University, Korea)

**ET19**

**Organic Solar Cells Using New Low Band Gap Semiconducting Polymers**  
Jun Kang<sup>1</sup>, Chul-Hyun Kim<sup>2</sup>, Sung-Ho Jin<sup>2</sup>, Soo-Hyoung Lee<sup>3</sup>, Do-Hoon Hwang<sup>4</sup> (<sup>1</sup>Kumoh National Institute of Technology, Korea; <sup>2</sup>Pusan National University, Korea; <sup>3</sup>Chonbuk National University, Korea; <sup>4</sup>Pusan National University, Korea)

**ET20**

**Indium Tin Oxide Electrode with an Ultrathin Al Buffer Layer for Flexible Organic Light Emitting Diode**  
Boyeon Sim, Myeongkyu Lee (Yonsei University, Korea)

**ET21**

**A Study on the Green Organic Light-Emitting Diodes with High Electron Mobility in Hole Block and Electron Transport Layers**  
Ji Hyun Seo<sup>1</sup>, Hoe Min Kim<sup>1</sup>, Eun Young Choi<sup>1</sup>, Jong-Tae Je<sup>2</sup>, Young Kwan Kim<sup>1</sup> (<sup>1</sup>Hongik University, Korea; <sup>2</sup>SFC CO. LTD., Korea)

**ET22**

**Fabrication and Characterization of White Polymer Light Emitting Diodes Using PFO:MDMO-PPV**  
Ho Sub Lee, Seung Jun Baek, Su Choel Gong, Ho Jung Chang (Dankook University, Korea)

**ET23**

**Low Temperature Poly-Crystalline Silicon Thin Film Transistor fabricated by Ni Organic Chemical Vapor Deposition**  
Sang Joo Lee, Se Wan Son, Min kyu Lee, Seung Jae Yun, Seung-Ki Joo (Seoul National University, Korea)

**ET24**

**Fabrication of AMOLED pixel using combination of a-Si TFTs and p-Si TFTs**  
Seung-Jae Yun, Sang-Joo Lee, Min-Kyu Lee, Chang-Woo Byun, Se-Wan Son, Eun-Ae Yoon, Seung-Ki Joo (Seoul National University, Korea)

**ET25**

**Flexible white organic light-emitting devices with a porous red polymer layer and a blue polymer layer utilizing a phase separation of blend polymer**  
Young Pyo Jeon, Yo Sub Ko, Dong Chul Choo, Tae Whan Kim (Hanyang University, Korea)

**ET26**

**Low Temperature Crystallization of Amorphous Silicon Thin Film using Ni Catalyst for Metal Induced Crystallization deposited by Metal Organic Chemical Vapor Deposition.**  
Eunae Yoon, Sewan Son, Seung-Ki Joo (Seoul National University, Korea)

**ET27**

**Effect of ITO surface treatment on organic light emitting diodes**  
Taiju Tsuboi<sup>1</sup>, Tadashi Kishimoto<sup>2</sup>, Kazuhiro Wako<sup>2</sup>, Kuniharu Matsuda<sup>3</sup>, Hirofumi Iguchi<sup>3</sup> (<sup>1</sup>Kyoto Sangyo University, Japan; <sup>2</sup>Research Institute for Advanced Liquid Crystal Technology, Japan; <sup>3</sup>Tohoku Device Co.,Ltd., Japan)

**ET28**

**Water vapor barrier properties of Al<sub>2</sub>O<sub>3</sub> thin films by introducing buffer layer for flexible electronic applications**  
Tae-Suk Kwon, Yeon-Keon Moon, Woong-Sun Kim, Dae-Yong Moon, Kyung-Taek Kim, Jong-Wan Park (Hanyang University, Korea)

**ET29**

**Highly efficient Red Phosphorescent OLEDs using Iridium(III) Complexes based on 2-(biphenyl-3-yl)quinoline derived Ligands**  
Hyun Ju Kang<sup>1</sup>, Kum Hee Lee<sup>1</sup>, Heo Min Kim<sup>2</sup>, Ji Hyun Seo<sup>2</sup>, Young Kwan Kim<sup>2</sup>, Seung Soo Yoon<sup>1</sup> (<sup>1</sup>Sungkyunkwan University, Korea; <sup>2</sup>Hongik University, Korea)

**ET30**

**Ultra large grain effect of thin film transistors compare to eximer laser annealing methods**  
Wonbaek Lee, Nguyen Thanh Nga, Sungwook Jung, Kyungsoo Jang, Kyunghyun Baek, Junsin Yi (Sungkyunkwan University, Korea)

**ET31**

**Organic light-emitting diode with metal stripes for high efficiency**  
Jiyun Chun<sup>1</sup>, Tae Wan Kim<sup>2</sup>, Dae-shik Seo<sup>3</sup> (<sup>1</sup>Yonsei University, Korea; <sup>2</sup>Hongik University, Korea; <sup>3</sup>Yonsei University, Korea)

**ET32****Characteristics of Various Instability in Ni-FALC Poly-Si Thin Film Transistors**

Young Bea Kim<sup>1</sup>, Duck Kyun Choi<sup>2</sup>, Jae Hoon Jung<sup>3</sup>, Ji Hoon Shin<sup>3</sup>, Young Je Cho<sup>2</sup> (<sup>1</sup>Samsung, Korea; <sup>2</sup>Hanyang University, Korea; <sup>3</sup>Samsung, Korea)

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Tue. 15:45-17:15

**Ballroom 2****FA: Oxide Semiconductor**

Chair: Chul-Hong Park (Pusan National University, Korea)

**FA01 (Invited)** 15:45-16:15**Optoelectronic and Photocatalytic Properties of Some Composite Oxide Nanostructures**

Wei Gao, Chongwen Zou, Ian Yan (The University of Auckland, New Zealand)

**FA02** 16:15-16:30**Poly(3-hexylthiophene)/Zinc Oxide Nanoparticles Blend for Inverted Organic Solar Cells**

Hye-Jeong Park, Kyung-Sik Shin, Kang-Hyuck Lee, Brijesh Kumar, Sang-Woo Kim (Sungkyunkwan University, Korea)

**FA03** 16:30-16:45**Synthesis and Gas Sensing properties of WO<sub>3</sub> synthesized in presence of CTAB surfactant**

Kiran Jain, Vibha Srivastava (National Physical Laboratory, India)

**FA04** 16:45-17:00**Degradation of Phenol, 2-Chlorophenol and 2,4-Dichlorophenol over Titanium Dioxide Powder Synthesized by Low Temperature Hydrothermal Route**

Pusit Pookmanee<sup>1</sup>, Tarika Kuntatun<sup>1</sup>, Wiyong Kangwansupamonkon<sup>2</sup>, Sukon Phanichphant<sup>3</sup> (<sup>1</sup>Maejo University, Thailand; <sup>2</sup>National Science and Technology Development Agency, Thailand; <sup>3</sup>Chiang Mai University, Thailand)

**FA05** 17:00-17:15**Influence of thickness on tensile failure of ZnO:Al thin films on flexible polymer substrates**

Bhaskar Chandra Mohanty, Hong-Rak Choi, Yong-Muk Choi, Yong Soo Cho (Yonsei University, Korea)

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Tue. 15:45-17:00

**Ballroom 3****FB: Carbon Nano Materials**

Chair: Sunae Seo (Samsung Advanced Institute of Nanotechnology, Korea)

**FB01** 15:45-16:00**Formation of iron catalysts during multi-walled carbon nanotube growth by thermal chemical vapor deposition**

Sookhyun Hwang<sup>1</sup>, Youngjoo Kim<sup>1</sup>, Dae-Won Jung<sup>2</sup>, Hyonkwang Choi<sup>1</sup>, Minhyon Jeon<sup>1</sup> (<sup>1</sup>Inje University, Korea; <sup>2</sup>Pohang University of Science and Technology, Korea)

**FB02** 16:00-16:15**Synthesis of multi-wall carbon nanotubes (MWNTs) using thermal chemical vapor deposition to be used as a counter electrode for dye-sensitized solar cells (DSSCs)**

Ji-Young Roh<sup>1</sup>, Shinyoung Park<sup>1</sup>, Yang-Hee Kim<sup>1</sup>, Jinhyeong Kwon<sup>1</sup>, Tae-Moo Lee<sup>2</sup>, Sung-Hoon Ahn<sup>3</sup>, Caroline Sunyong Lee<sup>1</sup> (<sup>1</sup>Hanyang University, Korea; <sup>2</sup>Neotis Co. Ltd., Korea; <sup>3</sup>Seoul National University, Korea)

**FB03** 16:15-16:30**Self-assembled monolayer of zeolite encapsulated nanocrystalline iron/cobalt oxides for carbon nanotube growth**

Ik Jin Kim, Wei Zhao (Hanseu University, Korea)

**FB04** 16:30-16:45**Evolution of orbital hybridization in group-IV three- and two-dimensional crystals**

Shaoqing Wang (Chinese Academy of Sciences, China)

**FB05** 16:45-17:00**Quantitative Analysis for the Spatial Distribution of Field Electron Emission of CNT Cathodes**

Myoung-Bok Lee<sup>1</sup>, Kyeong-Mo Choi<sup>2</sup>, Seung-Pil Yoon<sup>3</sup>, Seung-Il Woo<sup>3</sup>, Seung-Hoon Hyun<sup>3</sup> (<sup>1</sup>Nano Convergence Practical Application Center, Korea; <sup>2</sup>Yeungjin Junior College, Korea; <sup>3</sup>Heesung Electronics Ltd., Korea)

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Tue. 15:45-17:30

**Ballroom 4****FC: Advanced Packaging and Interconnection**

Chair: Bioh Kim (EV Group, Korea)

**FC01 (Invited)** 15:45-16:15**Inkjet-printed Interconnects for Flexible and Stretchable Devices**

Young-Chang Joo (Seoul National University, Korea)

**FC02 (Invited)** 16:15-16:45**Embedding Active and Passive Components Inside Printed Circuit Board (PCB) - a Solution for Miniaturization of Electronics**

Sung Yi (Portland State University, USA)

**FC03** 16:45-17:00**Development of ultra fine pitch Chip-on-Glass (COG) bonding with metal bumps having insulating layer in the side wall using Anisotropic conductive Adhesives (ACAs)**

Myung-Hwan Hong, Sun-Chul Kim, Young-Ho Kim (Hanyang University, Korea)

**FC04** 17:00-17:15**Underfill Study by Changing Silica Filler Size**

Woong-Sun Lee (Hynix Semiconductor Inc., Korea)

**FC05** 17:15-17:30  
**Interface analysis of embedded chip resistor device package and its effect on drop shock reliability**  
Se-Hoon Park<sup>1,2</sup>, Jong Chul Park<sup>1</sup>, Young-Ho Kim<sup>2</sup> (<sup>1</sup>KETI, Korea; <sup>2</sup>Hanyang University, Korea)

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Tue. 15:45-17:15 **Mara**  
**FD: Nano Dot, Nano Wire and Nano Processes**  
Chair: Guozhen Shen (Huazhong University of Science and Technology, China)

**FD01 (Invited)** 15:45-16:15  
**Logic Circuits with Interface-controlled ZnO Nanowire Transistors**  
Takhee Lee (Gwangju Institute of Science and Technology, Korea)

**FD02 (Invited)** 16:15-16:45  
**Broadband Si:Ge Nanooptoelectronics**  
Moon-Ho Jo (Pohang University of Science and Technology, Korea)

**FD03** 16:45-17:00  
Withdrawn

**FD04** 17:00-17:15  
**Synthesis of Co<sub>3</sub>O<sub>4</sub> Nanowire Arrays Supported on Ni Foam**  
C. Yin<sup>1</sup>, K.N. Hui<sup>2</sup>, M.O. Fu<sup>3</sup>, S.K. Lee<sup>4</sup>, K.S. Hui<sup>3</sup> (<sup>1</sup>City University of Hong Kong, Hong Kong; <sup>2</sup>Pusan National University, Korea; <sup>3</sup>City University of Hong Kong, Hong Kong; <sup>4</sup>Korea Institute of Energy Research, Korea)

## Wednesday, November 24,

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Wed. 09:00-10:15 **Ballroom 2**  
**GA: Devices and Materials for Energy Harvesting and Storage**  
Chair: Hee Chul Lee (Korea Polytechnic University, Korea)

**GA01** 09:00-09:15  
**Novel Processing for Low-Cost Silicon Photovoltaics**  
Johnny Ho<sup>1</sup>, Zhiyong Fan<sup>2</sup> (<sup>1</sup>City University of Hong Kong, Hong Kong; <sup>2</sup>Hong Kong University of Science and Technology, Hong Kong)

**GA02** 09:15-09:30  
**Flexible, Inexpensive, and Environmental-Friendly Thermoelectric Device Module Using a Screen Printing Technique**  
Heon Bok Lee, Ju Hyung We, Hyun Jeong Yang, Byung Jin Cho (KAIST, Korea)

**GA03** 09:30-09:45  
**Dry-spray deposition of TiO<sub>2</sub> for flexible dye-sensitized solar cell (DSSC) using nano particle deposition system (NPDS)**  
Min-Saeng Kim<sup>1</sup>, Doo-Man Chun<sup>1</sup>, Jong-Cheon Lee<sup>1</sup>, Yang-Hee Kim<sup>2</sup>, Kwang-Su Kim<sup>2</sup>, Caroline Sunyong Lee<sup>2</sup>, Sung-Hoon Ahn<sup>1</sup> (<sup>1</sup>Seoul National University, Korea; <sup>2</sup>Hanyang University, Korea)

**GA04** 09:45-10:00  
Withdrawn

**GA05** 10:00-10:15  
**Investigation of surface morphology control of TiO<sub>2</sub> electrode for DSSC**  
Dong-Guk Cho, Yang-Hee Kim, Kwang-Su Kim, Caroline Sunyong Lee (Hanyang University, Korea)

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Wed. 09:00-10:30 **Ballroom 3**  
**GB: Nano Devices and Structures**  
Chair: Dae-Hong Ko (Yonsei University, Korea)

**GB01** 09:00-09:15  
**Characterize the magnetization of ferro-particle with apparent gravity effect**  
Je-Ee. Ho (National Ilan University, Taiwan)

**GB02 (Invited)** 09:15-09:45  
**Transistor scaling beyond 32nm**  
Seok-Hee Lee (KAIST, Korea)

**GB03** 09:45-10:00  
**Characterization of a-plane GaN light emitting diode grown on nano patterned r-plane sapphire substrate by MOCVD**  
Geunho Yoo, Hyunsung Park, Donghun Lee, Hyoungjin Lim, Seunga Lee, Okhyun Nam (Korea Polytechnic University, Korea)

**GB04** 10:00-10:15  
**Doping characteristics of Si / Si<sub>1-x</sub>Ge<sub>x</sub> core-shell heterostructure nanowires**  
Sun-Wook Kim, Sangmo Koo, Dae-Hong Ko (Yonsei University, Korea)

**GB05** 10:15-10:30  
Withdrawn

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Wed. 09:00-10:15

Ballroom 4

**GC: Photovoltaic Science and Engineering**

Chair: Hiroshi Imahori (Kyoto University, Japan)

**GC01 (Invited)** 09:00-09:30

**MOVPE Technology of InGaAs/GaAsP Strain-balanced Quantum Wells for Improved Efficiency of Multi-junction Solar Cells**

Masakazu Sugiyama, Yoshiaki Nakano (The University of Tokyo, Japan)

**GC02** 09:30-09:45

**Effect of Inter-Electrode Interfacial Morphology on Photovoltaic Characteristics of Dye-Sensitized Solar Cell**

Jonghyun Kim, Junghwan Yoon, Myeongkyu Lee (Yonsei University, Korea)

**GC03** 09:45-10:00

**Influence of post-annealing treatment of the spin coated graphene films for transparent conductive substrate**

Hyunkook Kim, Hyonkwang Choi, Minhyon Jeon (Inje University, Korea)

**GC04** 10:00-10:15

**High quality n-type polycrystalline silicon films without amorphous incubation layer by hot wire chemical vapor deposition**

Yung-Bin Chung<sup>1,2</sup>, Hyung-Ki Park<sup>1</sup>, Dong-Kwon Lee<sup>1</sup>, Seung-Wan Yoo<sup>1,2</sup>, Nong-Moon Hwang<sup>1,2</sup> (<sup>1</sup>Seoul National University, Korea; <sup>2</sup>Nano-Systems Institute-National Core Research Center (NSI-NCRC), Korea)

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Wed. 09:00-10:30

Mara

**GD: Materials and Processes for Highly Efficient LED**

Chair: Ho Won Jang (KIST, Korea)

**GD01 (Invited)** 09:00-09:30

**Use of Photoelectrochemical Wet Etching for Fabricating Highly Efficient Light-emitting Diodes**

Cheng-Hung Lin, Che-Hao Liao, Chih-Yen Chen, Chieh Hsieh, Chih-Chung (C. C.) Yang (National Taiwan University, Taiwan)

**GD02 (Invited)** 09:30-10:00

**Enhancement of external quantum efficiency in vertical InGaN/GaN LEDs**

Jun Ho Son, Jong-Lam Lee (Pohang University of Science and Technology (POSTECH), Korea)

**GD03** 10:00-10:15

**Surface-plasmon-enhanced light emitters based on InGaN/GaN quantum wells and Ag nanostructures**

Lee-Woon Jang<sup>1</sup>, Dae-Woo Jeon<sup>1</sup>, Trilochan Sahoo<sup>1</sup>, Ju-Won Jeon<sup>1</sup>, Myoung Kim<sup>1</sup>, Mi-Hee Lee<sup>1</sup>, Dong-Seob Jo<sup>1</sup>, Ju-Wan Yoo<sup>1</sup>, Jung-Hun Choi<sup>1</sup>, Jin-Woo Ju<sup>2</sup>, Seung-Jae Lee<sup>2</sup>, Jong-Hyeob Baek<sup>2</sup>, Song-Mei Li<sup>3</sup>, Yong-Hoon Cho<sup>3</sup>, Hilmi Volkan Demir<sup>4</sup>, In-Hwan Lee<sup>1</sup> (<sup>1</sup>Chonbuk National University, Korea; <sup>2</sup>Korea Photonics Technology Institute, Korea; <sup>3</sup>KAIST, Korea; <sup>4</sup>Bilkent University, Turkey)

**GD04** 10:15-10:30

**Enhanced luminescence of Cu-In-S nanocrystals by surface modification**

Young-Kuk Kim, Young-Sang Cho, Kookchae Chung, Chul-Jin Choi (Korea Institute of Materials Science, Korea)

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Wed. 09:00-12:00

Poster

**GP: Nano Dot, Nano Wire and Nano Processes**

Chair: Woong Kim (Korea University, Korea)

**GP01**

**Zinc Oxide Nanostructures and Nanocomposite for OLED**

Daping Chu, Jinwoo Han (University of Cambridge, UK)

**GP02**

**Fabrication of gas sensor using SnO<sub>2</sub> nanofibers**

Ki-Young Dong<sup>1</sup>, Dae-Jin Ham<sup>1</sup>, In-Sung Hwang<sup>2</sup>, Jong-Heun Lee<sup>2</sup>, Hyang Hee Choi<sup>3</sup>, Byeong-Kwon Ju<sup>1</sup> (<sup>1</sup>Korea University, Korea; <sup>2</sup>Korea University, Korea; <sup>3</sup>Yonsei University, Korea)

**GP03**

**Crystallization of Au-Si thin films:**

**A real-time synchrotron x-ray scattering study**

Tae-Sik Cho<sup>1</sup>, Jin-Woo Kim<sup>2</sup> (<sup>1</sup>KyungPook National University, Korea; <sup>2</sup>GIST, Korea)

**GP04**

**Diffusion-controlled formation of Co-Sb alloy nanowires from the electrochemically deposited Co-Sb multilayered nanowires**

Seong Gi Jeon<sup>1</sup>, Jae Yong Song<sup>2,3</sup>, Ho Sun Shin<sup>4</sup>, Jin Yu<sup>4</sup> (<sup>1</sup>KAIST, Korea; <sup>2</sup>KRISS, Korea; <sup>3</sup>University of Science and Technology, Korea; <sup>4</sup>KAIST, Korea)

**GP05**

**Fabrication of Nano Silica Dispersed Permalloy Composite Coating**

Myoung-Won Jung<sup>1</sup>, Jong-Hoon Kim<sup>1</sup>, Heung-Yeol Lee<sup>2</sup>, Tai-Hong Yim<sup>2</sup>, Jae-Ho Lee<sup>1</sup> (<sup>1</sup>Hongik University, Korea; <sup>2</sup>KITECH, Korea)

**GP06****Synthesis and Characterization of the Barium Titanate Nanodendrites by Co-precipitation Method**

Pin-Hsiang Chiu<sup>1,2</sup>, Chien-Jung Huang<sup>1</sup>, Cheng-Fu Yang<sup>3</sup>, Teen-Hang Meen<sup>4</sup>, Wen-Ray Chen<sup>4</sup>, Yeong-Her Wang<sup>5</sup>  
 (<sup>1</sup>National University of Kaohsiung, Taiwan; <sup>2</sup>Air Force Institute of Technology, Taiwan; <sup>3</sup>National University of Kaohsiung, Taiwan; <sup>4</sup>National Formosa University, Taiwan; <sup>5</sup>National Cheng-Kung University, Taiwan)

**GP07****Dispersion behavior of AlN nanoparticles in coolant oil by high speed bead-mill**

Mi-Hee Jung<sup>1</sup>, Seung-Heon Lee<sup>2</sup>, Chang-Bock Chung<sup>2</sup>, Cheol Choi<sup>1</sup> (<sup>1</sup>Korea Electric Power Research Institute, Korea; <sup>2</sup>Chonnam National University, Korea)

**GP08****Preparation of Fe-base alloy nanoparticles by electrical explosive of wire**

Jung-Yeul Yun, Hyun-Joo Kim, A-Reum Jeong, Hye-Moon Lee, Sang-Sun Yang, Si-Young Choi, Young-Jin Kim (Korea Institute of Materials Science, Korea)

**GP09****Photocatalytic Characteristics of ZnO-TiO<sub>2</sub> Core-Shell Nanorod Arrays**

Dae-Hwang Yoo, Tran-Viet Cuong, Nguyen Tri Koah, Soon Wook Kim, Sung-Hong Hahn (University of Ulsan, Korea)

**GP10****Extreme-Pressure Properties of Multi-Component Lubricating Oil-based Nanofluids**

Cheol Choi, Mihee Jung (KEPCO Research Institute, Korea)

**GP11****Design strategy of nano products for environment, health and safety**

Jae-Hyun Kim, Yun Hwangbo, Kyung-Sik Kim, Hak-Joo Lee, Byung-Ik Choi (Korea Institute of Machinery and Materials, Korea)

**GP12****Shape evolution of NaNbO<sub>3</sub> microcrystals by hydrothermal method**

Rajesh Dodla, Woong Kim (Korea University, Korea)

**GP13****H<sub>2</sub> dilution-dependent optical properties of silicon nanowires**

Bhabani S. Swain<sup>1</sup>, Bibhu P. Swain<sup>2</sup>, Sung S. Lee<sup>1</sup>, Nong M. Hwang<sup>1</sup> (<sup>1</sup>Seoul National University, Korea; <sup>2</sup>National Institute of Advanced Industrial Science and Technology, Japan)

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Wed. 09:00-12:00

**Poster****GQ: Carbon Nano Materials**

Chair: Byung Hee Hong (Sungkyunkwan University, Korea)

**GQ01****Enhanced Thermal Conductivity of Graphene Oxide-incorporated Polymeric Microspheres**

Minki Kang, Hyeonseong Bak, Young Soo Yun, Hyoung-Joon Jin (Inha University, Korea)

**GQ02****Effect of Ar ion beam treatment on the field emission of CVD-grown double-walled carbon nanotubes**

KiTae Ahn<sup>1</sup>, SeungChul Lyu<sup>2</sup>, HanSung Lee<sup>3</sup>, JungHyun Sok<sup>1,2</sup> (<sup>1</sup>University of Seoul, Korea; <sup>2</sup>University of Seoul, Korea; <sup>3</sup>Sejong University, Korea)

**GQ03****Synthesis of carbon nanotubes on carbon paper and their application as a supercapacitor**

Byungwoo Kim, Woong Kim (Korea university, Korea)

**GQ04****The formation and growth of multi-walled carbon nanotubes (MWCNTs) by catalytic CVD using zeolite encapsulated nanocrystalline iron/cobalt oxides**

Ik Jin Kim, Wei Zhao (Hanseu University, Korea)

**GQ05****Stress dependence on electrical properties of graphene based transparent flexible conductive films**

Byeong-Joo Lee, Goo-Hwan Jeong (Kangwon National University, Korea)

**GQ06****Size control of catalytic nanoparticles and their use in diameter specified growth of SWNTs**

Jin-Ju Kim, Goo-Hwan Jeong (Kangwon National University, Korea)

**GQ07****Fabrication of transparent flexible conductive films using as-grown thin diameter carbon nanotubes**

Eui-Chul Shin, Goo-Hwan Jeong (Kangwon National University, Korea)

**GQ08****Self-assembled single-walled carbon nanotubes with peptides as an advanced electrode for electrochemical biosensor**

Gyo Hee Kim, Bong Gill Choi, Won Hi Hong (Korea Advanced Institute of Science and Technology, Korea)

**GQ09****Effects of buffer layer on growth of vertically aligned carbon nanotubes on Ti substrate by thermal chemical vapor deposition**

Yong-Hwan Kwon, Hyo-Hun Ahn, Ki-Won Kim, Tae-Hyun Nam, Kwon-Koo Cho (Gyeongsang National University, Korea)

**GQ10****Raman Spectroscopy of CVD-synthesized Graphene Transferred on Various Dielectric Substrates**

Eunho Kim<sup>1</sup>, Hyosub An<sup>1</sup>, Hyonchul Jang<sup>1</sup>, Sungmin Jung<sup>2</sup>, Wonju Cho<sup>2</sup>, Wankyu Lee<sup>3</sup>, Jongwan Jung<sup>1</sup> (<sup>1</sup>Sejong University, Korea; <sup>2</sup>Kwangwoon University, Korea; <sup>3</sup>National Nano Fab Center, Korea)

**GQ11**

Withdrawn

**GQ12****Interfacial electronic structure and work function between graphene and Au**

Yoojin Song<sup>1</sup>, Yeonjin Yi<sup>1</sup>, Won Mook Choi<sup>2</sup>, Seong Jun Kang<sup>3</sup> (<sup>1</sup>Korea Research Institute of Standards and Science, Korea; <sup>2</sup>Samsung Advanced Institute of Technology, Korea; <sup>3</sup>Kyung Hee University, Korea)

**GQ13****High electron emission current and long life time of functional CNTs**

Hyemi Oh, Jehwang Ryu, Nayoung Bae, Eunhye Lee, Anna Ha, Woomi Bae, Jin Jang, Kyuchang Park (Kyung Hee University, Korea)

**GQ14****Using modified Bessel theory to characterize the magnetization of ferro-particle**

Je-Ee. Ho (National Ilan University, Taiwan)

**GQ15****Comparison and Analysis of Hazardous Gases Sensor Using Carbon Nanotube Paste**

Ki-Young Dong<sup>1</sup>, Byeong-Kwon Ju<sup>1</sup>, Hyang Hee Choi<sup>2</sup> (<sup>1</sup>Korea University, Korea; <sup>2</sup>Yonsei University Korea)

**GQ16****Graphene Synthesis by Fe foil Using Rapid Thermal CVD**

Hyosub An<sup>1</sup>, Eunho Kim<sup>1</sup>, Hyonchul Jang<sup>1</sup>, Wonju Cho<sup>2</sup>, Wankyu Lee<sup>3</sup>, Jongwan Jung<sup>1</sup> (<sup>1</sup>Sejong University, Seoul, Korea; <sup>2</sup>Kwangwoon University, Korea; <sup>3</sup>National Nano Fab Center, Korea)

**GQ17****Low voltage driving carbon nanotube field emission lamp**

Na Young Bae, Je Hwang Ryu, Hye Mi Oh, Eun Hye Lee, Woo Mi Bae, An Na Ha, Jin Jang, Kyu Chang Park (KyungHee Univ., Korea)

**GQ18****A study about CNT composite plating on the permalloy matrix**

Ho-kyung Um<sup>1</sup>, Heung-Yeol Lee<sup>2</sup>, Tai-Hong Yim<sup>2</sup>, Jae-ho Lee<sup>1</sup> (<sup>1</sup>Hongik University, Korea; <sup>2</sup>Korea Institute of Industrial Technology, Korea)

**GQ19****Growth of spin-capable multi-walled carbon nanotubes and flexible transparent sheet film**

Hoon-Sik Jang<sup>1</sup>, Sang Koo Jeon<sup>2</sup>, Oh-Heon Kwon<sup>3</sup>, Seung Hoon Nahm<sup>4</sup> (<sup>1</sup>Korea Research Institute of Standards and Science, Korea; <sup>2</sup>Korea Research Institute of Standards and Science, Korea; <sup>3</sup>Pukyung University, Korea; <sup>4</sup>Korea Research Institute of Standards and Science, Korea)

**GQ20****Characterization of Nanosized Sn-Cu Alloy Supported on CNTs as Anode Materials for Lithium Ion Batteries**

Dong-Won Jung, Jae Hun Jeong, Eun-Suok Oh (University of Ulsan, Korea)

**GQ21****Effects of synthesis temperature on the morphology and surface resistance of carbon nanotubes films**

Hyunjung Lee, Kyung Ah Oh, Min Park (KIST, Korea)

**GQ22****Temperature dependence photoluminescence of graphene thin films prepared by hydrazine and thermal reduction of graphene oxide**

Tran Viet Cuong<sup>1</sup>, Hoang Hung Nguyen<sup>2</sup>, Quang Trung Tran<sup>2</sup>, Viet Hung Pham<sup>1</sup>, Jin Suk Chung<sup>1</sup>, Eui Jung Kim<sup>1</sup>, Seung Hyun Hur<sup>1</sup> (<sup>1</sup>University of Ulsan, Korea; <sup>2</sup>Ho Chi Minh City University of Natural Sciences, Vietnam)

**GQ23****Macrodispersion of multi-walled carbon nanotubes for conductive films**

Duckjong Kim<sup>1</sup>, Lijing Zhu<sup>2,1</sup>, Jae-Hyun Kim<sup>1</sup>, Chang-Soo Han<sup>1</sup>, Seunghyun Baik<sup>2</sup> (<sup>1</sup>Korea Institute of Machinery and Materials, Korea; <sup>2</sup>Sungkyunkwan University, Korea)

**GQ24****Mechanical and electrical behavior of carbon nanotube thin film on polymer substrates under fatigue loading**

Yun Hwangbo, Sun-A Song, Jae-Hyun Kim, Hak-Joo Lee, Byung-Ik Choi (Korea Institute of Machinery and Materials, Korea)

**GQ25****Purification of Single-Walled Carbon Nanotubes using Dielectrophoretic Manipulation in Microfluidic Device**

Soongeun Kwon<sup>1</sup>, Duckjong Kim<sup>2</sup>, Chang-Soo Han<sup>2</sup> (<sup>1</sup>Hanbat National University, Korea; <sup>2</sup>Korea Institute of Machinery and Materials, Korea)

**GR: Advanced Packaging and Interconnection**

Chair: Sarah Eunkyung Kim (Seoul National University of Science and Technology, Korea)

**GR01****Characteristics of Eutectic Sn-Bi Micro-bumps by Electroplating for Roll-to-Roll Processing**

Myongh-Hoon Roh<sup>1</sup>, Jea-Pil Jung<sup>1</sup>, Wonjoong Kim<sup>1</sup>, Chang-Woo Lee<sup>2</sup> (<sup>1</sup>University of Seoul, Korea; <sup>2</sup>Korea Inst. of Industrial Technology, Korea)

**GR02****Multi-layered Au-Sn bonding for package applications**

Seungmin Hyun<sup>1</sup>, Hee-Yeoun Kim<sup>2</sup>, Hak-Joo Lee<sup>1</sup>, Kwang-Seop Kim<sup>1</sup> (1Korea Institute of Machinery & Materials, Korea; <sup>2</sup>National Nanofab center, Korea)

**GR03****Fabrication of copper/polyimide films for flexible copper clad laminate by pulsed electro-deposition process**

Chang Min Lee<sup>1</sup>, Soo Min Hwang<sup>1</sup>, Geun Chul Park<sup>1</sup>, Ji Cheol Park<sup>1</sup>, Jun Hyung Lim<sup>2,1</sup>, Jinho Joo<sup>1</sup> (<sup>1</sup>Sungkyunkwan University, Korea; <sup>2</sup>Stanford University, USA)

**GR04****Effects of the alloying element additions on the microstructure and the bonding reliability of Au bonding wire**

Hyung Giun Kim<sup>1</sup>, Taeg Woo Lee<sup>1</sup>, Eun Kyun Jeong<sup>2</sup>, Won Yong Kim<sup>3</sup>, Sung Hwan Lim<sup>1</sup> (<sup>1</sup>Kangwon National University, Korea; <sup>2</sup>Heraeus Oriental HiTec, Korea; <sup>3</sup>Korea Institute of Industrial Technology, Korea)

**GR05****A Growth Mechanism of Anodic Film Formed on 7075 Al Injection Mold in 0.6 M Oxalic Acid Electrolyte**

Seong Ho Han (KITECH, Korea)

**GR06****Effect of Electromigration on Interfacial Reaction in Au stud Bump**

Myeong-Hyeok Jeong<sup>1</sup>, Byoung-Joon Kim<sup>2</sup>, Kiwook Lee<sup>3</sup>, Jaedong Kim<sup>3</sup>, Young-Chang Joo<sup>2</sup>, Young-Bae Park<sup>1</sup> (<sup>1</sup>Andong National University, Korea; <sup>2</sup>Seoul National University, Korea; <sup>3</sup>Amkor Technology Korea Inc, Korea)

**GR07****Process Optimization of Cu-Cu Direct Bonding for TSV Applications**

Jae-Won Kim<sup>1</sup>, Myeong-Hyeok Jeong<sup>1</sup>, Young-Sik Kim<sup>1</sup>, Sarah Pfeiffer<sup>2</sup>, Bioh Kim<sup>2</sup>, Thorsten Matthias<sup>2</sup>, Seungmin Hyun<sup>3</sup>, Hak-Joo Lee<sup>3</sup>, Sungdong Kim<sup>4</sup>, Young-Bae Park<sup>1</sup> (<sup>1</sup>Andong National University, Korea; <sup>2</sup>EV Group, USA; <sup>3</sup>Korea Institute of Machinery & Materials, Korea; <sup>4</sup>Seoul National University of Technology (SNUT) & Seoul Technopark, Korea)

**GR08****The effect of current density on microstructure and mechanical properties for Ni metal mask with Nanocrystalline structure**

Jun Hyung Lim<sup>1,2</sup>, Jin Hyun Park<sup>1</sup>, Geun Chul Park<sup>1</sup>, Chang Min Lee<sup>1</sup>, Soo Min Hwang<sup>1</sup>, Jun Hyuk Choi<sup>1</sup>, Jinho Joo<sup>1</sup> (<sup>1</sup>Sungkyunkwan University, Korea; <sup>2</sup>Stanford University, USA)

**GR09****Plasma enhanced atomic layer deposition of Co thin films for glue layer of advanced interconnect**

Dae-Yong Moon, Chang-Mook Hwang, Jong-Wan Park (Hanyang University, Korea)

**GR10**

Withdrawn

**GR11****Electroplating characteristics of eutectic Sn-Cu micro solder bump**

Jun-Kyu Park<sup>1</sup>, Ki-Ju Lee<sup>2</sup>, Jae-Pil Jung<sup>1</sup> (<sup>1</sup>University of Seoul, Korea; <sup>2</sup>University of Osaka, Japan)

**GR12****Sn Via-Filling by Pressure Infiltration Process for Formation of Through-Silicon-Vias in Chip Stack Packages**

Sung-Kyu Kim, Min-Young Kim, Tae-Sung Oh (Hongik University, Korea)

**GR13****Inkjet Printing Approach to Fabricate Non-sintered Dielectric Film with High Packing Density for 3D Package Integration Technology**

Jihoon Kim, Jongwoo Im, Myungsung Hwang, Yoenjoon Oh, Hyotae Kim, Young Joon Yoon, Jonghee Kim (Korea Institute of Ceramic Engineering and Technology, Korea)

**GS: Oxide Semiconductor**

Chair: Sang-Woo Kim (Sungkyunkwan University, Korea)

**GS01****In-situ Electrical Conductivity Measurement of Oxidation of Tin Nanocluster Film**

Il-Suk Kang<sup>1</sup>, Taek-Yeong Lee<sup>2</sup>, Sehoon Yoo<sup>3</sup>, Chang-Woo Lee<sup>3</sup>, Hyun-Sang Seo<sup>1</sup>, Hye-Mi So<sup>1</sup>, Yu-Ri Choi<sup>1</sup>, Jun-Mo Yang<sup>1</sup>, Wook-Jung Hwang<sup>1</sup>, Chi Won Ahn<sup>1</sup> (<sup>1</sup>National Nanofab Center, Korea; <sup>2</sup>Hanbat National University, Korea; <sup>3</sup>DKorea Institute of Industrial Technology, Micro Joining Center, Korea)

**GS02****ZnO light emitting diodes using ZnO quantum dots embedded in amorphous silicon oxide matrix**

Jae-Hong Lim, Kyu Hwan Lee (Korea Institute of Materials Science, Korea)

- GS03**  
**Functionalized polyterthiophene sensitizer Nanocrystalline TiO<sub>2</sub> Photovoltaic Cells**  
 Jang-Hee Yoon, Mi-Sook Won, Jong-Pil Kim (Korea Basic Science Institute, Korea)
- GS04**  
**Characterization of TiO<sub>2</sub> Films Grown by LPCVD on Different Substrates**  
 shufang ma<sup>1,2</sup>, Jun-fu Zhao<sup>1,2</sup>, Jian Liang<sup>1,2</sup>, and Bing-she Xu<sup>1,2</sup> (<sup>1</sup>College of Materials Science and Engineering, Taiyuan University of Technology, China; Key Laboratory of Interface Science and Engineering in Advanced Materials of Ministry of Education, China)
- GS05**  
**Memory switching behavior of ZnO nanowire field effect transistors functionalized by mobile protons**  
 Jongwon Yoon<sup>1</sup>, Woong-Ki Hong<sup>2</sup>, Minseok Jo<sup>1</sup>, Gunho Jo<sup>1</sup>, Minhyeok Choe<sup>1</sup>, Woojin Park<sup>1</sup>, Hyunsang Hwang<sup>1,3</sup>, Takhee Lee<sup>1,3</sup> (<sup>1</sup>Gwangju Institute of Science and Technology, Korea; <sup>2</sup>University of Cambridge, UK; <sup>3</sup>Gwangju Institute of Science and Technology, Korea)
- GS06**  
**The influence of substrate temperature on the performance of ZnO thin film transistor**  
 Liang Zhang (Shanghai University, China)
- GS07**  
**Properties ZnO thin films co-doped with hydrogen and fluorine**  
 Yong Hyun Kim<sup>1,2</sup>, Jin Soo Kim<sup>1,2</sup>, Jeung-hyun Jeong<sup>3</sup>, Jong-Keuk Park<sup>1</sup>, Young Jun Baik<sup>1</sup>, Kyeong-Seok Lee<sup>1</sup>, Tae-Yeon Seong<sup>2</sup>, Won Mok Kim<sup>1</sup> (<sup>1</sup>Korea Institute of Science and Technology, Korea; <sup>2</sup>Korea University, Korea; <sup>3</sup>Korea Institute of Science and Technology, Korea)
- GS08**  
**Gate insulator thickness dependence on the mobility and thermal stability of InGaZnO thin-film transistor**  
 Jun Li, Liang Zhang, Xiao-Wen Zhang, Hua-Ping Lin, Xue-Yin Jiang, Zhi-Lin Zhang (Shanghai University, China)
- GS09**  
**The influence of the hafnium doping on the transfer characteristics of tin oxide (SnO<sub>2</sub>) thin film transistor**  
 Woong-Sun Kim, Yeon-Keon Moon, Kyung-Taek Kim, Dong-Seok Han, Sae-Young Shin, Jong-Wan Park (Hanyang university, Korea)
- GS10**  
**The Influence of Thermal Stress as Shoulder Shape in Silicon Single Crystal by Czochralski method**  
 Ho Jun Lee<sup>1</sup>, SangHee Kim<sup>1</sup>, Young Kyu Choi<sup>1</sup>, Hwa Jin Jo<sup>1</sup>, Dae Ho Yoon<sup>2</sup>, Bok Cheol Sim<sup>1</sup>, Hong Woo Lee<sup>1</sup> (<sup>1</sup>LG Siltron, Korea; <sup>2</sup>Sungkyunkwan University, Korea)
- GS11**  
**Characteristics of SnO<sub>2</sub>-based thin film transistors deposited by DC magnetron sputtering**  
 Kyung-Taek Kim, Yeon-Keon Moon, Woong-Sun Kim, Sae-Young Shin, Jong-Wan Park (Hanyang University, Korea)
- GS12**  
**Band-gap control by the modulation of Mg contents in Mg<sub>x</sub>Ni<sub>1-x</sub>O thin films grown by magnetron sputtering**  
 Yong Hun Kwon, Hyung Koun Cho (Sungkyunkwan University, Korea)
- GS13**  
**Improvements in the device characteristics of IZO-based transparent thin film transistors with co-sputtered HfO<sub>2</sub>-Al<sub>2</sub>O<sub>3</sub> gate dielectrics.**  
 Heegeun Son, Jung-su Kim, Jung -il Yang, Dong-kyu Cho, Moonsuk Yi (Pusan national university, Korea)
- GS14**  
**Effects of oxygen process gas on electrical properties of ZTO thin films and ZTO-TFTs fabricated by ionized physical vapor deposition**  
 Mi-hee Lee<sup>1,2</sup>, Woo-Seok Cheong<sup>1</sup>, Jun-Yong Bak<sup>1</sup>, Sung-Mook Chung<sup>1</sup>, In-Hwan Lee<sup>2</sup> (<sup>1</sup>ETRI, Korea; <sup>2</sup>Chonbuk National University., Korea)
- GS15**  
**Effect of rapid thermal annealing on the electrical, optical, and structural properties of ZnO-doped In<sub>2</sub>O<sub>3</sub> films grown by linear facing target sputtering**  
 Jin-A Jeong, Hyun-Su Shin, Han-Ki Kim (Kyung Hee University, Korea)
- GS16**  
**Amorphous oxide TFTs with IGZO channels deposited by ionized physical vapor deposition method**  
 Jun-Yong Bak<sup>1,2</sup>, Woo-Seok Cheong<sup>1</sup>, Mi-Hee Lee<sup>1</sup>, Sung Mook Chung<sup>1</sup>, Hong-Seung Kim<sup>2</sup> (<sup>1</sup>Electronics Telecommunications Research Institute, Korea; <sup>2</sup>Korea Maritime University, Korea)
- GS17**  
**Solution Processed Zinc-Tin-Oxide Thin-Film Transistor based Integrated Circuits**  
 Kwang Ho Kim<sup>1,2</sup>, Yong Hoon Kim<sup>1</sup>, Min Suk Oh<sup>1</sup>, Hyun Jae Kim<sup>2</sup>, Sung Kyu Park<sup>3</sup> (<sup>1</sup>Korea Electronics Technology Institute, Korea; <sup>2</sup>Yonsei University, 262 Seongsanno, Seodaemun-gu, Korea; <sup>3</sup>Chonbuk National University, Korea)
- GS18**  
**The crossover of preferred orientation in heteroepitaxial ZnO/MgO(001) films**  
 Hyon Chol Kang (Chosun University, Korea)

**GS19****Synthesis and Characterization of Ag doped ZnO thin films**

Jung Ho Sun and Hyon Chol Kang (Chosun University, Korea)

**GS20****Electrical transport properties of transparent conducting Al doped ZnO as a function of Al concentration**

Kyoung Joo Han<sup>1</sup>, Jaewon Lee<sup>2</sup>, Jin-Seong Park<sup>2</sup>, Kwun-Bum Chung<sup>1</sup> (<sup>1</sup>Dankook University, Korea; <sup>2</sup>Dankook University, Korea)

**GS21****Nitrogen-doped transparent tin oxide thin films deposited by sputtering**

Youngrae Kim<sup>1</sup>, Sun Phil Kim<sup>2</sup>, Sung-Dong Kim<sup>2</sup>, Sarah Eunkyung Kim<sup>3</sup> (<sup>1</sup>Seoul technopark, Korea; <sup>2</sup>Seoul National University of Technology, Korea; <sup>3</sup>Seoul National University of Technology, Korea)

**GS22****The role of Al contents on AlZnO oxide thin film transistor deposited by Low temperature atomic layer deposition**

Jaewon Lee, Hyunwoo Park, Kwun-Bum Chung, Jin-Seong Park (Dankook University, Korea)

**GS23****Effects of seed layers on the optical and electrical properties of Ga-doped zinc oxide thin films**

Byung Woo Gil, Hyung Soo Kim, Seong Eui Lee, Hee Chul Lee (Korea Polytechnic University, Korea)

**GS24****Comparative electrical and optical properties of various TCO/Ag/TCO films on the electron beam irradiation at room temperature**

Chan Hwa Hong, Young Je Jo, Hyeong Ae Kim, Joon Seop Kwak (Suncheon National University, Korea)

**GS25****Optimization condition of oxide channel using combinatorial sputter system**

Young Je Jo<sup>1</sup>, Tae Won Kim<sup>2</sup>, Chan Hwa Hong<sup>1</sup>, Gi Seok Heo<sup>3</sup>, Kwang Young Kim<sup>3</sup>, Joon Seop Kwak<sup>1</sup> (<sup>1</sup>Suncheon National University, Korea; <sup>2</sup>Korea Institute of Industrial Technology, Korea; <sup>3</sup>Korea Institute of Industrial Technology, Korea)

**GS26****n-ZnO:In/p-GaN heterojunction Light emitting diodes with infinitesimal Indium mole fraction**

Ju-Young Lee<sup>1</sup>, BoRa Jang<sup>1</sup>, Jong Hoon Lee<sup>1</sup>, Hong Seung Kim<sup>1</sup>, Won Jae Lee<sup>2</sup> (<sup>1</sup>Korea Maritime University, Korea; <sup>2</sup>Dong-Eui University, Korea)

**GS27****A Novel Wet Process for Preparation of Silicon Dioxide Thin Film**

Sang-Hyeok IM<sup>1</sup>, Nam-Jin KIM<sup>1</sup>, Dong-Hwan KIM<sup>1</sup>, Duck-Ki YOON<sup>2</sup>, Bong-Ki RYU<sup>1</sup> (<sup>1</sup>Pusan National University, Busan, Korea; <sup>2</sup>Jeong Kwan CO.,LTD, Korea)

**GS28****Study of Indium doped ZnO channel characteristics for transparent thin film transistors**

JongHoon Lee, HongSeung Kim, NakWon Jang (Korea Maritime University, Korea)

**GS29****Improvement of ohmic contacts behavior of amorphous IGZO thin films by hydrogen plasma treatment**

Su-Hwan Yang<sup>1</sup>, Jun Young Kim<sup>1</sup>, Young Je Jo<sup>2</sup>, Joon Seop Kwak<sup>2</sup>, Han-Ki Kim<sup>3</sup>, Ji-Myon Lee<sup>1</sup> (<sup>1</sup>Sunchon National University, Korea; <sup>2</sup>Sunchon National University, Korea; <sup>3</sup>Kyung Hee University, Korea)

**GS30****Enhanced dielectric performances of ZrO<sub>2</sub>/TiO<sub>2</sub> bi-layered dielectric films fabricated via sol-gel process**

Seung Muk Lee<sup>1</sup>, Soo Min Hwang<sup>1</sup>, Jun Hyuk Choi<sup>1</sup>, Ji Cheol Kim<sup>1</sup>, Jinho Joo<sup>1</sup>, Jun Hyung Lim<sup>2,1</sup> (<sup>1</sup>Sungkyunkwan University, Korea; <sup>2</sup>Stanford University, USA)

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Wed. 09:00-12:00

Poster

**GT: Materials and Devices of Flexible Displays and Printed Electronics**

Chair: Chung Kun Song (Dong-A University, Korea)

**GT01****Enhanced barrier property of modified polyvinyl alcohol layer for passivation layer of pentacene thin-film transistor**

Hye Jung Suk<sup>1</sup>, Mi Hye Yi<sup>1</sup>, Taek Ahn<sup>2</sup> (<sup>1</sup>Korea Research Institute of Chemical Technology, Korea; <sup>2</sup>KyungSung University, Korea)

**GT02****Photocurable polymeric gate insulator based on polyimide for pentacene thin-film transistor by low temperature processing**

Jin Hee Lee<sup>1</sup>, Jae Won Ka<sup>1</sup>, Mi Hye Yi<sup>1</sup>, Taek Ahn<sup>2</sup> (<sup>1</sup>Korea Research Institute of Chemical Technology, Korea; <sup>2</sup>KyungSung University, Korea)

**GT03****Single-crystal TIPS pentacene thin-film transistors by ink-jet printing**

Yong-Hoon Kim<sup>1</sup>, Jeong-In Han<sup>2</sup>, Sung Kyu Park<sup>3</sup> (<sup>1</sup>Korea Electronics Technology Institute, Korea; <sup>2</sup>Dongguk University Korea; <sup>3</sup>Chunbok National University, Korea)

**GT04****The effects of goxidation on the electrical properties of Polycrystalline-Silicon Thin-Film Transistors**

Yong Woo Lee, Chang Woo Byun, Eun Ae Yoon, Seung Ki Joo (Seoul National University, Korea)

**GT05****Synthesis of Regioregular alkyl-substituted Poly(3,4-Ethylenedioxy-2-thiophenylthiophene) and Application to Organic Photovoltaic Cells**

Ha-Young Son<sup>1,2</sup>, Kyeong K Lee<sup>1</sup>, Eunhee Lim<sup>1</sup>, Dong Hoon Choi<sup>2</sup>, Sungkoo Lee<sup>1</sup> (<sup>1</sup>Korea Institute of Industrial Technology (KITECH), Korea; <sup>2</sup>Korea University, Korea)

**GT06****Solution-Processed Amorphous Zinc Tin Oxide Semiconductor for Thin-Film Transistors**

Chien-Yie Tsay<sup>1</sup>, Wan-Yu Chiu<sup>1</sup>, Tsung-Han Hsien<sup>1</sup>, Hung-Wei Li<sup>2</sup>, Shin-Chuan Chiang<sup>3</sup>, Ting-Chang Chang<sup>4</sup> (<sup>1</sup>Feng Chia University, Taiwan; <sup>2</sup>National Chiao Tung University, Taiwan; <sup>3</sup>Taiwan TFT LCD Association (TTLA), Taiwan; <sup>4</sup>National Sun Yat-Sen University, Taiwan)

**GT07****Flexible Organic Inverters Fabricated by Transfer-Assisted Lift-Off Technique**

Wonsuk Choi, Min-Hoi Kim, Sin-Doo Lee (Seoul National University, Korea)

**GT08****Leakage Reduction in 6, 13-Bis(triisopropylsilylethynyl)-Pentacene Based Organic Thin-Film Transistors with Patterned Dual Gate Insulator**

Chang-Min Keum, Jin-Hyuk Bae, Wonsuk Choi, Won-Ho Kim, Min-Hoi Kim, Sin-Doo Lee (Seoul National University, Korea)

**GT09**

Withdrawn

**GT10****Preparation of Copper Nanopowder by Microwave Plasma for Printed Electrode**

Young-Seok Kim<sup>1</sup>, Jong-Woong Kim<sup>1</sup>, Min-Kyu Kang<sup>1,2</sup>, Ho-Kyu Yoon<sup>2</sup>, Min-Gi Kwak<sup>1</sup> (<sup>1</sup>Korea Electronics Technology Institute, Korea; <sup>2</sup>Korea University, Korea)

**GT11****Electrochemical migration characteristics of screen-printed silver patterns on FR-4 substrate**

Kwang-Seok Kim, Jee-Hyuk Ahn, Bo-In Noh, Seung-Boo Jung (Sungkyunkwan University, Korea)

**GT12****The response characteristics of odor sensors based on poly-3-hexylthiophene thin-film transistors for environment malodor measurements**

Jin Wook Jeong, Byeong Kwon Ju (Korea University, Korea)

**GT13****Characteristics of NiO buffer layer on Ni-alloy metal substrates for flexible display applications**

K. C. Chung, G. C. Choi, T. J. Jeong, Y. S. Cho, Y. K. Kim, C. J. Choi (Korea Institute of Materials Science, Korea)

**GT14****Synthesis of Pd(II) Amine Complex and Surface Treatment of Polymer Film for Electroless Copper Plating**

Byung Ki Park<sup>1</sup>, Jang Jung Kim<sup>1</sup>, Dong Uk Choe<sup>1</sup>, Dong Soo Kim<sup>2</sup> (<sup>1</sup>Korea Research Institute of Chemical Technology, Korea; <sup>2</sup>Korea Institute of Machinery and Materials, Korea)

**GT15****A Study on Ion Mass Doping Effect on the MILC behaviors**

Tae Young Hwang<sup>1</sup>, Seung-Ki Joo<sup>2</sup>, BongKwan Shin<sup>3</sup> (<sup>1</sup>Samsung Fine Chemicals, Korea; <sup>2</sup>College of Engineering Seoul National University, Korea; <sup>3</sup>College of Engineering Seoul National University, Korea)

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Wed. 10:45-12:00

Ballroom 2

**HA: Devices and Materials for Energy Harvesting and Storage**

Chair: Caroline Sunyong Lee (Hanyang University, Korea)

**HA01 (Invited)**

10:45-11:15

**Energy Harvesting, Wireless Sensor Networks and Smart Energy Management**

Shad Roundy (Atmel, USA)

**HA02**

11:15-11:30

**Piezoelectric bimorph energy harvester and its rechargeable battery charging characteristics**

Sang-Kyun Lee, Seungeon Moon, YilSuk Yang, Jongdae Kim (ETRI, Korea)

**HA03**

11:30-11:45

**Harnessing Piezoelectricity from Human Foot Steps**

Hyun-Cheol Song<sup>1</sup>, Won-Hee Lee<sup>1,2</sup>, Chong-Yun Kang<sup>1</sup>, Seok-Jin Yoon<sup>1</sup> (<sup>1</sup>Korea Institute of Science & Technology, Korea; <sup>2</sup>Korea University, Korea)

**HA04**

11:45-12:00

**Fabrication and Characterization of High Performance Flexible Ferroelectric Devices on Plastic Substrates**

Kwi-Il Park, Keon Jae Lee (Korea Advanced Institute of Science and Technology, Korea)

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Wed. 10:45-12:15

**Ballroom 3**

**HB: Nano Devices and Structures**

Chair: Seok-Hee Lee (KAIST, Korea)

**HB01** 10:45-11:00

**Chemical sensors based on ZnO nanorod-graphene hybrid architectures**

Jaeseok Yi, Jung Min Lee, Hae Yong Jeong, Won Il Park (Hanyang University, Korea)

**HB02** 11:00-11:15

**Room-temperature UV lasing from an array of top- and bottom distributed Bragg reflectors coated AlInGaN nanopillars**

K.N. Hui<sup>1</sup>, K.S. Hui<sup>2</sup>, H.W. Choi<sup>3</sup> (<sup>1</sup>Pusan National University, Korea; <sup>2</sup>City University of Hong Kong, Hong Kong; <sup>3</sup>The University of Hong Kong, Hong Kong)

**HB03** 11:15-11:30

**Optimization of non-linear graded buffers in lattice-mismatched InGaAs solar cells**

Sanghyo Kim, Soochang Jung, Hyonkwang Choi, Minhyon Jeon (Inje University, Korea)

**HB04** 11:30-11:45

**Pd-Ni Alloy Thin Films on a Flexible Substrate for Hydrogen Sensors**

Eunyeong Lee, Jun Min Lee, Wooyoung Lee (Yonsei University, Korea)

**HB05** 11:45-12:00

**Fabrication and electrical properties of high voltage gain inverter utilizing the thickness-effect of the individual ZnO nanowires**

Young Tack Lee, Ryong Ha<sup>2</sup>, Heon-jin Choi, Seongil Im (Yonsei University, Korea)

**HB06** 12:00-12:15

**One-dimensional pillar array and two-dimensional graphene hybridized architectures for three-dimensional light emitting diodes**

Jung Min Lee, Jaeseok Yi, Dong Hyun Lee, Won Il Park (Hanyang University, Korea)

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Wed. 10:45-12:00

**Ballroom 4**

**HC: Photovoltaic Science and Engineering**

Chair: Masakazu Sugiyama (The University of Tokyo, Japan)

**HC01 (Invited)** 10:45-11:15

**Bio-inspired Photoelectric Conversion Systems and Solar Cells**

Jin Zhai (Beijing University of Aeronautics and Astronautics, China)

**HC02** 11:15-11:30

**Bio-inspired Photoelectric Conversion Systems Based on Smart Gating Nanochannels**

Liping Wen<sup>1</sup>, Jin zhai<sup>2</sup>, Lei Jiang<sup>1</sup> (<sup>1</sup>Chinese Academy of Sciences, China; <sup>2</sup>Beijing University of Aeronautics and Astronautics, China)

**HC03** 11:30-11:45

**Weight percentage dependant electrochemical impedance spectroscopy in MWCNTs slurry for counter electrode**

Youngmoon Han, Myunghoon Kang, Youngjoo Kim, Minhyon Jeon (Inje University, Korea)

**HC04** 11:45-12:00

**Electrical and optical properties of GZO/Al/GZO multilayers deposited by DC magnetron sputtering**

Hee Woo Park, Pung Keun Song (Pusan National University Korea)

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Wed. 10:45-12:00

**Mara**

**HD: Materials and Processes for Highly Efficient LED**

Chair: Jeong Min Baik (Ulsan National Institute of Science and Technology, Korea)

**HD01 (Invited)** 10:45-11:15

**Non-polar m-plane GaN film and Polarized InGaN/GaN LED grown on LiAlO<sub>2</sub> (001) substrates**

Rong Zhang (Nanjing University, China)

**HD02 (Invited)** 11:15-11:45

**Enhanced output power of vertical LEDs by improving current injection efficiency and reflectivity**

Joon-Woo Jeon<sup>1</sup>, Se-Yeon Jung<sup>1</sup>, Seong-Han Park<sup>2</sup>, Hyunsoo Kim<sup>3</sup>, June-O Song<sup>4</sup>, Tae-Yeon Seong<sup>5</sup> (<sup>1</sup>Korea University, Korea; <sup>2</sup>Korea University, Korea; <sup>3</sup>Chonbuk National University, Korea; <sup>4</sup>LG Innotek, Korea; <sup>5</sup>Korea University, Korea)

**HD03** 11:45-12:00

**On the origin of annealing-induced degradation in Al-based ohmic contacts to N-Face n-GaN**

Ho Won Jang, Jong-Lam Lee (Pohang Institute of Science and Technology, Korea)

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Wed. 13:30-15:15

**Ballroom 2**

**IA: Materials and Devices of Flexible Displays and Printed Electronics**

Chair: Yong-Young Noh (Hanbat National University, Korea)

**IA01 (Invited)** 13:30-14:00

**Large Area and High Precise Printed Electronics for Flexible Display**

Kiyoshi Yase (AIST, Japan)

**IA02 (Invited)** 14:00-14:30  
**Novel Method to Evaluate Moisture Permeation of the Metal Barrier Coating on Polymer Substrate**

Hoi-Bong Kim<sup>1</sup>, Young-Jun Choi<sup>1</sup>, Kwun Nam Hui<sup>1</sup>, Changsoo Jang<sup>2</sup>, Young-Rae Cho<sup>1</sup> (<sup>1</sup>Pusan National University, Korea; <sup>2</sup>University of Maryland, USA)

**IA03** 14:30-14:45  
**All solution processed OTFT-backplane with printing technology for Electrophoretic display**

Myung Won Lee, Chung Kun Song (Dong-A University, Korea)

**IA04** 14:45-15:00  
**Optical Characteristics of Thin-Film Encapsulation on Inverted Top-Emitting Organic Light Emitting Devices for Flexible Display**

Kang-Ju Lee, Jaewon Lee, Jong-Sung Kim, Jong-Kyun Lee, Min-Ki Kim, Chae-Hyun Kwak, Choong-Keun Yoo, Sooyoung Yoon, Chang-Dong Kim, Yong-Kee Hwang (LG Display Co., Korea)

**IA05** 15:00-15:15  
**Study of Sintering Behavior of Vapor Forms of 1-octanethiol Coated Copper Nanoparticles for the Application of Ink-Jet Printing**

Jinhyeong Kwon<sup>1</sup>, Dong-Kwon Kim<sup>1</sup>, Ji-Young Roh<sup>1</sup>, Shinyoung Park<sup>1</sup>, Tae Hun Lee<sup>2</sup>, Young-Suk Kim<sup>3</sup>, Caroline Sunyong Lee<sup>1</sup> (<sup>1</sup>Hanyang University, Korea; <sup>2</sup>National Nanofab Center, Korea; <sup>3</sup>Korea Electronics Technology Institute, Korea)

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Wed. 13:30-15:00 **Ballroom 3**  
**IB: Nano Dot, Nano Wire and Nano Processes**  
Chair: Woong Kim (Korea University, Korea)

**IB01 (Invited)** 13:30-14:00  
**One-Dimensional Nanostructures: From Synthesis to Device Applications**

Guozhen Shen<sup>1,2</sup> (<sup>1</sup>Huazhong University of Science and Technology, China; <sup>2</sup>Wuhan National Laboratory for Optoelectronics, China)

**IB02** 14:00-14:15  
**Amperometric biosensor based on silicon nanowires modified by gold nanoparticles**

Dae Hoon Kwon<sup>1</sup>, Hyeun Hwan An<sup>1</sup>, Hee-Soo Kim<sup>1</sup>, Jong Ho Lee<sup>1</sup>, Sang Hee Suh<sup>2</sup>, Young Ho Kim<sup>1</sup>, Chong Seung Yoon<sup>1</sup> (<sup>1</sup>Hanyang University, Korea; <sup>2</sup>Korea Institute of Science and Technology, Korea)

**IB03** 14:15-14:30  
**Characterizations of Ga-doped ZnO Nanowires Depending on growth temperature and target-substrate distance in Hot-Walled Pulsed Laser Deposition**

Kyoungwon Kim<sup>1</sup>, Dong-Hoon Park<sup>1</sup>, Dong-Yun LEE<sup>1</sup>, Pulak Chandra Debnath<sup>1</sup>, Sangsig Kim<sup>2</sup>, Gun-Eik Jang<sup>3</sup>, Sang Yeol Lee<sup>1</sup> (<sup>1</sup>KIST, Korea; <sup>2</sup>Korea University, Korea; <sup>3</sup>Chungbuk National University, Korea)

**IB04** 14:30-14:45  
**ZnO nanotubes and nanotube-nanorod hybrid hexagonal networks**

Yong Bum Pyun, Dong Hyun Lee, Jaeseok Yi, Won Woo Lee, Won Il Park (Hanyang University, Korea)

**IB05** 14:45-15:00  
**Fabrication and gas sensing properties of cross-linked TiO<sub>2</sub> hollow hemispheres with nanobridges**

Ho Won Jang, Hi Gyu Moon, Young-Seok Shim, Jin-Sang Kim, Seok-Jin Yoon (Korea Institute of Science and Technology, Korea)

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Wed. 13:30-15:00 **Ballroom 4**  
**IC: Photovoltaic Science and Engineering**

Chair: Dong-Youn Shin (Korea Institute of Machinery and Materials, Korea)

**IC01 (Invited)** 13:30-14:00  
**Characterization of CuInSe<sub>2</sub> and CuInGaSe<sub>2</sub> thin-film solar cells using Atom Probe Tomography**

Pyuck-Pa Choi, Oana Cojocaru-Miréidin, Dierk Raabe (Max-Planck-Institute for Iron Research, Germany)

**IC02** 14:00-14:15  
**Optical and Electronic Properties of Post-Annealed ZnO:Al Thin Films**

Woojin Lee, Yumin Kim, Dae-Ryong Jung, Jongmin Kim, Seunghoon Nam, Hoechang Kim, Byungwoo Park (Seoul National University, Korea)

**IC03** 14:15-14:30  
**Investigation of Laser Induced Damage to a Surface Energy Patterned Solar Cell Wafer for the formation of an Inkjet Printed Seed Pattern**

Dong-Youn Shin (Korea Institute of Machinery and Materials, Korea)

**IC04** 14:30-14:45  
**Electrochemical study on Ag ionization in a glass frit for Ag crystallite formation of crystalline silicon solar cell**

Bo-Mook Chung<sup>1,2</sup>, Jung-Woo Chun<sup>1</sup>, Joo-Youl Huh<sup>1</sup> (<sup>1</sup>Korea University, Seoul, Korea; <sup>2</sup>KPMTECH, Korea)

**IC05** 14:45-15:00  
**Effect of post-annealing treatment on electrical and optical properties of GZO/ITO and AZO/ITO double-layered transparent conductive oxide for solar cells**

Ah Ro Mi Chung, Pung Keun Song (Pusan National University, Korea)

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Wed. 13:30-15:00

Mara

**ID: Materials and Processes for Highly Efficient LED**

Chair: Sung-Nam Lee (Korea Polytechnic University, Korea)

**ID01 (Invited)** 13:30-14:00

**Processing and Properties of Newly-developed Anodized Aluminum Metal Substrate**

Mok-Soon Kim<sup>1</sup>, A-Mi Yu<sup>1</sup>, Sun-Joo Na<sup>1</sup>, Young-Min Ahn<sup>1</sup>, Sang-Choon Park<sup>1</sup>, Kwang-Soo Kim<sup>2</sup>, Young-Ki Lee<sup>2</sup>, Sang-Hyun Shin<sup>2</sup>, Seog-Moon Choi<sup>2</sup> (<sup>1</sup>Inha University, Korea; <sup>2</sup>Samsung Electro-Mechanics, Korea)

**ID02 (Invited)** 14:00-14:30

**Enhanced light extraction efficiency in GaInN light-emitting diodes by graded-refractive-index micro-pillars**

Jong Kyu Kim<sup>1</sup>, Frank W Mont<sup>2</sup>, Ahmed N. Noemaun<sup>2</sup>, David Meyaard<sup>2</sup>, E. Fred Schubert<sup>2</sup> (<sup>1</sup>Pohang University of Science and Engineering, Korea; <sup>2</sup>Rensselaer Polytechnic Institute, USA)

**ID03** 14:30-14:45

**Enhancement of light extraction efficiency in vertical-structure LEDs using MgO nano-pyramids structure**

Jun Ho Son, Hak Ki Yu, Jong-Lam Lee (Pohang University of Science and Technology (POSTECH), Korea)

**ID04** 14:45-15:00

**Metal Oxide Semiconductor Nanoparticles - Conjugated Polymer Composite for OLED's Applications**

Thomas Som<sup>1</sup>, Amit Kumar<sup>2</sup>, Ritu Srivastava<sup>2</sup>, M.N. Kamalasanan<sup>2</sup>, O.P. SINHA<sup>1</sup> (<sup>1</sup>AMITY University, India; <sup>2</sup>National Physical Laboratory, India)

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Wed. 13:30-17:45

Poster

**IP: Devices and Materials for Energy Harvesting and Storage**

Chair: Caroline Sunyong Lee (Hanyang University, Korea)

**IP01**

**Electrochemical behavior of nano-sized Sn based compounds for sodium battery**

Minsang Jeon, Jongseon Kim, Kwonkoo Cho, Kiwon Kim, Hosuk Ryu, Jouhyeon Ahn, Hyojun Ahn (Gyeongsang National University, Korea)

**IP02**

**Electrochemical properties of Na/Ni<sub>3</sub>S<sub>2</sub> cells with liquid electrolytes using various sodium salts**

Jong-Seon Kim<sup>1</sup>, Sang-Won Lee<sup>1</sup>, Xiaojing Liu<sup>1</sup>, Gyu-Bong Cho<sup>1</sup>, Ki-Won Kim<sup>1</sup>, In-Shup Ahn<sup>1</sup>, Jou-Hyeon Ahn<sup>1</sup>, Guoxiu Wang<sup>1,2</sup>, Hyo-Jun Ahn<sup>1</sup> (<sup>1</sup>Gyeongsang National University, Korea; <sup>2</sup>University of Technology, Sydney, Australia)

**IP03**

**Spectroscopic investigation on rare earth activated La<sub>2</sub>O<sub>2</sub>S luminophor for solar cell applications**

Joon Jae Oh<sup>1</sup>, Byeong Kyou Jin<sup>1</sup>, Jong Hwan Lee<sup>1</sup>, Kee Ahn Lee<sup>2</sup>, Woon Jin Chung<sup>3</sup>, Dong Wook Shin<sup>4</sup>, Yong Gyu Choi<sup>1</sup> (<sup>1</sup>Korea Aerospace University, Korea; <sup>2</sup>Andong National University, Korea; <sup>3</sup>Kongju National University, Korea; <sup>4</sup>Hanyang University, Korea)

**IP04**

**Enhancement of equilibrium vapor pressure of hydrogen in Pd doped TiZrNi quasicrystals for a new green energy source**

Soo-bin Choi, Sang-hwa Lee, Jae yong Kim (Hanyang University, Korea)

**IP05**

**Evaluations of Si-Ge-Mo ternary system anode using by sputtering for lithium ion batteries**

Chang-Mook Hwang, Jong-Wan Park (Hanyang University, Korea)

**IP06**

**Electrochemical capacitances of (WAl)Ox nanorods**

Sun Hwa Park<sup>1</sup>, Jae Yong Song<sup>2,3</sup>, Hyun Min Park<sup>2,4</sup> (<sup>1</sup>University of Science and Technology, Korea; <sup>2</sup>KRISS, Korea; <sup>3</sup>University of Science and Technology, Korea; <sup>4</sup>University of Science and Technology, Korea)

**IP07**

**Improved Hydrogen adsorption properties of Ni- or Co-doped SBA-15**

Sang-hwa Lee, Yosep Han, Jaikoo Park, Jae-yong Kim (Hanyang University, Korea)

**IP08**

**Investigation of Hole Transport Layer for the Properties of Organic Solar Cells**

Dei-Wei Chou<sup>1</sup>, Chien-Jung Huang<sup>2</sup>, Chi-Chu Tsai<sup>3</sup>, Teen-Hang Meen<sup>4</sup>, Wen-Ray Chen<sup>4</sup>, Cheng-Fu Yang<sup>5</sup> (<sup>1</sup>Air Force Institute of Technology, Taiwan; <sup>2</sup>National University of Kaohsiung, Taiwan; <sup>3</sup>National Formosa University, Taiwan; <sup>4</sup>National Formosa University, Taiwan; <sup>5</sup>National University of Kaohsiung, Taiwan)

**IP09**

**The electrochemical properties of LiMn<sub>x</sub>Fe<sub>1-x</sub>PO<sub>4</sub>/C cathode materials**

Kyung Min Jin, Bong soo Jin, Ji Hwa Jeong, Hyun Soo Kim (Korea Electrotechnology Research Institute, Korea)

**IP10**

**Analysis and Design of Spiral type MEMS Power Generator with Shear Mode**

Won Hee Lee<sup>1,2</sup>, Hyun Cheol Song<sup>1</sup>, Chong Yun Kang<sup>1</sup>, Byeong Kwon Ju<sup>2</sup>, Seok Jin Yoon<sup>1</sup> (<sup>1</sup>Korea Institute of Science and Technology, Korea; <sup>2</sup>Korea University, Korea)

**IP11****Fabrication of LiCoO<sub>2</sub> thin film cathodes by RF and DC sputtering method**

Jung-pil Noh, Ki-taek Jung, Gyu-bong Cho, Yeong-min Jeon, Ki-won Kim, Tae-hyun Nam (Gyeongsang National University, Korea)

**IP12****Preparation and electrochemical properties of magnesium doped LiFePO<sub>4</sub> by ball milling**

Min-Yeong Heo<sup>1</sup>, James Manuel<sup>1</sup>, Jou-Hyeon Ahn<sup>1</sup>, Dul-Sun Kim<sup>1</sup>, Hyo-Jun Ahn<sup>1</sup>, Per Jacobsson<sup>2</sup> (<sup>1</sup>Gyeongsang National University Korea; <sup>2</sup>Chalmers University of Technology, Sweden)

**IP13****Synthesis and Electrochemical Properties of Polyaniline Nanofibers Prepared by Interfacial Polymerization**

James Manuel<sup>1</sup>, Jou-Hyeon Ahn<sup>1</sup>, Dul-Sun Kim<sup>1</sup>, Hyo-Jun Ahn<sup>1</sup>, Per Jacobsson<sup>2</sup> (<sup>1</sup>Gyeongsang National University, Korea; <sup>2</sup>Chalmers University of Technology, Sweden)

**IP14****Optimization of Lithium in Li<sub>1+x</sub>[Mn<sub>0.720</sub>Ni<sub>0.175</sub>Co<sub>0.150</sub>]<sub>1-x</sub>O<sub>2</sub> as a Cathode materials for Lithium ion battery**

Ji Hwa Jeong, Bong Soo Jin, Hyun Soo Kim (Korea Electrotechnology Research Institute, Korea)

**IP15****Electrochemical Properties of Nano-sized LiFePO<sub>4</sub> Materials Prepared by Hydrothermal Method for Lithium Batteries**

Jae-Won Choi, Jou-Hyeon Ahn, Dul-Sun Kim, James Manuel (Gyeongsang National University, Korea)

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Wed. 13:30-17:45

Poster

**IQ: Photovoltaic Science and Engineering**

Chair: Won Mok Kim (KIST, Korea)

**IQ01****Effects of Operating Parameters on Electrochemical Silicon Etching in Porous Silicon Layer Transfer Process**

Jae-Ho Lee, Ju-Young Lee (Hongik University, Korea)

**IQ02****Structural and chemical properties of Cu-In alloys formed using co-electrodeposition for the application of CuInSe<sub>2</sub> solar cells**

Kyung-Won Moon, Myeong-Il Jeong, Chel-Jong Choi (Chonbuk National University, Korea)

**IQ03****Electrochromic Window with Dye Sensitized Electrode**

Young-Seok Kim<sup>1</sup>, Min-Kyu Kang<sup>1,2</sup>, Hye-Young Kim<sup>1</sup>, Min-Gi Kwak<sup>1</sup> (<sup>1</sup>Korea Electronics Technology Institute, Korea; <sup>2</sup>Korea University, Korea)

**IQ04****Epitaxially grown TiO<sub>2</sub> nanowires on Nb-doped TiO<sub>2</sub> films for efficient water splitting devices**

Eun Sang Yu, Dong Jun Lee, Hyun Suk Jung (Kookmin University, Korea)

**IQ05****Fabrication of Different Particle Size of TiO<sub>2</sub> for Dye-Sensitized Solar Cell (DSSC) Using Nano Particle Deposition System (NPDS)**

Yang-Hee Kim<sup>1</sup>, Kwang-Su Kim<sup>1</sup>, Dong-Guk Cho<sup>1</sup>, Min-Saeng Kim<sup>2</sup>, Doo-Man Chun<sup>2</sup>, Jong-Chun Lee<sup>2</sup>, Sung-Hoon Ahn<sup>2</sup>, Caroline Sunyong Lee<sup>1</sup> (<sup>1</sup>Hanyang University, Korea; <sup>2</sup>Seoul National University, Korea)

**IQ06****Interface modification of organic photovoltaic cells using dimethyldicyanoquinonediimine(DMDCNQI) as charge transfer complex**

Byoung Min So, Ui Yul Yang, Se Young Oh (Sogang University, Korea)

**IQ07****Improved OPV Efficiency of fluorene-thiophene-based copolymers with electron-transporting triazole unit in the main chain**

Eunhee Lim, Yirang Im, Sungkoo Lee, Kyeong K. Lee (Korea Institute of Industrial Technology (KITECH), Korea)

**IQ08****Optimization of a thin-film manufacturing method using I-III-IV (I=Cu, III=In,Ga, IV=S,Se) chalcopyrite nanoparticles**

Hyo Jeong Jo, Yu Ra Hyun, Shi-Joon Sung, Dae-Hwan Kim, Jin-kyu Kang (DGIST, Korea)

**IQ09****Transparent conducting titanium indium zinc oxide-Ag-titanium indium zinc oxide multilayer electrode for dye-sensitized solar cell**

Gi-Seok Heo<sup>1</sup>, Jae-Cheol Park<sup>1</sup>, Hyun-Kee Lee<sup>1,2</sup>, Young-Je Jo<sup>1,3</sup>, Kwang-Young kim<sup>1</sup>, Tae-Won Kim<sup>1</sup> (<sup>1</sup>Korea Institute of Industrial Technology, Korea; <sup>2</sup>Chonnam National University, Korea; <sup>3</sup>Suncheon National University, Korea)

**IQ10****Synthesis and characterization of organic photosensitizers containing multi-acceptors for the dye-sensitized solar cell's application**

Hyo Jeong Jo<sup>1</sup>, KyoSeung Sim<sup>1</sup>, Shi-Joon Sung<sup>1</sup>, Dae-Hwan Kim<sup>1</sup>, Jin-Kyu Kang<sup>1</sup>, Jae Hong Kim<sup>2</sup> (<sup>1</sup>DGIST, Korea; <sup>2</sup>Yeungnam University, Korea)

**IQ11****Investigation of crystallization behavior of CIG-Se bilayer thin films**

Mi Sun Park, Shi-Joon Sung, Dae-Hwan Kim, Jin-Kyu Kang (DGIST, Korea)

## **IQ12**

### **Preparation of CIGSe thin film by solution based process**

Mi Sun Park, Shi-Joon Sung, Dae-Hwan Kim, Jin-Kyu Kang (DGIST, Korea)

## **IQ13**

### **Bi-Functional Scattering Layer in Dye-Sensitized Solar Cell with Highly Crystalline TiO<sub>2</sub> Nanoparticle Based Inverse Opal**

Se Hoom Han, Ha Young Jung, Hyun Suk Jung (Kookmin University, Korea)

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Wed. 13:30-17:45

**Poster**

## **IR: Nano Devices and Structures**

Chair: Hyungsub Kim (Sungkyunkwan University, Korea)

## **IR01**

### **Scattering of Laser Irradiating on Nanoscale Rectangular Groove**

C.-Y. Ho<sup>1</sup>, Y.-H. Tsai<sup>2</sup>, M.-Y. Wen<sup>3</sup> (<sup>1</sup>Hwa Hsia Institute of Technology, Taiwan; <sup>2</sup>Hwa Hsia Institute of Technology, Taiwan; <sup>3</sup>Cheng Shiu University, Taiwan)

## **IR02**

### **The observation of ion induced defects in nanostructural Co-based amorphous ribbon**

Hoon Song, Duck Gun Park (Korea Atomic Energy Research Institute, Korea)

## **IR03**

### **Understanding Gigahertz Frequency-Controlled Carbon-Nanotube Oscillators**

Sun-Young Jung, Ki-Sub Kim, Jeong-Won Kang<sup>3</sup> (Chungju National University, Korea)

## **IR04**

### **Non-Volatile Memory effects of ferroelectric polymer exposed to plasma environment**

Chan Ho Park<sup>1</sup>, Seongil Im<sup>1</sup>, Jungheum Yun<sup>2</sup>, Gun Hwan Lee<sup>2</sup> (<sup>1</sup>Yonsei University, Korea; <sup>2</sup>Korea Institute of Material Science, Korea)

## **IR05**

### **O<sub>2</sub>-response times of phase controlled ceria nanoparticles**

Dong-Won LEE, Sun-Mi JIN, Ju-Hyeong KIM, Jae-Hwan KIM, Hye-Moon LEE (Korea Institute of Materials Science, Korea)

## **IR06**

### **Application of XANES to the origin of GMI enhancement due to ion irradiation in Co-based amorphous ribbon**

Duck Gun Park, Hoon Song (Korea Atomic Energy Research Institute, Korea)

## **IR07**

### **Low Power and Controllable Memory Window in Pr<sub>0.7</sub>Ca<sub>0.3</sub>MnO<sub>3</sub>/Ytria-Stabilized Zirconia RRAM devices**

Xinjun Liu, Kuyyadi P. Biju, El Mostafa Bourim, Sangsu Park, Insung Kim, Sharif Sadaf, Hyunsang Hwang (Gwangju Institute of Science and Technology (GIST), Korea)

## **IR08**

### **Photovoltaic properties on variation of morphology of TiO<sub>2</sub> nanotube prepared by titanium anodization**

Seon-min Kim<sup>1</sup>, Hyo-Jun Ahn<sup>1</sup>, Ki-Won Kim<sup>1</sup>, Tae-Hyun Nam<sup>1</sup>, Kwang-Sun Ryu<sup>2</sup>, Kwon-Koo Cho<sup>1</sup> (<sup>1</sup>Gyeongsang National University, Korea; <sup>2</sup>University of Ulsan, Korea)

## **IR09**

### **Physical and Electrochemical Properties of Cobalt and Nickel Oxide Nanowires as Anode Material for Lithium-ion Batteries**

Seong Ju Sim, Young Jin Choi, Hyo Jun Ahn, Tae Hyun Nam, Ki Won Kim, Kwon Koo Cho (Gyeongsang National University, Korea)

## **IR10**

### **Fabrication of TiO<sub>2</sub> Nanotube Electrodes by Using Electrodeposited ZnO Nanorods Templates for Improving the Photovoltaic Properties of DSSCs**

Jin-Hwa Kim<sup>1</sup>, Hyo-Jun Ahn<sup>1</sup>, Ki-Won Kim<sup>1</sup>, Kwang-Sun Ryu<sup>2</sup>, Kwon-Koo Cho<sup>1</sup> (<sup>1</sup>Gyeongsang National University, Korea; <sup>2</sup>University of Ulsan, Ulsan, Korea)

## **IR11**

### **P(VDF-TrFE) thickness Effects on the Device Operation of Oxide/Organic Hybrid Memory thin film transistors**

Oh Sang Kwon, Sung-Min Yoon, Shinhyuk Yang, Min-Ki Ryu, Sang-Hee Ko Park, Kyoungwan Kim, Chi-Sun Hwang, Kyoung Ik Cho (ETRI, Korea)

## **IR12**

### **The Magnetic Properties and Microstructure of Co-Pt Thin Films using Wet Etching Process**

Chang-Hyoung Lee, Taek-You Kim, Jin-Soo Kim, Seong-Hun Na, Seung-Kyu Lim, Su-Jeong Suh (Sungkyunkwan University, Korea)

## **IR13**

### **Operation mechanisms of nonvolatile memory devices fabricated utilizing SnO<sub>2</sub> nanoparticles embedded in a poly(4-vinylphenol) polymer layer**

Ju Tae Ryu, Jin Ku Kwak, Jae Hun Jung, Tae Whan Kim (Hanyang University, Korea)

## **IR14**

### **Influence of Additive on Magnetic Properties and Microstructures of Electrodeposited CoP Thin Films.**

Taek-You Kim, Chang-Hyoung Lee, Jin-Soo Kim, Nam-Jeong Kim, Hyeong-Chul Youn<sup>1</sup>, Su-Jeong Suh (Sungkyunkwan University, Korea)

**IR15****Effects of Ge condensation on electrical characteristics of doped Si<sub>1-x</sub>Ge<sub>x</sub> nanowires by plasma doping process**

Sun-Wook Kim, Sang-Yeon Kim, Sangmo Koo, Dae-Hong Ko (Yonsei University, Korea)

**IR16****Dependence of ZnO film on the ZnO nanorods with multi-dimensional structure**

Ah Ra Kim, Ji Yeon Lee, Ju-Young Lee, Hong Seung Kim, Hyun Kook Park, Nak Won Jang (Korea Maritime University, Korea)

**IR17****Research on Analysis of Al<sub>2</sub>O<sub>3</sub> Nanofluids Applied to Water Chiller system**

Jwo Ching-Song<sup>1</sup>, Cho hung-pin<sup>2</sup>, Chien Chao-Chun<sup>1</sup>, Chung Chi-Yao<sup>1</sup>, Chen Sih-Li<sup>2</sup> (<sup>1</sup>National Taipei University of Technology, Taiwan; <sup>2</sup>National Taiwan University, Taiwan)

**IR18****The Analysis of the Heat transfer Properties of Al<sub>2</sub>O<sub>3</sub> Nanofluid Adding Different Dispersants**

Jwo Ching-Song, Jeng Lung-Yue, Chen Ting-Yu, Chang Ho (National Taipei University of Technology, Taiwan)

**IR19****Characterization of Conductive Cu layer Prepared by Cu Nano-colloids**

Sangsun Yang, Jae-Cheol Yoon, Yong-Jin Kim, Ji-Hun Yu (KIMS, Korea)

**IR20****Simple process of stripe patterns with various lengths by means of evaporative self-assembly of PMMA for nano-device**

Soon Woo Kwon<sup>1,2</sup>, Dae Ho Yoon<sup>1</sup>, Seung Jun Park<sup>3,2</sup>, Woo Seok Yang<sup>2</sup> (<sup>1</sup>Sungkyunkwan University, Korea; <sup>2</sup>Korea Electronics Technology Institute, Korea; <sup>3</sup>Hanyang University, Korea)

**IR21****Fabrication of Flexible Nano Floating Gate Memory Transistors Based on Polymer Semiconductor**

Kang-Jun Baeg<sup>1</sup>, Yong-Young Noh<sup>2</sup>, Henning Sirringhaus<sup>3</sup>, Dong-Yu Kim<sup>4</sup> (<sup>1</sup>Electronics and Telecommunications Research Institute (ETRI), Korea; <sup>2</sup>Hanbat National University, Korea; <sup>3</sup>University of Cambridge, UK; <sup>4</sup>Gwangju Institute of Science and Technology (GIST), Korea)

**IS01****Fabrication and aging properties of Sn-Ag micro bumps by new non-PR process for 3D packaging**

Wang Gu Lee, Jun Kyu Park, Jae Pil Jung (University of Seoul, Korea)

**IS02****Mechanical Reliability of Sn-Bi Solder Joint for Low Temperature Applications**

Min-Su Kim, A-Mi Yu, Jae-Won Jang, Jung-Hwan Bang, Jun-Ki Kim (KITECH, Korea)

**IS03****High-Resolution Parallel Laser Printing of Nanoparticulate Ag Thin Film Patterns for Metallization Application**

Hyeongjae Lee, Myeongkyu Lee (Yonsei University, Korea)

**IS04****Development of standard platform for folder type mobile phone housings**

Du Soon Choi, Tae Sung Jung (Inha technical college, Korea)

**IS05****Pb-free solder joint reliability under high-strain rate loading**

Jong-Woong Kim<sup>1</sup>, Sung-Eun Pyo<sup>2</sup>, Seung-Boo Jung<sup>2</sup> (<sup>1</sup>Korea Electronics Technology Institute, Korea; <sup>2</sup>Sungkyunkwan University, Korea)

**IS06****Study on the Curing Behavior of Eopxy Adhesive by isothermal DSC and DEA**

Won Jung Choi<sup>1</sup>, Jun Sik Lee<sup>1</sup>, Kyung Eun Min<sup>1</sup>, Mok Soon Kim<sup>2</sup>, Jun Ki Kim<sup>1</sup> (<sup>1</sup>Korea Institute of Industrial Technology, Korea; <sup>2</sup>Inha University, Korea)

**IS07****Investigation on the 1 cavity mold design standardization for short run production for mobile-phone case**

Jung-Won Lee, Jong-In Sohn, Gun-Hee Kim, Gil-Sang Yoon, Hyo-Soo Lee (Korea Institute of Industrial Technology, Korea)

**IS08****Evaluation of ENEPIG surface treatment for high-reliability PCB in mobile module**

JoonKyun Lee<sup>1</sup>, Junho Seo<sup>2</sup> (<sup>1</sup>Korea Institute of Industrial Tecnology(KITECH), Korea; <sup>2</sup>Poongwon chemical Co., Ltd, Korea)

**IS09****Interfacial Reliability of Solder Joints Formed on Anodically Bonded Glass/Aluminum Substrate**

Chul-Min Joe, Jae-Ho Kim, So-Ri Hwang, Yong-Jun Oh (Hanbat University, Korea)

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Poster

**IS: Advanced Packaging and Interconnection**

Chair: Woong-Sun Lee (Hynix Semiconductor Inc., Korea)

### IS10

#### Effect of Epoxy Resin Composition on the Adhesive Joint Properties

Hae-Yeon Kim, Kyung-Eun Min, Ji-Hui Kim, Jong-Hoon Kim, Jun-Ki Kim (Korea Institute of Industrial Technology, Korea)

### IS11

#### Influences of Deposition Temperature on the Properties of Al<sub>2</sub>O<sub>3</sub> Thin Films Grown by Atomic Layer Deposition from Al(CH<sub>3</sub>)<sub>3</sub> and O<sub>3</sub>

Byoung-Jun Choi<sup>1</sup>, Kwangchol Park<sup>2</sup>, Kwangseon Jin<sup>1</sup>, Sa-Kyun Rha<sup>3</sup>, Chong Ook Park<sup>2</sup>, Won-Jun Lee<sup>1</sup> (<sup>1</sup>Sejong University, Korea; <sup>2</sup>KAIST, Korea, <sup>3</sup>Hanbat National University, Korea)

### IS12

#### Characteristics of SiO<sub>2</sub> and SiN Thin Films Grown by Atomic Layer Deposition Using Tetrakis(ethylamino)silane Precursor

Kwangseon Jin, Byeol Han, Jongwan Jung, Won-Jun Lee (Sejong University, Korea)

### IS13

#### Investigation of Conventional Cutting Force Prediction Model for Micro Flat End Milling

Ji-Hyun Cho<sup>1</sup>, Jeong-Su Lim<sup>1</sup>, Hee-Ju Cho<sup>1</sup>, Tae-Il Seo<sup>1</sup>, Yoo-Jin Kim<sup>2</sup> (<sup>1</sup>University of Incheon, Korea; <sup>2</sup>Samhwa P&T Co.LTD,Korea)

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Wed. 13:30-17:45

Poster

### IT: Oxide Semiconductor

Chair: Han-Ki Kim (Kyung Hee University, Korea)

### IT01

#### Microstructure and electrical characteristics of sol-gel processed Zr<sub>1-x</sub>Mg<sub>x</sub>O<sub>2</sub> dielectric thin films

Soo Min Hwang<sup>1</sup>, Seung Muk Lee<sup>1</sup>, Chang Min Lee<sup>1</sup>, Won Kim<sup>1</sup>, Jinho Joo<sup>1</sup>, Jun Hyung Lim<sup>2,1</sup> (<sup>1</sup>Sungkyunkwan University, Korea; <sup>2</sup>Stanford University, USA)

### IT02

#### Effect of Al dopant in ZTO thin film transistors fabricated by using the solution process

Chulho Jung, Jiyoun Lee, Minsuk Choi, Dae Ho Yoon (Sungkyunkwan University, Korea)

### IT03

#### Fabrication and characterization of ZnO-based Flexible Thin Film Transistor with PVA(poly-vinyl alcohol) Gate Insulator

Jin Eun Choi<sup>1</sup>, Su cheol Gong<sup>1</sup>, Seokhwan Bang<sup>2</sup>, Hyeongtag Jeon<sup>2</sup>, Hyung Ho Park<sup>3</sup>, Ho Jung Chang<sup>1</sup> (<sup>1</sup>Dankook University, Korea; <sup>2</sup>Hanyang University, Korea; <sup>3</sup>Yonsei University, Korea)

### IT04

#### The effects of rapid thermal annealing on the electrical, optical, and structural properties of ITO-Ag-ITO multilayer electrodes grown by linear facing target sputter

Jin-A Jeong, Kwang-Hyuk Choi, and Han-Ki Kim (Kyung Hee University, Korea)

### IT05

#### Influence of yttrium dopant on microstructure and optical properties of ZnO semiconductor thin films prepared by sol-gel method

Chien-Yie Tsay, Li-Feng Lo, Pei-Wen Wu, Chia-Hsiang Cheng (Feng Chia University, Taiwan)

### IT06

#### Characteristic of Zn:SnO-Ag-Zn:SnO electrodes grown by DC and RF magnetron sputtering for inverted Organic Solar Cells

Yoon-Young Choi, Kwang-Hyuk Choi, Han-Ki Kim (Kyung Hee University, Korea)

### IT07

#### Stacking sequence effect on the electrical and optical properties of multi-staked flexible IZO-Ag-IZO electrodes for flexible organic photovoltaics

Yong-Seok Park, Han-Ki Kim (Kyung Hee University, Korea)

### IT08

#### Effects of precursor ratio on the structural properties of ZnO thin films deposited by low-pressure MOCVD

Hee-Min Kang<sup>1,2</sup>, Jeung-Hyun Jeong<sup>3</sup>, Jong-Keuk Park<sup>1</sup>, Kyeong-Seok Lee<sup>1</sup>, Won-Mok Kim<sup>1</sup>, Heon-Jin Choi<sup>2</sup>, Young-Joon Baik<sup>1</sup> (<sup>1</sup>Korea Institute of Science and Technology, Korea; <sup>2</sup>Yonsei University, Korea; <sup>3</sup>Korea Institute of Science and Technology, Korea)

### IT09

Withdrawn

### IT10

#### Low-resistance Ti/Au contacts to n-type amorphous gallium indium zinc oxides

Hyunsoo Kim<sup>1</sup>, Kyoung-Kook Kim<sup>2</sup>, Sung-Nam Lee<sup>2</sup>, Jae-Hyun Ryou<sup>3</sup>, Russell D. Dupuis<sup>3</sup> (<sup>1</sup>Chonbuk National University, Korea; <sup>2</sup>Korea Polytechnic University, Korea; <sup>3</sup>Georgia Institute of Technology, USA)

### IT11

#### Temperature and Environmental Effects on the Transparent Oxide/Organic Hybrid TFTs

Shinhyuk Yang<sup>1,2</sup>, Doo-Hee Cho<sup>1</sup>, Sang-Hee Ko Park<sup>1</sup>, Sung-Min Yoon<sup>1</sup>, Min-Ki Ryu<sup>1</sup>, Oh-Sang Kwon<sup>1</sup>, Chi-Sun Hwang<sup>1</sup>, Kyoung-Ik Cho<sup>1</sup>, Jin Jang<sup>2</sup> (<sup>1</sup>ETRI, Korea; <sup>2</sup>Kyung Hee University, Korea)

#### IT12

##### **Controlled Synthesis of Well-Aligned ZnO Nanorod Arrays Using an Aqueous Solution Method for Piezoelectric Nanogenerators**

Ju-Hyuck Lee, Ju-Seok Seo, Keun-Young Lee, Brijesh Kumar, Sang-Woo Kim (Sungkyunkwan University, Korea)

#### IT13

##### **High Performance Indium-Doped- Zinc- Oxide-Based Thin- Film Transistors on an Aluminum Anodizing Sheet**

Daping Chu, Jinwoo Han (University of Cambridge, UK)

#### IT14

##### **The Effects of Rapid Thermal Annealing Temperature on Electrical, Optical, Structural, and Interfacial properties of Nb:TiO<sub>2</sub>/Ag/Nb:TiO<sub>2</sub> Multilayer Electrode for Organic Photovoltaics**

Jun-Hyuk Park<sup>1</sup>, Hyun-Hwi Lee<sup>2</sup>, Seok-In Na<sup>3</sup>, and Han-Ki Kim<sup>1</sup> (<sup>1</sup>Kyung Hee University, Korea; <sup>2</sup>POSTECH, Korea; <sup>3</sup>Korea Institute of Science and Technology, Korea)

#### IT15

##### **Structural and electrical properties of sputtered Ti doped indium tin oxide thin films by DC magnetron sputtering**

Sung Mook Chung, Jae Heon Shin, Woo-Seok Cheong, Chi-Sun Hwang, Kyong-Ik Cho, Sang Hee Park (ETRI, Korea)

#### IT16

##### **Fabrication of Oxide Thin Film Transistor based on SOG dielectric and solution ZnO**

Jung Ho Park, Jinnil Choi, Seongpil Chang, Ki-Young Dong, Eun-Mi Park, Byeong-Kwon Ju (Korea University, Korea)

#### IT17

##### **Study of Zn doped ITO thin film transistors prepared by combinatorial sputter system**

Young Je Jo<sup>1,2</sup>, Joon Seop Kwak<sup>2</sup>, Gi-Seok Heo<sup>1</sup>, Tae-Won Kim<sup>1</sup>, Kwang Young Kim<sup>1</sup> (<sup>1</sup>Korea Institute of Industrial Technology, Korea; <sup>2</sup>Sunchon National University, Korea)

#### IT18

##### **Electrical and Optical Properties of Amorphous (In,Sn)-Ga-Zn-O Thin Film**

Il Hwan Yoo, Sung-Hwan Bae, Hyun Koo, O-Jong Kwon, Chan Park (Seoul National University, Korea)

#### IT19

##### **Effects of doping on the electrical and the optical properties in a-IGZO films**

Sung-Hwan Bae, Il Hwan Yoo, Hyun Koo, Bong Hyun Jo, Chan Park (Seoul National University, Korea)

#### IT20

##### **Characteristics of AZO films fabricated on PET for transparent oxide thin film transistor**

Yong Seob Park, Han-Ki Kim (Kyung Hee University, 1 Seocheon-dong, Korea)

#### IT21

##### **Structural characterization of a-plane and m-plane nonpolar ZnO films on sapphire substrates by transmission electron microscopy**

Soon-Ku Hong<sup>1,2</sup>, Jae Wook Lee<sup>3</sup>, Seok Kyu Han<sup>4</sup>, Jung-Hyun Kim<sup>4</sup>, Jeong Yong Lee<sup>3</sup>, Takafumi Yao<sup>5</sup> (<sup>1</sup>Chungnam National University, Korea; <sup>2</sup>Chungnam National University, Korea; <sup>3</sup>KAIST, Korea; <sup>4</sup>Chungnam National University, Korea; <sup>5</sup>Tohoku University, Japan)

#### IT22

##### **Growth of MgZnO nanorod arrays by electrochemical method**

Jin Young Moon<sup>1</sup>, Hyunghoon Kim<sup>1</sup>, Ju Ho Lee<sup>2</sup>, Jeong Yong Lee<sup>2</sup>, Ho Seong Lee<sup>1</sup> (<sup>1</sup>Kyungpook National University, Korea; <sup>2</sup>KAIST, Korea)

#### IT23

##### **Effects of oxygen partial pressure on optical and electrical properties of co-sputtered nickel indium zinc oxide thin films**

Gi-Seok Heo<sup>1</sup>, Jae-Cheol Park<sup>1</sup>, Young-Je Jo<sup>2</sup>, Hyun-Kee Lee<sup>3</sup>, Tae-Won Kim<sup>1</sup> (<sup>1</sup>Korea Institute of Industrial Technology, Korea; <sup>2</sup>Suncheon National University, Korea; <sup>3</sup>Chonnam National University, Korea)

#### IT24

##### **Growth of Ag-doped ZnO nanostructures by electrodeposition**

Hyunghoon Kim, Jin Young Moon, Ho Seong Lee (Kyungpook National University, Korea)

#### IT25

##### **Mg-doped ZnO electrochemically grown on FTO substrates**

QiFei Han<sup>1</sup>, JooHoe Heo<sup>1</sup>, Changmi Shin<sup>1</sup>, YongIl Jeong<sup>2</sup>, HyukHyun Ryu<sup>1</sup>, Won-Jae Lee<sup>3</sup>, JeeEun Yang<sup>4</sup>, Jang-Hee Yoon<sup>5</sup> (<sup>1</sup>InJe University, Korea; <sup>2</sup>InJe University, Korea; <sup>3</sup>Dong-Eui University, Korea; <sup>4</sup>Pusan National University, Korea; <sup>5</sup>Korea Basic Science Institute, Korea)

#### IT26

##### **Surface-Patterned Electrode with Bi-layer Transparent Conducting Oxide by Wet Process for GaN-Based LEDs**

Semi Oh<sup>1</sup>, Sung-Nam Lee<sup>1</sup>, Kyoung-Kook Kim<sup>1</sup>, Soohaeng Cho<sup>2</sup> (<sup>1</sup>Korea Polytechnic University, Korea; <sup>2</sup>Yonsei University, Korea)

#### IT27

##### **Micro-patterned ITO electrode by maskless wet-etching for enhancement of light-extraction efficiency**

Semi Oh<sup>1</sup>, Sung-Nam Lee<sup>1</sup>, Kyoung-Kook Kim<sup>1</sup>, Joon-Ho Oh<sup>2</sup>, Tae-Yeon Seong<sup>2</sup>, Soohaeng Cho<sup>3</sup> (<sup>1</sup>Korea Polytechnic University, Korea; <sup>2</sup>Korea University, Korea; <sup>3</sup>Yonsei University, Korea)

**IT28****Size-dependent Electrical Properties and Photosensitivity of Zinc Oxide based Semiconductors**

Young-Woo Heo<sup>1</sup>, Se-Yun Kim<sup>1</sup>, Sang-Yun Sung<sup>1</sup>, Kwang-Min Cho<sup>1</sup>, Joon-Hyung Lee<sup>1</sup>, Jeong-Joo Kim<sup>1</sup>, S.J. Pearton<sup>2</sup>, D. P. Norton<sup>2</sup> (<sup>1</sup>Kyungpook National University, Korea; <sup>2</sup>University of Florida, USA)

**IT29****Fabrication of thin-film transistor based on single crystal InGaZnO channel layers with superlattice structure**

Dong Kyu Seo, Bo Hyun Kong, Hyung Koun Cho (Sungkyunkwan University, Korea)

**IT30****Etching characteristics of the Zinc Tin Oxide TTFTs Active layers by using Inductively Coupled Plasma**

Seung-Han Kim<sup>1,2</sup>, Sang Yeol Lee<sup>2</sup>, Chang-Il Kim<sup>1</sup> (<sup>1</sup>Chung-Ang University, Korea; <sup>2</sup>Korea Institute of Science and Technology, Korea)

**IT31****Improvement of the Selectivity of HfAlO<sub>3</sub> Thin Films by using Inductively Coupled Plasma**

Tae-Kyung Ha and Chang-Il Kim (Chung-Ang University, Korea)

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 Wed. 15:45-17:30

Ballroom 2

**JA: Materials and Devices of Flexible Displays and Printed Electronics**

Chair: Sungkyu Park (Chonbuk National University, Korea)

**JA01 (Invited)** 15:45-16:15

**Vertical Channel Organic Transistors for Flexible Optoelectric Devices**

Kazuhiro Kudo (Chiba University, Japan)

**JA02 (Invited)** 16:15-16:45

**Development of High Performance Inkjet Printed CMOS Integrated Circuits**

Yong-Young Noh<sup>1</sup>, Kang-Jun Baeg<sup>2</sup> (<sup>1</sup>Hanbat National University, Korea; <sup>2</sup>ETRI, Korea)

**JA03** 16:45-17:00

**Solution processed organic thin film transistor employing self-assembled semiconductor / polymer blend: performance and anisotropy effect**

Ji Hoon Park<sup>1</sup>, Hyunjin Lim<sup>2</sup>, Kwang H. Lee<sup>1</sup>, Kimoon Lee<sup>1</sup>, Boram Ryu<sup>1</sup>, Hyeonsik Cheong<sup>2</sup>, Seongil Im<sup>1</sup> (<sup>1</sup>Yonsei University, Korea; <sup>2</sup>Sogang University, Korea)

**JA04** 17:00-17:15

**Nitrogen doping effect on long-term stability of amorphous zinc oxide TFTs using DBD-PLD system**

Yoon Soo Chun, Eugene Chong, Seung-Han Kim, Kyoung-Chun Jo, Da Woon Jung, Sang Yeol Lee (Korea Institute of Science and Technology, Korea)

**JA05** 17:15-17:30

Withdrawn

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 Wed. 15:45-17:00

Ballroom 3

**JB: Nano Dot, Nano Wire and Nano Processes**

Chair: Guozhen Shen (Huazhong University of Science and Technology, China)

**JB01 (Invited)** 15:45-16:15

**High Performance, Flexible Thin Film Transistors Using Si Wires from Bulk Wafers**

Seoung-Ki Lee, Jong-Hyun Ahn (Sungkyunkwan University, Korea)

**JB02** 16:15-16:30

**Heat Transport in Nanometer-Sized Thin Film Irradiated by Laser**

C. Y. Ho<sup>1</sup>, Y. H. Tsai<sup>1</sup>, M. Y. Wen<sup>2</sup>, C. Ma<sup>1</sup> (<sup>1</sup>Hwa Hsia Institute of Technology, Taiwan; <sup>2</sup>Cheng Shiu University, Taiwan)

**JB03** 16:30-16:45

**Fabrication of Copper Based Nanoparticles in a Thick Polyimide Film Cured by Rapid Thermal Annealing**

Min Young Choi<sup>1</sup>, Dong Joo Choi<sup>1</sup>, Key-one Ahn<sup>1</sup>, Insoo Ro<sup>2</sup>, Young-Ho Kim<sup>1</sup>, Sang-Hee Suh<sup>3</sup> (<sup>1</sup>Hanyang University, Seoul, Korea; <sup>2</sup>Rice University, USA; <sup>3</sup>Korea Institute of Science and Technology (KIST), Korea)

**JB04** 16:45-17:00

**Deposition of FePt nanoparticle array based spin-coating of chemically synthesized seed layer**

Hyeun Hwan An<sup>1</sup>, Hee-Soo Kim<sup>1</sup>, Dae Hoon Kwon<sup>1</sup>, Jong Ho Lee<sup>1</sup>, Sang Hee Suh<sup>2</sup>, Young Ho Kim<sup>1</sup>, Chong Seung Yoon<sup>1</sup> (<sup>1</sup>Hanyang University, Korea; <sup>2</sup>Korea Institute of Science and Technology, Korea)

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 Chand, Suresh BR02  
 Chang, Ho BP01, BQ09, IR18  
 Chang, Ho Jung ET22, IT03  
 Chang, Seongpil BT05, BT06, IT16  
 Chang, Ting-Chang GT06  
 Chaoumead, Accarat EP01  
 Chel, Won Chel ED03  
 Chen, Chih-Yen GD01  
 Chen, Chin-Ti AD01  
 Chen, Renkun DD02  
 Chen, Sih-Li IR17  
 Chen, Ting-Yu IR18  
 Chen, Wen-Ray ES17, ES19, GP06, IP08  
 Cheng, Chia-Hsiang IT05  
 Cheng, Chin-Lung EP11  
 Cheon, Hun Jong BR19  
 Cheong, Hyeonsik JA03  
 Cheong, Woo-Seok CA04, GS14, GS16, IT15  
 Chhajed, Sameer ES14  
 Chiang, Shin-Chuan GT06  
 Chiang, Yueh-Lin ES19

Chien, Chao-Chun	IR17	Choi, Heechae	BS04
Chien, Po-Hsiu	BA05	Choi, Heon-jin	HB04, IT08
Chiu, Pin-Hsiang	GP06	Choi, Ho-Jin	BS05
Chiu, Wan-Yu	GT06	Choi, Hong-Rak	FA05
Cho, Byung Jin	GA02	Choi, Hyang Hee	DB02,GP02, GQ15
Cho, Chung-Ki	ET16	Choi, Hyonkwang	AA03 ,FB01, GC03, HB03
Cho, Dong-Guk	GA05 ,GS13, IQ05	Choi, J. W.	EQ05
Cho, Doo-Hee	BD06, IT11	Choi, Jae Cheol	BT07
Cho, Gyu-bong	BQ19 ,IP02, IP11	Choi, Jae-Won	IP15
Cho, Han-Ku	BB03, ER01, ER03	Choi, Jeon	BS09
Cho, Hee-Ju	IS13	Choi, Jin Eun	IT03
Cho, hung-pin	IR17	Choi, Jin Young	CC02
Cho, Hyun Min	ES11	Choi, Jinnil	IT16
Cho, Hyung Koun	GS12, IT29	Choi, Jun Hyuk	GR08, GS30
Cho, Ji-Hyun	IS13	Choi, Jung-Hun	GD03
Cho, Jin Woo	BQ02	Choi, Kwang-Hyuk	IT04, IT06
Cho, Joong-Yeon	ES04, ES10	Choi, Kyeong-Mo	FB05
Cho, Jung Min	BR11	Choi, Kyu-Ha	BQ07
Cho, Kung-Ching	BP01, BQ09	Choi, Min Young	EC03, JB03
Cho, Kwang-Min	CA05, IT28	Choi, Minsuk	IT02
Cho, Kwon-Koo	GQ09, IP01, IR08, IR09, IR10	Choi, Pyuck-Pa	IC01
Cho, Kyoung-Ik	IR11,IT11, IT15,	Choi, Pyung-ho	EP10
Cho, Kyuman	BR03, BR05	Choi, Seog-Moon	ID01
Cho, Kyung-Hoon	BT06	Choi, Si-Young	GP08
Cho, Sang Kyun	AD04,DC04	Choi, Soo-bin	IP04
Cho, Soohaeng	IT26, IT27	Choi, Sung-Ha	DC03, DC05
Cho, Sung-Bin	EP04	Choi, Sung-Jin	CB03, EQ02, EQ03
Cho, Tae-Sik	GP03	Choi, Sun-Uk	BR19
Cho, Wonju	GQ10, GQ16	Choi, Tae Young	ES03
Cho, Y. S.	GT13	Choi, Won Chel	EQ11, EQ13
Cho, Yong Soo	FA05	Choi, Won Jung	IS06
Cho, Yong-Hoon	GD03	Choi, Won Mook	GQ12
Cho, Young Je	ET32	Choi, Won-Kook	BR04
Cho, Young-Rae	IA02	Choi, Wonsuk	GT07, GT08
Cho, Young-Sang	GD04	Choi, Woo-Jin	EP06
Choa, Sung Hoon	CC02	Choi, Woong Sik	AD04
Choe, Dong Uk	GT14	Choi, Yong Gyu	BS08, BS09, IP03
Choe, Minhyeok	GS05	Choi, Yong-Muk	FA05
Choi, Bong Gill	GQ08	Choi, Yoon-Young	IT06
Choi, Byeong-deog	EP10	Choi, Young Cheol	BR21
Choi, Byoung-Jun	IS11	Choi, Young Jin	IR09
Choi, Byung-Ik	GP11, GQ24	Choi, Young Kyu	GS10
Choi, C. J.	GT13	Choi, Young-Jun	IA02
Choi, Chel-Jong	IQ02	Choi, Yu-Ri	GS01
Choi, Cheol	GP07, GP10	Chong, Eugene	BA03, JA04
Choi, Chul-Jin	GD04	Choo, Dong Chul	ET25
Choi, Dong Hoon	GT05	Chou, Dei-Wei	IP08
Choi, Dong Joo	JB03	Chu, Daping	GP01, IT13
Choi, Du Soon	IS04	Chu, Hye Yong	BD06
Choi, Duck Kyun	ET32	Chu, Wei-Ping	EP08,EP11
Choi, Eun Young	ET21	Chun, Dong Won	AB03
Choi, G. C.	GT13	Chun, Doo-Man	GA03, IQ05
Choi, H. W.	HB02	Chun, Jiyun	ET31
		Chun, Jung-Woo	IC04

Chun, So-Young BQ10  
 Chun, Yoon Soo BA03, JA04  
 Chung, Ah Ro Mi IC05  
 Chung, Bo-Mook EP04,IC04  
 Chung, Chang-Bock GP07  
 Chung, Chi-Yao IR17  
 Chung, Jin Suk GQ22  
 Chung, K. C. GT13  
 Chung, Kookchae GD04  
 Chung, Kwun-Bum GS20,GS22  
 Chung, Myung-Ho BT06  
 Chung, S. M. BC02  
 Chung, Sung Mook CA04,GS14,GS16, IT15  
 Chung, Woon Jin BS08 ,BS09, IP03  
 Chung, Yong-Chae ES05,BP14, BS04  
 Chung, Yung-Bin GC04  
 Cuong, Tran Viet BS13, GP09, GQ22

## D

Debnath, Pulak Chandra CA06, IB03  
 Demir, Hilmi Volkan GD03  
 Dodla, Rajesh GP12  
 Doh, Jong Gul BB03  
 Dong, Ki-Young GP02, GQ15, IT16  
 Dupuis, Russell D. IT10

## E

Eom, C. B. AA04

## F

Fan, Zhiyong GA01  
 Felker, D. A. AA04  
 Feng, Wen-Sheng BA05  
 Folkman, C. M. AA04  
 Fong, D. D. AA04  
 Fred Schubert, E. ID02  
 Fu, M.O. FD04  
 Fukushima, Takafumi EC01  
 Fung, M.K. ET08  
 Furuta, Shinya BQ01

## G

Gao, Wei FA01  
 Gheon, Jong Hun BR21  
 Gil, Byung Woo BR16 ,GS23  
 Gim, Jihyeon BQ15, BQ16  
 Gnanamuthu, RM BP13  
 Gong, Su Choel ET22, IT03  
 Grover, Rakhi ET05

Guo, Yong-Chang DC05

## H

Ha, An Na GQ13,GQ17  
 Ha, Ryong HB04  
 Ha, Tae-Kyung IT31  
 Ha, Woo Jin ES14  
 Hahn, Sung-Hong GP09  
 Ham, Dae-Jin GP02  
 Ham, Ho Wan ET18  
 Ham, Jinhee CB02, CB04, DD04, ED02, ED04  
 Han, Byeol IS12  
 Han, Chang-Soo GQ23, GQ25  
 Han, Chi-Hwan EP06  
 Han, Dong Won AD04  
 Han, Dong-Seok GS09  
 Han, Jeong Sun BP05, BP06  
 Han, Jeong-In GT03  
 Han, Jinwoo GP01, IT13  
 Han, Jong Hun ES07  
 Han, Jun-Han BD06  
 Han, Kang-soo ER07  
 Han, Kyoung Joo GS20  
 Han, QiFei IT25  
 Han, Se Hoom IQ13  
 Han, Seok Kyu IT21  
 Han, Seong Ho GR05  
 Han, Yoon Soo BP17, BR18, BR24  
 Han, Yosep IP06  
 Han, Youngmoon HC03  
 Hao, Yuying ET15  
 Heo, Gi Seok GS25, IQ09, IT17, IT23  
 Heo, Jong BS09  
 Heo, JooHoe IT25  
 Heo, Min-Yeong IP12  
 Heo, Young-Woo CA05, IT28  
 Hippalgaonkar, Kedar DD02  
 Ho, C. Y. IR01,JB02,  
 Ho, Je-Ee GB01, GQ14  
 Ho, Johnny GA01  
 Hong, Chan Hwa ES15, GS24, GS25  
 Hong, Myung-Hwan FC03  
 Hong, Soon-Ku IT21  
 Hong, Sung-Hoon ES04  
 Hong, Tae-Whan BP04, BP07, BQ04  
 Hong, Won Hi GQ08  
 Hong, Woong-Ki GS05  
 Hong, Yongtaek CA03  
 Hosono, Hideo BA02  
 Hsiao, Chih-Hung AD01  
 Hsieh, Chen-Yu BQ09  
 Hsieh, Chieh GD01

Hsieh, Wen Feng EP11  
Hsien, Tsung-Han GT06  
Huang, Chien-Jung ES17, ES19, GP06, IP08  
Huang, Kuohsiu-David BP01, BQ09  
Huh, Joo-Youl EP04, IC04  
Hui, K.N. DA03, FD04, HB02  
Hui, K.S. DA03, FD04, HB02  
Hui, Kwun Nam IA02  
Hung, Tran Quang BS16  
Hur, Man Gyu BP12, BS17  
Hur, Seung Hyun BS13, GQ22  
Husain, M. ET04  
Hwang, Chang-Mook GR09, IP05  
Hwang, Chi-Sun CA04, IR11, IT11, IT15  
Hwang, Do-Hoon BR11, ET19  
Hwang, Hae Jin BQ03, BQ05  
Hwang, Hyeon Cheol BQ03  
Hwang, Hyunsang EA03, GS05, IR07  
Hwang, In-Sung GP02  
Hwang, Jina BT16  
Hwang, Jung Won BT09, BT12  
Hwang, Myungsung GR13  
Hwang, Nong M. GP13  
Hwang, Nong-Moon GC04  
Hwang, S.-H. DC01  
Hwang, Soo Min GR03, GR08, GS30, IT01  
Hwang, Sookhyun FB01  
Hwang, So-Ri IS09  
Hwang, Sung-Min ES07, ES08, ES09  
Hwang, Tae Young ET14, GT15  
Hwang, Wook-Jung GS01  
Hwang, Yong-Kee IA04  
Hwangbo, C. K. ER05  
Hwangbo, Chang Kwon ER03  
Hwangbo, Yun GP11, GQ24  
Hyun, Sang-Hoon AC03, FB05  
Hyun, Seungmin EQ15, GR02, GR07  
Hyun, Younghoon CB03, EQ02, EQ03  
Hyun, Yu Ra IQ08

## I

Ichimori, Kazuyuki BQ01  
Iguchi, Hirofumi ET27  
Iijima, Sumio Plenary 3  
Im, Jongmo BQ08  
Im, Jongwoo GR13  
Im, Sang-Hyeok GS27  
Im, Seongil HB04, IR04, JA03  
Im, Yirang ET17, IQ07  
Ishiwara, Hiroshi EA06  
Islam, Md. Nazrul BS16  
Itoh, Toshio DC05  
Izu, Noriya DC05

## J

Jacobsson, Per BP02, IP12, IP13  
Jain, Kiran FA03  
Jang, BoRa GS26  
Jang, Bo-yun BR22  
Jang, Changsoo IA02  
Jang, Gun-Eik IB03  
Jang, Ho Won AA04, HD03, IB05  
Jang, Hoon-Sik GQ19  
Jang, Hwan Soo BS05  
Jang, Hyonchul GQ10, GQ16  
Jang, Jaeho AA03  
Jang, Jae-Won CC06, EC06, IS02  
Jang, Jin GQ13, GQ17, IT11  
Jang, Jin-Ho EP03  
Jang, Kyungsoo ET30  
Jang, Lee-Woon GD03  
Jang, Moongyu CB03, EQ02, EQ03  
Jang, Nak Won GS28, IR16  
Jang, Pyung Woo BR28, BR27, BR29, BR30, BR31, BS20  
Jang, Sun Ho BR12  
Jang, Sung-Uk BP08  
Jang, Yongjae BT03  
Jang, Yoon-Jung EP07  
Jang, Yun-Jung BR09  
Janicka, K. AA04  
Je, Jong-Tae ET21  
Jeng, Lung-Yue IR18  
Jeon, Dae-Woo GD03  
Jeon, Hyeongtag IT03  
Jeon, Je-Seog CC07  
Jeon, Joon-Woo ES12, HD02  
Jeon, Ju-Won GD03  
Jeon, Minhyon AA03, FB01, GC03, HB03, HC03, IP01  
Jeon, Sang Koo GQ19  
Jeon, Seokwoo BS15  
Jeon, Seong Gi GP04  
Jeon, Yeong-min IP11  
Jeon, Young Pyo ET25  
Jeong, A-Reum GP08  
Jeong, Chang Young BB03  
Jeong, Eun Kyun GR04  
Jeong, Goo-Hwan GQ05, GQ06, GQ07  
Jeong, Hae Yong HB01  
Jeong, Hae-Do DC03, DC05  
Jeong, Ho-Bin DC05  
Jeong, Hyun-Young BR04  
Jeong, Jae Hun BQ11, GQ20  
Jeong, Jaewook CA03  
Jeong, Jeung-Hyun BT02, GS07, IT08

Jeong, Ji Hwa	IP09, IP14	Juang, Fuh-Shyang	BD05 EP08 EP11
Jeong, Jin Wook	GT12	Jun, Myungsim	CB03, EQ02, EQ03
Jeong, Jin-A	ET16, GS15, IT04	Jung, C. Y.	ER05
Jeong, Jinhoo	BS14	Jung, Chi Sup	BR27, BR28, BR29, BR30, BS19, BS20
Jeong, Jong-Ryul	BS16	Jung, Chulho	IT02
Jeong, Kwangpil	BR10	Jung, Da Woon	BA03, JA04
Jeong, Kyunghoon	AB04	Jung, Dae young	BR20
Jeong, Moon-Ki	DC03, DC05	Jung, Dae-Ryong	IC02
Jeong, Myeong-Hyeok	CC04, EC04, GR06, GR07	Jung, Dae-Won	BQ11, FB01, GQ20
Jeong, Myeong-II	IQ02	Jung, Eun Ae	BT14
Jeong, Sang-Hyun	BS21	Jung, Gwan Ho	ES02, ES21
Jeong, Seonju	BR24	Jung, Ha Young	IQ13
Jeong, Seung-Hyeon	BT11	Jung, Hyun Suk	IQ04, IQ13
Jeong, Shin Woo	BT05	Jung, In-young	BD03
Jeong, T. J.	GT13	Jung, Jae Hoon	ET32
Jeong, YongIl	IT25	Jung, Jae Hun	IR13
Jeong, Won Yong	AB03	Jung, Jae Pil	GR01, GR11, IS01
Jiang, Lei	HC02	Jung, Jin-Seung	BS15
Jiang, Xue-Yin	ET01 ,ET10, GS08	Jung, Jongwan	GQ10, GQ16, IS12
Jin, Bong soo	IP09, IP14	Jung, Ki-taek	IP11
Jin, Byeong Kyou	BS08, IP03	Jung, Ki-Young	BR26
Jin, Changhyun	BS01	Jung, Kyooho	ED03, EQ12, EQ14
Jin, Dae Gun	BQ02	Jung, Kyung Yoon	BR15
Jin, Hyoung-Joon	GQ01	Jung, Mi Ran	BR18
Jin, Kwangseon	IS11, IS12	Jung, Mihee	GP10
Jin, Kyung Min	IP09	Jung, Mi-Hee	GP07
Jin, Sung-Ho	ET19	Jung, Myoung-Won	BC06, GP05
Jin, Sun-Mi	IR05	Jung, S. B.	EC05
Jin, Yun-Ho	BQ17	Jung, Sang Hyun	AB03
Jo, Bong Hyun	IT19	Jung, Seung-Boo	GT11, IS05
Jo, Dong-Seob	GD03	Jung, Seungjae	EA03
Jo, Gunho	GS05	Jung, Se-Yeon	ES13, HD02
Jo, Hwa Jin	GS10	Jung, Soochang	HB03
Jo, Hyo Jeong	IQ08, IQ10	Jung, Soon Won	BT04, ER11
Jo, Kyoung-Chun	JA04	Jung, Sungmin	GQ10
Jo, Minseok	GS05	Jung, Sung-Woo	EP05
Jo, Moon-Ho	FD02	Jung, Sungwook	ET30
Jo, Nam-Ju	BP15, BP16	Jung, Sun-Young	IR03
Jo, Young Je	ES15, GS24, GS25, GS28, IQ09, IT17, IT23	Jung, Tae Sung	IS04
Jo, Yun-Kyung	BP16	Jung, Woo-Sic	EP05
Joe, Chul-Min	IS09	Jung, Y.-D.	BB04
Joo, Jinho	GR03, GR08, GS30, IT01	Jwo, Ching-Song	IR17, IR18
Joo, Minkyong	ES13		
Joo, Seung-Ki	BT13, ET03, ET13, ET14, ET23, ET24, ET26, GT04, GT15	<b>K</b>	
Joo, Y.-C.	DC01	Ka, Jae Won	GT02
Joo, Young-Chang	FC01, GR06	Kadyan, P. S.	ET07
Joo, Young-Hee	ER14	Kadyan, Partap S.	ET06
Ju, Byeong Kwon	BT05, BT06, GP02, GQ15, GT12, IP10, IT16	Kamada, Toshiya	EA04
Ju, Jin-Woo	GD03	Kamalasanan, M. N.	BR02, ET04, ET05, ID04
Ju, Sooyong	BR27	Kamalasanan, ModeeparampilN.	ET06
Ju, Suyong	BR31	Kamiya, Toshio	BA02
		Kang, Chong Yun	HA03, IP10

Kang, Hee Young	ER03	Kim, Duckjong	GQ23, GQ25
Kang, Hee-Min	IT08	Kim, Dul-Sun	IP12, IP13, IP15
Kang, Ho Kwan	AB03	Kim, Eui Jung	BS13, GQ22
Kang, Hyon Chol	GS18, GS19	Kim, Eun-Jin	ER10
Kang, Hyun Ju	ET12, ET29	Kim, Eun Kyu	ES07
Kang, Il-Joon	AA01	Kim, Eunho	GQ10, GQ16
Kang, Il-Suk	GS01	Kim, Eun-Jin	ER01, ER09
Kang, In-Nam	BR1	Kim, Eun-Mee	BS15,
Kang, Jeong Won	BS02, IR03	Kim, Gun-Hee	IS07
Kang, Jin-Kyu	BT14, IQ08, IQ10, IQ11, IQ12	Kim, Gyo Hee	GQ08
Kang, Joohoon	ED04	Kim, Haekyoung	BQ18
Kang, Jun	ET19	Kim, Hae-Yeon	IS10
Kang, Jungwon	BQ15, BQ16	Kim, Han-Ki	ET16, GS15, GS28, IT04, IT06, IT07, IT14, IT20
Kang, Min Kyung	ES11	Kim, Hayoung	DB03
Kang, Minki	ET02,GQ01	Kim, Hee-Jeong	BS06
Kang, Min-Kyu	GT10, IQ03	Kim, Hee-Ok	ER12
Kang, Minkyung	ER08	Kim, Hee-Soo	IB02, JB04
Kang, Myunghoon	HC03	Kim, Hee-Yeoun	GR02
Kang, Seong Jun	GQ12	Kim, Heo Min	ET29
Kang, Seong Youl	ER12	Kim, Hoe Min	ET21
Kang, Sung-Geun	DC02	Kim, Hoechang	IC02
Kang, Wan-Kyu	BS02	Kim, Hoi-Bong	IA02
Kangwansupamonkon, Wiyong	FA04	Kim, Hong Seung	CA04, GS26, IR16
Kawai, Takazumi	DB01	Kim, Hong Tak	EP02, EP12
Kee, In Seo	AD04	Kim, Hong-Bae	BT05
Keum, Chang-Min	GT08	Kim, Hongdoo	BT16
Kim, Ah Ra	IR16	Kim, HongSeung	GS16,GS28,
Kim, Ara	AB04	Kim, Hyeng Ae	ES15, GS24
Kim, Bae In	BR19	Kim, Hye-Young	IQ03
Kim, Bioh	EC02, GR07	Kim, Hyo- Jung	EQ11,EQ13, EQ14
Kim, Bobae	ER01, ER09, ER10	Kim, Hyotae	GR13
Kim, Bong Seo	ED01, EQ06	Kim, Hyun Jae	EQ13, GS17
Kim, Buem Joon	ES01	Kim, Hyun Soo	IP09, IP14
Kim, Byoung-Joon	GR06	Kim, Hyung Giun	GR04
Kim, Byungwoo	GQ03	Kim, Hyung Soo	BR16, GS23
Kim, Chang-Dong	IA04	Kim, Hyun-Gang	EP04
Kim, Chang-Gyu	BC03	Kim, Hyunghoon	IT22, IT24
Kim, Chang-Il	ER14, ER15, IT30, IT31	Kim, Hyungjun	BC01
Kim, CheolGi	BS03, BS16	Kim, Hyun-Joo	GP08
Kim, Chul-Hyun	ET19	Kim, Hyun-Jun	BR29
Kim, Chul-Wung	CC05	Kim, Hyunkook	GC03
Kim, Chunjoong	DA02	Kim, Hyun-Soo	BP11, BS01, ES16, HD02, IT10
Kim, Dae-Hwan	BT14, IQ08, IQ10, IQ11, IQ12	Kim, Hyunsu	AB03
Kim, Dae-Joon	BQ06	Kim, Ik Jin	FB03, GQ04
Kim, Deogbae	ER06	Kim, In-Hye	EQ06
Kim, Dong Ho	DD03	Kim, Insung	EA03, IR07
Kim, Dong Soo	GT14	Kim, Jae Hong	BR17, BR18, BR20, BR21, IQ10
Kim, Dong-Gyun	BB02	Kim, Jae Hyun	BS05
Kim, Donghan	BQ15, BQ16	Kim, Jae Wan	BR03, BR05
Kim, Dong-Hwan	BR03, BR05,GS27	Kim, Jae yong	IP04
Kim, Dong-Kwon	IA05	Kim, Jaedong	EC04, GR06
Kim, Dong-Wan	BQ17	Kim, Jae-Ho	IS09
Kim, Dong-Yu	IR21		

Kim, Jae-Hwan	IR05	Kim, Kangpil	BP17
Kim, Jaehyun	ER06, GP11, GQ23, GQ24	Kim, Ki Won	BQ20, IR09
Kim, Jaekook	BQ15, BQ16	Kim, Ki-Bok	ES18
Kim, Jae-Kwang	BP02	Kim, Ki-Chul	EP03
Kim, Jae-Kyung	BQ07	Kim, Kihong	BT03
Kim, Jae-Myeong	CC04	Kim, Ki-Sub	BS02, IR03
Kim, Jae-Won	GR07	Kim, Ki-won	BQ19, GQ09, IP01, IP02, IP11, IR08, IR10
Kim, Jae-Yeol	EQ10, EQ16	Kim, Kwanf Bok	ES18
Kim, Jae-yong	IP06	Kim, Kwang Ho	BR28, GS17
Kim, Jang Jung	EQ01, GT14	Kim, Kwang Young	GS25, IT17
Kim, Jang-Kyo	AC01	Kim, Kwang-Chon	EQ11, EQ13
Kim, Jea Hong	BR19	Kim, Kwangho	BR27, BR29 BR30, BR31, BS20, BS21
Kim, Jeong-Hwan	BT03	Kim, Kwang-Ryul	EP10
Kim, Jeong-Joo	CA05, IT28	Kim, Kwang-Seok	GT11
Kim, Jeongmin	CB02, CB04, DD04	Kim, Kwang-Seop	GR02
Kim, Jeongsik	ER06	Kim, Kwang-Soo	ID01
Kim, Ji Cheol	GS30	Kim, Kwang-Su	GA03, GA05, IQ05
Kim, Ji Hoon	ES08, ES09	Kim, Kwang-Young	IQ09
Kim, Ji-Hong	BP08	Kim, Kyeong-Il	BP04, BP07, BQ04
Kim, Jihoon	GR13	Kim, Kyongwon	CA06
Kim, Ji-Hoon	BR11	Kim, Kyoo Ho	BR09, EP07,EP09,
Kim, Ji-Hui	IS10	Kim, Kyoungwan	IR11
Kim, Jin Soo	BT02, GS07	Kim, Kyoung-Kook	IT10, IT26, IT27
Kim, Jin Wook	BQ02	Kim, Kyoungwon	IB03
Kim, Jin-Hwa	IR10	Kim, Kyung-Sik	GP11
Kim, Jin-Ju	GQ06	Kim, Kyung-Taek	ET28, GS09, GS11
Kim, Jin-Sang	ED03, EQ10, EQ11, EQ12, EQ13, EQ14, EQ16, IB05	Kim, Min-Hoi	GT07, GT08
Kim, Jin-Soo	IR12, IR14	Kim, Min-Jung	BT09
Kim, Jin-Woo	GP03	Kim, Min-Ki	IA04
Kim, Jong Kyu	ES14, ID02	Kim, Min-Saeng	GA03, IQ05
Kim, Jong Soo	AD04	Kim, Minseok	BT04
Kim, Jong-Dae	EQ02, EQ03, HA02	Kim, Min-Su	IS02
Kim, Jonghee	GR13	Kim, Min-Sun	ES11
Kim, Jong-Hoon	GP05, IS10	Kim, Min-Young	EQ07, EQ08, EQ09, GR12
Kim, Jonghyun	GC02	Kim, Mok-Soon	CC06, CC07, EC06, ID01, IS06
Kim, Jongmin	IC02	Kim, Myeong Seok	BR17, BR20
Kim, Jong-Pil	GS03	Kim, Myeong-Ho	EQ06
Kim, Jong-Seon	IP01, IP02	Kim, Myoung	GD03
Kim, Jong-Sung	IA04	Kim, Nam-Jeong	IR14
Kim, Jong-Woong	GT10, IS05	Kim, Nam-Jin	GS27
Kim, Joo Young	BR13, BR14, BR15	Kim, Sang ah	BR17
Kim, Joonsoo	BR22	Kim, Sang Hoon	AB02
Kim, Joonyeong	BR31	Kim, Sang Hyeob	EQ15
Kim, Ju-Hee	BQ18	Kim, SangHee	GS10
Kim, Ju-Hyeong	IR05	Kim, Sang-Hern	BQ04
Kim, Jun Hak	BT08	Kim, Sanghyo	HB03
Kim, Jun Ki	IS06	Kim, Sanghyun	BS02
Kim, Jun Young	GS28	Kim, Sang-Kon	BB04
Kim, Jung-Hyun	BT03,IT21	Kim, Sangsig	IB03
Kim, Jung-su	GS13	Kim, Sang-Woo	FA02, IT12
Kim, Jun-Ki	CC06, CC07, EC06, IS02, IS10	Kim, Sang-Yeon	IR15
Kim, Kang Dae	ER11	Kim, Sarah Eunkyung	DC02, GS21
Kim, Kang-in	ER07		

Kim, Seong Il	EQ13	Kim, Young Sik	BR13, BR14, BR15, ET18
Kim, Seong-Su	ER03	Kim, Young-Deok	BP16
Kim, Seong-Sue	BB03, ER01	Kim, Young-Ho	EC03, FC03, FC05, JB03
Kim, Seon-min	IR08	Kim, Young-Jin	GP08
Kim, Seung-Han	BA03, IT30 JA04	Kim, Youngjoo	FB01, HC03
Kim, Seungwook	BS12	Kim, Youngkuk	BR06, BR07, GD04
Kim, Se-Yun	CA05, IT28	Kim, Youngkyoo	BP17
Kim, Soon Wook	GP09	Kim, Youngrae	DC02, GS21
Kim, Sun Kook	AD04	Kim, Young-Seok	GT10, IQ03
Kim, Sun Phil	GS21	Kim, Young-Sik	GR07
Kim, Sun-Chul	AD04,FC03	Kim, Young-Suk	IA05
Kim, Sung-Dong	DC02 , GR07, GS21	Kim, Yumin	IC02
Kim, Sung-Jin	DB03	Kim, Yun Tae	BR11
Kim, Sung-Kyu	GR12	Kim,Won-Mok	IT08
Kim, Sungman	AB03	Kim,Yong-Hoon	GT03
Kim, Sun-Wook	GB04, IR15	Kishimoto, Tadashi	ET27
Kim, Sun-yong	EP10	Kmalasanan, M.N.	ET07
Kim, Tae Jin	EC03	Ko Park, Sang-Hee	IT11
Kim, Tae Wan	ET31	Ko, Dae-Hong	GB04, IR15
Kim, Tae Whan	ET25, IR13	Ko, Hyun Jun	AC03
Kim, Tae Won	GS25	Ko, Yo Sub	ET25
Kim, Tae-Geun	ES08	Ko, Yong-Ho	CC06
Kim, Tae-Hoon	EP10	Ko, Young Gun	DB03
Kim, Taek-You	IR12, IR14	Ko, Youngbae	DC04
Kim, Tae-Won	IQ09, IT17, IT23	Ko, Young-Ki	BC05
Kim, Whan-Gi	BQ04	Koah, Nguyen Tri	GP09
Kim, Won	IT01	Koike, J.	BC02
Kim, Won Mok	BR03, BR05, BT02, GS07	Koike, Junichi	BA06, BC04, EA04
Kim, Won Yong	GR04	Kong, Bo Hyun	IT29
Kim, Won-Ho	GT08	Koo, Bo Ra	BS11
Kim, Wonjoong	GR01	Koo, Hyun	IT18, IT19
Kim, Woochul	DD02	Koo, Jae Bon	BT04, ER11
Kim, Woong	BS12, BS14, GP12, GQ03	Koo, Sangmo	GB04, IR15
Kim, Woong-Sun	ET28, GS09, GS11	Koyanagi, Mitsumasa	EC01
Kim, Y. K.	GT13	Kudo, Kazuhiro	JA01
Kim, Yang-Hee	FB02, GA03, GA05, IQ05	Kumar, Amit	ET06, ET07, ID04
Kim, Yeonju	DB02	Kumar, Brijesh	FA02, IT12
Kim, Yeonok	BT16	Kuntatun, Tarika	FA04
Kim, Yong Deok	ES20	Kunz, M.	DC01
Kim, Yong Gi	BS02	Kuo, Chen-Wei	EP08
Kim, Yong Hoon	BA04, GS17	Kuo, Chin-Guo	BP01
Kim, Yong Hwa	BR14	Kwack, Jin Ho	AD04
Kim, Yong Hyun	GS07	Kwak, Byung-Hyun	EC04
Kim, Yong-Il	EQ15, ER13, ES18	Kwak, Chae-Hyun	IA04
Kim, Yong-Jin	IR19	Kwak, Dong-Joo	BP09, BR25, BR26
Kim, Yoo-Jin	IS13	Kwak, Eunjoo	BP17
Kim, Yook-Joong	EP03	Kwak, Jin Ku	IR13
Kim, Young Bea	ET32	Kwak, Joon Seop	ES15, ES19, GS24, GS25, GS28, IT17
Kim, Young Ho	IB02, JB04	Kwak, Min-Gi	GT10, IQ03
Kim, Young Keun	BQ02	Kwon, B.S.	ER04
Kim, Young Kwan	BR10, ET09, ET11, ET12, ET21, ET29	Kwon, Dae Hoon	IB02, JB04
Kim, Young Min	EC03	Kwon, Hye Jin	BP10
Kim, Young Seok	ET14	Kwon, Hyuk-Moon	EP01

Kwon, Jae-Hong	BT06	Lee, Hee Chul	BP03, BP05, BP06, BR16, GS23
Kwon, Ji-Hye	BS07	Lee, Hee Gook	Plenary 2
Kwon, Jinhyeong	FB02, IA05	Lee, Hee Woong	ED01, EQ06
Kwon, Oh Sang	IR11, IT11	Lee, Heon	BR16, BR22, BR23, ER07, ES04, ES10
Kwon, Oh-Heon	GQ19	Lee, Heon Bok	GA02
Kwon, O-Jong	EQ10, EQ16, IT18	Lee, Heung-Yeol	GP05, GQ18
Kwon, Sang-Hyun	CC03	Lee, Ho Jun	GS10
Kwon, Seok-il	EP10	Lee, Ho Seong	IT22, IT24
Kwon, Soon Woo	IR20	Lee, Ho Sub	ET22
Kwon, Soongeun	GQ25	Lee, Hong Woo	GS10
Kwon, Soon-Ju	BP08	Lee, Hunhyeong	ER08
Kwon, Sung Ku	BR04	Lee, Hye-Moon	GP08, IR05
Kwon, Tae-Suk	ET28	Lee, Hyeongjae	IS03
Kwon, Yong Hun	GS12	Lee, Hyo Soo	CC01, IS07
Kwon, Yong-Hwan	GQ09	Lee, Hyung Min	EP12
Kyung, Yoon Kwon	BA04	Lee, Hyun-Hwi	IT14
		Lee, Hyunjoo	BS02
		Lee, Hyunjung	GQ21
		Lee, Hyun-Kee	IQ09, IT23
		Lee, Hyun-Seop	DC03
		Lee, Ihhwan	CA04
		Lee, In Tae	BR28, BS19
		Lee, Inhwan	BB03
		Lee, In-Hwan	GD03, GS14
		Lee, Insup	BQ12, BQ13, BQ14
		Lee, J.H.	ER04
		Lee, Jae Ki	ED01
		Lee, Jae Uk	BB03
		Lee, Jae Woo	ER06
		Lee, Jae Wook	IT21
		Lee, Jaegab	AB04
		Lee, Jae-Ho	BC06, BQ10, GP05, GQ18, IQ01
		Lee, Jae-Ki	EQ06
		Lee, Jaewon	BR22, BR23GS20, GS22, IA04
		Lee, Jang Hoon	ER03
		Lee, Jangkyo	BR03, BR05
		Lee, Jeong Gwan	BR17, BR19, BR21
		Lee, Jeong Yong	IT21, IT22
		Lee, Jeong-Ik	BD06
		Lee, Ji Yeon	IR16
		Lee, Ji-Myon	GS28
		Lee, Jin Hee	GT02
		Lee, Jinho	BT16
		Lee, Jiun-Haw	AD01
		Lee, Jiyoun	IT02
		Lee, Jong Ho	IB02, JB04
		Lee, Jong Hoon	GS26
		Lee, Jong Hwan	IP03
		Lee, Jong-Chan	BB02
		Lee, Jong-Cheon	GA03
		Lee, Jong-Chun	IQ05
<b>L</b>			
Lan, Yi-Hsin	AD01		
Lee, Aeri	BB02		
Lee, Byeong-Joo	GQ05		
Lee, Byungjoo	DA02		
Lee, C. J.	ES11		
Lee, C.S.	ET08		
Lee, Caroline Sunyong	FB02, GA03, GA05, IA05, IQ05		
Lee, Chang Min	GR03, GR08, IT01		
Lee, Chang Woo	BP11, BP13		
Lee, Changbum	BR22, BR23		
Lee, Chang-Hyoung	IR12, IR14		
Lee, Changjin	BR11		
Lee, Chang-Suk	DC03		
Lee, Chang-Woo	BC05, CC03, CC04, GR01, GS01		
Lee, Chongmu	BS01		
Lee, Da Hae	BQ05		
Lee, Do-Kyung	BR21		
Lee, Dong Geun	BB03		
Lee, Dong Hyun	HB06, IB04		
Lee, Dong Jun	IQ04		
Lee, Donghun	GB03		
Lee, Dong-Kwon	GC04		
Lee, Dong-Won	IR05		
Lee, Dong-Yun	CA06, IB03		
Lee, Don-Kyu	BR25		
Lee, Eun Hye	GQ17		
Lee, Eung Kwan	BT07		
Lee, Eunhye	GQ13		
Lee, Eunju	BT16		
Lee, Eunyeong	HB04		
Lee, Gun Hwan	IR04		
Lee, Hak-Joo	GP11, GQ24, GR02, GR07		
Lee, HanSung	GQ02		

Lee, Jonghee	BD06	Lee, Sang Yeol	BA03, CA01, CA06, IB03, IT30, JA04
Lee, Jong-Heun	GP02	Lee, Sang-hwa	IP04, IP07
Lee, JongHoon	GS28	Lee, Sang-joo	BT13, ET24
Lee, Jong-Hyun	EC06	Lee, Sang-Kyun	HA02
Lee, Jongin	BR30	Lee, Sangsul	BB03
Lee, Jong-Jin	AC03	Lee, Sang-Won	IP02
Lee, Jong-Kyun	IA04	Lee, Sangyoon	AD02
Lee, Jong-Lam	ES01, ES02, ES21, GD02, HD03, ID03	Lee, Seok Jae	ET09, ET11
Lee, Joo Sin	BP10	Lee, Seok-Hee	GB02
Lee, Joong Kee	DA04	Lee, Seong Eui	BP03, BP05, GS23
Lee, Joon-Hyung	CA05, IT28	Lee, Seong-Hwan	ES04, ES10
Lee, JoonKyun	IS08	Lee, Seoung-Ki	JB01
Lee, Joonmyoung	EA03	Lee, Seung Hyun	DB02
Lee, Ju Ho	IT22	Lee, Seung Jun	BT05
Lee, Ju-Hyuck	IT12	Lee, Seung Muk	GS30, IT01
Lee, Jun Min	DB04, HB04	Lee, Seunga	GB03
Lee, Jun Sik	IS06	Lee, Seung-Heon	GP07
Lee, Jung Min	HB01, HB06	Lee, Seung-Hun	BQ17
Lee, Jung-Won	IS07	Lee, Seunghyun	CB02, CB04
Lee, Jun-Sik	CC07	Lee, Seung-Jae	GD03
Lee, Ju-Young	GS26, IQ01, IR16	Lee, Sin-Doo	GT07, GT08
Lee, Kang-Hyuck	FA02	Lee, So Hee	BP05
Lee, Kang-Ju	IA04	Lee, Soo-Hyoung	ET19
Lee, Kang-Min	DB03	Lee, Soon-Gun	BS04
Lee, Kangwook	EC01	Lee, Sung S.	GP13
Lee, Kee Ahn	IP03	Lee, Sung-Ho	ES08, ES09
Lee, Keon Jae	HA04	Lee, Sungkoo	ET17, GT05, IQ07
Lee, Keon Ung	BS10	Lee, Sung-Nam	ES16, IT10, IT26, IT27
Lee, Ki Young	BQ20	Lee, Sunhwa	BR06, BR07
Lee, Ki-Ju	GR11	Lee, T.-K.	DC01
Lee, Kimoon	JA03	Lee, Tae Hun	IA05
Lee, Kiwook	EC04, GR06	Lee, Taeg Woo	GR04
Lee, Kum Hee	ET09, ET11, ET12, ET29	Lee, Taek Sung	BR03, BR05
Lee, Kwang H.	JA03	Lee, Taek-Yeong	GS01
Lee, Kyeong K	GT05, ET17, IQ07	Lee, Tae-Moo	FB02
Lee, Kyeong-Seok	BT02, GS07, IT08	Lee, Takhee	FD01, GS05
Lee, Kyu Hwan	DD03, GS02	Lee, Wang Gu	IS01
Lee, Mi Yung	BT08	Lee, Wankyu	GQ10, GQ16
Lee, Mi-Hee	CA04, GD03, GS14, GS16	Lee, Won Hee	HA03, IP10
Lee, Min-Kyu	BT13, ET03, ET13, ET14, ET23, ET24	Lee, Won Jae	GS26, IT25
Lee, Minkyung	DD04	Lee, Won Woo	IB04
Lee, Mi-Young	BT10, BT15	Lee, Wonbaek	ET30
Lee, Myeongkyu	ET20, GC02, IS03	Lee, Won-Jong	BC03, EA05
Lee, Myoung-Bok	FB05	Lee, Won-Jun	BQ06, BQ07, IS11, IS12
Lee, Myung Ho	AD04	Lee, Wonpil	BD03
Lee, Myung Won	BT07, IA03	Lee, Woojin	IC02
Lee, N.-E.	ER04, ER05	Lee, Woong-Sun	FC04
Lee, S.	AA04	Lee, Wooyoung	AB03, CB01, CB02, CB04, DB02, DB03, DD02, DD04, ED02, ED04, HB04
Lee, S. J.	ER05	Lee, Yong Woo	BT13, GT04
Lee, S.K.	FD04	Lee, Young Seak	EQ01
Lee, S.T.	ET08	Lee, Young Tack	HB05
Lee, Sang Joo	ET23	Lee, Young-Ki	ID01
Lee, Sang Seok	ER12		

Lee, Yu-Jin	BP15	Meen, Teen-Hang	GP06, IP08
Lee, Yun-Hee	EQ15, ER13	Mehta, D.S.	ET05
Lee,Keun-Young	IT12	Meng, Weixin	ET15
Lee,Younjung	BR06	Meygaard, David	ID02
Leung, Man-Kit	AD01	Min, Bok-Ki	EQ06
Li, Hung-Wei	GT06	Min, Kyung-Eun	CC07, IS06, IS10
Li, Jun	ET01, GS08	Min,Bok Gee	ED01
Li, Song-Mei	GD03	Mohanty, Bhaskar Chandra	FA05
Liang, Jian	GS04	Mont, Frank W	ID02
Liang, Shi-Sheng	BP01	Moon, Dae-Gyu	ET02
Liao, Che-Hao	GD01	Moon, Dae-Yong	ET28, GR09
Liao, Teh-Chao	BD05	Moon, Hi Gyu	IB05
Lim, Dong Chan	DD03	Moon, Jin Young	IT22, IT24
Lim, Eunhee	ET17, GT05, IQ07	Moon, Ji-Woong	BQ03, BQ05
Lim, Hyoungjin	GB03	Moon, Joo-Tae	Plenary 1
Lim, Hyunjin	JA03	Moon, Kyung-Won	IQ02
Lim, Jae-Hong	DD02, GS02	Moon, Sang-Jin	BR11
Lim, Jeong-Su	IS13	Moon, Se Jin	ET09
Lim, Jinsub	BQ15, BQ16	Moon, Seong Min	ES19
Lim, Jun Hyung	GR03, GR08, GS30, IT01	Moon, Seungeon	HA02
Lim, Sang Chul	ER12	Moon, Yeon-Keon	ET28,GS09, GS11
Lim, Seung-Kyu	IR12	Morusupalli, R.	DC01
Lim, Sung Hwan	GR04	Motomura, Genichi	BD01
Lin, Cheng-Hung	GD01		
Lin, Hua-Ping	ET01, ET10, GS08		
Liu, Kou-Chen	BA05		
Liu, Shun-Wei	AD01		
Liu, Weimin	BD04		
Liu, X. J.	EA03		
Liu, Xiaojing	IP02		
Liu, Xinjun	IR07		
Lo, Li-Feng	IT05		
Loh, Kian Ping	EB03		
Luan, Van Hoang	BS13		
Lyu, Hongkun	BP17		
Lyu, Hong-Kun	BR24		
Lyu, SeungChul	GQ02		

## M

Ma, C.	JB02		
Ma, shufang	GS04		
Mabuchi, Takaya	EA06		
Maeda, Ryutaro	ER02		
Maeng, Ki-Ho	DC02		
Majumdar, Arun	DD02		
Manuel, James	IP12, IP13, IP15		
Masaki,Takaki	BS17		
Mathew, Vinod	BQ15, BQ16		
Matic, Aleksandar	BP02		
Matsubara, Ichiro	DC05		
Matsuda, Kuniharu	ET27		
Matsui, Shinji	AB01		
Matthias, Thorsten	GR07		
		<b>N</b>	
		Na, Seok-In	IT14
		Na, Seong-Hun	IR12
		Na, Sun-Joo	ID01
		Nagashima, Masaaki	BQ01
		Nahm, Seung Hoon	ER13, GQ19
		Nahm, Shan	BT06
		Nakano, Yoshiaki	GC01
		Nakashima, Takaomi	DC05
		Nam, Da-Eun	BS07
		Nam, Okhyun	GB03
		Nam, S. W.	EQ04
		Nam, Seunghoon	DA02, IC02
		Nam, Tae-Hyun	GQ09, IP11, IR08,IR09
		Nelson, C. T.	AA04
		Ng, A.	ET08
		Ng, C.Y.	ET08
		Nga, Nguyen Thanh	ET30
		Nguyen, Hoang Hung	GQ22
		Niranjana, M. K.	AA04
		Nishibori, Maiko	DC05
		No, Yong-Young	ER11
		Noemaun, Ahmed N.	ID02
		Noh, Bo-In	GT11
		Noh, Jin-Seo	AB03, CB02, ED02
		Noh, Jung-pil	BQ19, IP11
		Noh, Yong-Young	BT04, IR21, JA02
		Nomura, Kenji	BA02
		Norton, D. P.	CA05,IT28

## O

Oana, Cojocaru-Mirédin IC01  
Oda, Yukifumi BQ01  
Oh, Byeong-Yun BS05  
Oh, Eun-Suok BQ11, GQ20  
Oh, H.-K BB04  
Oh, Hye Mi GQ17  
Oh, Hye-Keun BB01, ER01, ER09, ER10  
Oh, Hyemi GQ13  
Oh, Ji Young ER12  
Oh, Joon Jae BS08, IP03  
Oh, Joon-Ho IT27  
Oh, Kyung Ah GQ21  
Oh, Min Suk BA04, GS17  
Oh, Min Wook ED01, EQ06  
Oh, Sang Jun BA04  
Oh, Sang-chul ER07  
Oh, Se Young IQ06  
Oh, Semi IT26, IT27  
Oh, Tae-Sung EQ07, EQ08, EQ09, GR12  
Oh, Tae-Yeon BT05, BT06  
Oh, Teresa BT17, BS18  
Oh, Yoenjoon GR13  
Oh, Yong Taeg BS10, BS11  
Oh, Yong-Jun IS09  
Oh, Yuhong DA02  
Özyilmaz, Barbaros EB02

## P

Paeng, Sung-Hwan BR25  
Pan, X. Q. AA04  
Park, Byung Ki EQ01, GT14  
Park, Byungwoo DA02, IC02  
Park, Chan EQ10, EQ11, EQ12, EQ13, EQ14, EQ16, IT18, IT19  
Park, Chan Ho IR04  
Park, Cha-Soo BR25  
Park, Chinho EP02, EP12  
Park, Chong Ook IS11  
Park, Chul-Hong AA01  
Park, Dong-Hoon CA06, IB03,  
Park, Dong-Hyun EQ09  
Park, Duck Gun IR02, IR06  
Park, Eun-Mi IT16  
Park, Geun Chul GR03, GR08  
Park, GyunMyoung DC04  
Park, Hee Woo HC04  
Park, Hong-Lae BP14  
Park, Hye-Jeong FA02  
Park, Hyoungwon ES04, ES10  
Park, Hyun Kook IR16

Park, Hyun Min IP06  
Park, Hyung Suk BQ06  
Park, Hyung-Ho EQ12, IT03  
Park, Hyung-Ki GC04  
Park, Hyungpil DC04  
Park, Hyunsung GB03  
Park, Hyunwoo GS22  
Park, Inyu BQ08, ER08  
Park, Jae-Cheol IQ09, IT23  
Park, Jae-Hong DC03  
Park, Jae-Hyoung BP03, BP06  
Park, Jae-Seong ES13  
Park, Jaikoo IP06  
Park, Jeong-Hyun EP05  
Park, Ji Cheol GR03  
Park, Ji Hoon JA03  
Park, Ji-Eun BT10  
Park, Jin Hyun GR08  
Park, Jin Soo BQ20  
Park, Jin Woo BP09  
Park, Jinjo BR06  
Park, Jinjoo BR07  
Park, Jin-Seong GS20, GS22  
Park, Jong Chul FC05  
Park, Jong Seo ER13  
Park, Jong Seung BT07  
Park, Jong Won CA02  
Park, Jong-Keuk BT02, GS07, IT08  
Park, Jong-Wan ET28, GR09, GS09, GS11, IP05  
Park, Jun Kyu IS01  
Park, Jung Ho ES09, IT16  
Park, Jun-Hyuk IT14  
Park, Jun-Kyu GR11  
Park, Kwangchol IS11  
Park, Kwang-Min BQ07  
Park, Kwi-II HA04  
Park, Kyeongsoon EQ04, EQ05  
Park, Kyo Yang ES11  
Park, Kyu Chang GQ17  
Park, Kyuchang GQ13  
Park, Mi Sun IQ11, IQ12  
Park, Mi Yeong DD03  
Park, Min GQ21  
Park, Min Joo ES19  
Park, Min Woo BP09, BP10, BR26, EP01, EP06  
Park, Min-Young BP15  
Park, S. J. ER05  
Park, Sang Hee IT16  
Park, Sang-Choon ID01  
Park, Sang-Hee Ko IR11  
Park, Sangsu IR07  
Park, Se Won ET18  
Park, Se-Hoon FC05

Park, Seong-Han	ES12, HD02	Rzchowski, M. S.	AA04
Park, Seon-Hee	BR26		
Park, Seung Jun	IR20	<b>S</b>	
Park, Seungman	BR06, BR07, FB02, IA05		
Park, So-Yeon	BQ10	Sadaf, Sharif	IR07
Park, Su Dong	ED01, EQ06	Sahoo, Trilochan	GD03
Park, Sun Hwa	IP06	Saito, Yuta	EA04
Park, Sung Kyu	GS17, GT03	Sarella, Anandakumar	BS03
Park, Sungjin	ER03	Schubert, E. Fred	ES14
Park, Won Il	HB01, HB06, IB04	Schubert, Martin F.	ES14
Park, Yejun	DA02	Seo, Bo Min	ET09
Park, Yong Seob	IT20	Seo, Dae-shik	ET31
Park, Yong-Seok	IT07	Seo, Dong Kyu	IT29
Park, Young Min	BQ18	Seo, Hwan Seok	ER03,ER05,
Park, Young-Bae	CC04, EC04, GR06, GR07	Seo, Hyun-Sang	GS01
Park, Youngsam	CB03, EQ02, EQ03	Seo, Ji Hoon	ET09, ET11,
Park, Yun Jong	BT08	Seo, Ji Hyun	ET21, ET29
Park,Jun Young	EP02	Seo, Junho	IS08
Park,Woojin	GS05	Seo, Ju-Seok	IT12
Pearton, S.J.	CA05, IT28	Seo, Sang-Won	EP05
Pfeiffer, Sarah	GR07	Seo, Seung-Deok	BQ17
Pham, Viet Hung	GQ22	Seo, Sunae	EB04
Phanichphant, Sukon	FA04	Seo, Taean	BT03
Phong, Le Van	BS16	Seo, Yu-seok	ET02
Phuong, N.M.	BC02	Seo,Tae-II	IS13
Phuong, Nguyen Mai	BC04	Seomoon, Kyu	BR27, BR28, BR29, BR30,
Pookmanee, Pusit	FA04		BR31, BS20
Pyo, Sung-Eun	IS05	Seong, Tae-Yeon	BT02, ES12, ES13, GS07,
Pyun, Yong Bum	IB04		HD02, IT27
		Sheen, Dongwoo	BR03, BR05
<b>R</b>		Shen, Guozhen	IB01
		Shen, Y.-L.	DC01
Raabe, Dierk	IC01	Shim, Hong Shik	AD04
Rah, Seung-yu	BB03	Shim, Hyun-Woo	BQ17
Rana, Omwati	ET04	Shim, Young-Seok	IB05
Reddy, Venu	BS03	Shin, Bongkwan	ES11
Rha, Sa-Kyun	IS11	Shin, Bong-kwan	BT13, ET14,GT15
Rho, Myung-Rae	EQ09	Shin, Changmi	IT25
Ro, Insoo	JB03	Shin, Chonghoon	BR06, BR07
Roh, Ji-Young	FB02, IA05	Shin, Dong Chan	BS10, BS11, CA02
Roh, Jong Wook	AB03, DD02, ED04	Shin, Dong Hyuk	DB03
Roh, Myongh-Hoon	GR01	Shin, Dongwook	BQ08, BS08, ER08, IP03
Roundy, Shad	HA01	Shin, Dong-Youn	IC03
Ryou, Jae-Hyun	IT10	Shin, Eui-Chul	GQ07
Ryu, Bong-Ki	GS27	Shin, Ho Sun	GP04
Ryu, Boram	JA03	Shin, Hyeong Won	CC01
Ryu, Gi Seong	BT12, BT09	Shin, Hyun-Su	GS15
Ryu, Ho Suk	BQ20, IP01	Shin, Jae Heon	IT15
Ryu, HyukHyun	IT25	Shin, Ji Hoon	ET32
Ryu, Je Hwang	GQ13,GQ17	Shin, Jin-Wook	BD06
Ryu, Ju Tae	IR13	Shin, Ju-hyeon	ER07
Ryu, Kwang-Sun	IR08, IR10	Shin, Kwonwoo	ES07
Ryu, Kwon-Sang	ES18	Shin, Kyung-Sik	FA02
Ryu, Min-Ki	IR11, IT11	Shin, Moo Whan	BR12



Vishnubhotla, Sudha Rani BS03

## W

Wako, Kazuhiro ET27  
Wang, Guoxiu IP02  
Wang, Hua AD03, ET15  
Wang, Pengfei BD04  
Wang, Shaoqing FB04  
Wang, Shun-Hsi BD05  
Wang, Y. AA04  
Wang, Yeong-Her GP06  
Wang, Yu-Chun BR01,  
We, Ju Hyung GA02  
Wei, Mao-Kuo AD01  
Wen, Liping HC02  
Wen, M.-Y. IR01, JB02  
Wen, Ten-Chin BR01  
Won, Mi-Sook GS03  
Wong, F.L. ET08  
Wong, Ken-Tsung BD02  
Woo, Chulhong BQ16  
Woo, Jong-Chang ER15  
Woo, Seung-Il FB05  
Woo, Sungho BP17, BR24  
Wu, Chung-Chih BD02  
Wu, Pei-Wen IT05

## X

Xu, Bingshe AD03, ET15, GS04  
Xu, Huixia ET15  
Xu, Yang AD03

## Y

Yan, Ian FA01  
Yang, Cheng-Fu GP06, IP08  
Yang, Chen-Yu ES17  
Yang, Chih-Chung GD01  
Yang, Heesun BS06, BS07  
Yang, Hyun Jeong GA02  
Yang, Hyun Sik BR18  
Yang, JeeEun IT25  
Yang, Jung -il GS13  
Yang, Jun-Mo GS01  
Yang, Ki-yeon ER07  
Yang, Sang-Sun GP08, IR19  
Yang, Shinhyuk IR11, IT11  
Yang, Su-Hwan GS29  
Yang, Ui Yul IQ06  
Yang, Woo Seok IR20  
Yang, Yil-Suk EQ02, EQ03, HA02,

Yang, Yong Suk BT04, ER11  
Yang, Yu Seok BR18  
Yao, Takafumi IT21  
Yase, Kiyoshi IA01  
Ye, Byeong Uk ES06  
Yeo, Yong-Hee EQ08  
Yi, Jaeseok HB01, HB06, IB04  
Yi, Junsin BR06, BR07, ET30  
Yi, Jun-sin EP10  
Yi, Mi Hye GT01, GT02  
Yi, Moonsuk GS13  
Yi, Sung FC02  
Yi, Yeonjin GQ12  
Yim, Ju-Hyuk ED03, EQ10, EQ12  
Yim, Tai-Hong GP05, GQ18  
Yin, C. FD04  
Yin, Cuilei DA03  
Yoo, Bongyoung DB03  
Yoo, Choong-Keun IA04  
Yoo, Dae-Hwang GP09  
Yoo, Dong Su ES05  
Yoo, Geunho GB03  
Yoo, Il Hwan IT18, IT19  
Yoo, Ju-Wan GD03  
Yoo, Myong-Jae EQ12  
Yoo, Sehoon BC05, CC03, CC04, GS01  
Yoo, Seung-Wan GC04  
Yoon, Chong Seung IB02, JB04  
Yoon, Dae Ho BP12, BS17, ES03, GS10,  
IR20, IT02  
Yoon, Duck-Ki GS27  
Yoon, Eun Ae ET24ET26GT04,  
Yoon, Gil-Sang IS07  
Yoon, Ho-Kyu GT10  
Yoon, Jae-Cheol IR19  
Yoon, Jang-Hee GS03, IT25  
Yoon, Jongwon GS05  
Yoon, Joo young BR20  
Yoon, Joo-Sun BT03  
Yoon, Junghwan GC02  
Yoon, Seok-Jin HA03, IB05, IP10  
Yoon, Seung Soo ET09, ET11, ET12, ET29  
Yoon, Seung-Pil FB05  
Yoon, Sooyoung IA04  
Yoon, Sung Cheol BR11  
Yoon, Sung-Min EA06, IR11, IT11  
Yoon, Woo Young BQ02, BR22, BR23  
Yoon, Young Joon GR13  
Yoshida, Hisao BQ01  
You, HyunWoo EQ10, EQ14, EQ16  
You, In-Kyu BT04, ER11  
You, Jee-Hye ER01, ER09, ER10  
You, Juanjuan BD04  
Youn, Hyeong-Chul IR14

Youn, Sung-Won	ER02
Yu, A-Mi	CC06, EC06, ID01, IS02
Yu, Dong-Bin	ET01
Yu, Eun Sang	IQ04
Yu, Hak Ki	ID03
Yu, Hyunung	BS15
Yu, Ji-Hun	IR19
Yu, Jin	GP04
Yun, Eun Ae	ET03
Yun, Jae-jin	EA05
Yun, Jungheum	IR04
Yun, Jung-Yeul	GP08
Yun, P. S.	BC02
Yun, Pilsang	BA06
Yun, Seung-Jae	ET13, ET23, ET24
Yun, Sunglyong	AA03
Yun, Wontae	BR10
Yun, Young Soo	GQ01

## **Z**

Zhai, Jin	HC01, HC02
Zhang, Liang	ET01, GS06, GS08
Zhang, Rong	HD01
Zhang, Xiao-Wen	ET01, GS08
Zhang, Y.	AA04
Zhang, Zhi-Lin	ET01, ET10, GS08
Zhao, Jun-fu	GS04
Zhao, Wei	FB03, GQ04
Zhu, Lijing	GQ23
Zhu, Y.	AA04
Zou, Chongwen	FA01
Zulfequar, M.	ET04
Zyung, Taehyoung	CB03, EQ02, EQ03