Program Book

ENGE 2014

International Conference on Electronic Materials and Nanotechnology for Green Environment

Nov. 16 - 19, 2014 | Ramada Plaza Jeju Hotel, Jeju, Korea

Hosted by KIM THE KOREAN INSTITUTE OF METALS AND MATERIALS

Organized by IBS Center for Nanomaterials and Chemical Reactions, IBS; IBS Center for Artificial Low Dimensional Electronic Systems

Supported by KOFST; KOREA TOURISM ORGANIZATION; Jeju CVB Jeju Convention & Visitors Bureau

Sponsored by POSCO; SAMSUNG ELECTRO-MECHANICS; Youl Chon; GLOBAL FRONTIER Hybrid Interface Materials; NINT National Institute for Nanomaterials Technology; LG Siltron; CPRI; AMO AMOGREENTECH; LINSEIS; KOREA VACUUM TECH

시간이 흘러도
위대한 생각은 녹슬지 않습니다

스물 여덟 글자로 백성의 눈을 뜨게 하겠다는 세종대왕의 혁신적인 생각처럼
수 백년이 지나도 변함없는 위대한 가치들이 있습니다. 포스코는 다 함께,
더 나은 세상을 만들어가기 위해 보다 혁신적인 생각으로 세계 제일의
철강기업을 넘어 사랑받고 존경받는 기업, POSCO the Great를 향해 나아가겠습니다

위대함을 향해 갑니다
posco

INSTITUTE FOR BASIC SCIENCE

Center for Nanomaterials and Chemical Reactions

To resolve energy and environmental issues associated with zeolites

Ryong Ryoo

Director,
Center for Nanomaterials and Chemical Reactions, IBS

Distinguished Professor,
Department of Chemistry, KAIST

Foreseen reduced fossil fuels supplies and the growing environmental concerns provide incentive for developing high yield chemical processes and technologies, while reducing feedstocks and energy consumption and pollutants. Research in the Center for Nanomaterials and Chemical Reactions (CNCR) has been focused on nanoscience and chemical reactions using basic science to find comprehensive solutions for the environmental and energy-related problems that face future generations.

Renewable energy sources result in a significant reduction in both fossil fuel consumption and greenhouse gas emissions. In this context, CNCR has conducted studies on chemical reactions, in which catalysts play a key-role. Being easily separable and reusable, heterogeneous catalysts have played a pivotal role in the conversion of renewable feedstocks. In this regard, nanostructured materials (e.g., nanoparticles and nanoporous material) exhibiting large surface areas have gathered particular attention. In recent years, the field has lived continuous development, and CNCR has been recognized for its many contributions in the domain.

In this context, CNCR aims to study the fundamental formation principles through basic chemical research. The research center has developed high-efficient nanoreaction catalysts and pursued solutions to energy-related and environmental problems by understanding and optimizing green chemical reactions. We will continuously strive to deliver world-beating academic achievements and to contribute greatly to science and technology for the benefit of humankind.

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Institute for Basic Science

Center for Artificial Low Dimensional Electronic Systems

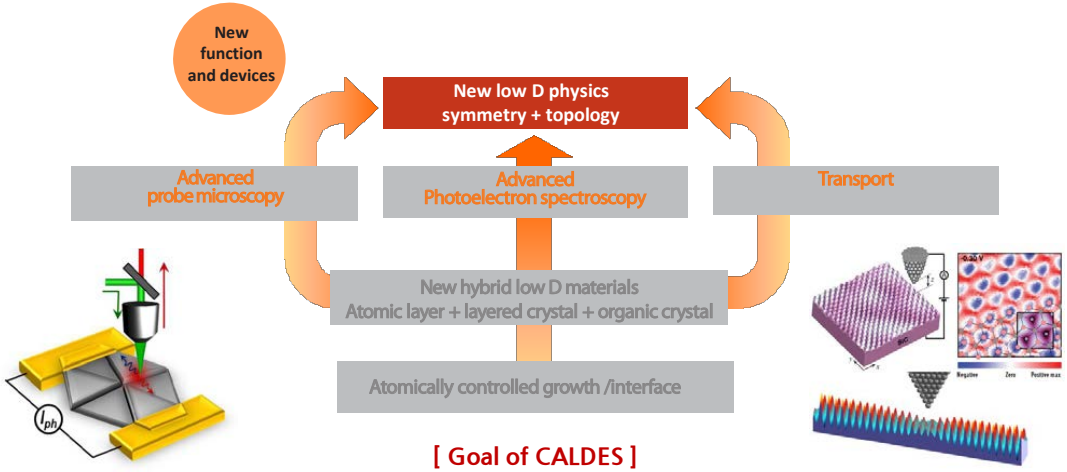
Director : Han Woong Yeom

Physics (Director) Han Woong Yeom

STS	STM	MFM	ARPES	Theory
Research Fellow	Research Fellow	Research Fellow	Research Fellow	Research Fellow
Tae-Hwan Kim	Ungdong Ham	Jeehoon Kim	Keun Su Kim	Sung-Hoon Lee

Materials Physics (Group Leader)
Moon-Ho Jo
Layered Crystals

Materials Chemistry (Group Leader)
Hee Cheul Choi
Molecular Crystals



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ENGE 2014

C O N T E N T S

Welcome Message

"Welcome to ENGE 2014"

On behalf of the committee and everyone involved in preparing for this event, I wish to extend a warm-hearted welcome to all of the participants of the International Conference on Electronic Materials and Nanotechnology for Green Environment 2014 (ENGE 2014).

Renowned plenary, symposiums, and other technical sessions are excellent opportunities to share cutting-edge knowledge, recent research results, and technological advances in broad areas of electronic materials and nanotechnology. Empowering social programs have also been planned to provide great networking opportunities with internationally prominent scholars, specialists, and researchers.

I wish you all a fruitful meeting and I hope that you benefit from our comprehensive scientific programs, strengthen your professional networks among over 1,000 expected attendants, and leave with a refreshed vision for our students and community. I also encourage you to take advantage of our beautiful location and spend time to enjoy our culture and scenery here in the island of Jeju.

Most importantly, I would like to express my deepest gratitude to all of you for attending this 3rd ENGE. I also highly appreciate those who made this conference possible with their consistent dedication.

Once again, welcome to ENGE 2014 and Jeju, Korea.

Sincerely,

Kyung-Ho Shin
Chairman, ENGE 2014

Committee

Steering Committee

Chairman	**Kyung-Ho Shin**	Korea Institute of Science and Technology
Vice-Chairman	**Jong-Lam Lee**	Pohang University of Science and Technology
Secretary General	**Moon-Ho Jo**	Pohang University of Science and Technology
Program	**Jinho Ahn**	Hanyang University
Publication	**Byungwoo Park**	Seoul National University
	Sung Gyu Pyo	Chung-Ang University
Global Cooperation	**Sang-Im Yoo**	Seoul National University
External Affairs	**Chul-Jin Choi**	Korean Institute of Materials Science
Publicity	**Young-Chang Joo**	Seoul National University
Treasurer	**Jonghwa Eom**	Sejong University
Local	**Sang Ouk Kim**	Korea Advanced Institute of Science and Technology

Advisory Committee

Chairman	**Jaegab Lee**	Kookmin University
Member	**Ki-Bum Kim**	Seoul National University
	Young-Ho Kim	Hanyang University
	Yong-Seog Kim	Hongik University
	Jang-Joo Kim	Seoul National University
	Byungwoo Park	Seoul National University
	Sang-Hee Suh	Korea Institute of Science and Technology
	Dong Hyuk Shin	Hanyang University
	Geun-Young Yeom	Sungkyunkwan University
	Sang-Im Yoo	Seoul National University
	Chan-gyu Lee	Changwon National University
	Hee-Woong Lee	Korea Electrotechnology Research Institute
	Soon Hyung Hong	Korea Advanced Institute of Science and Technology

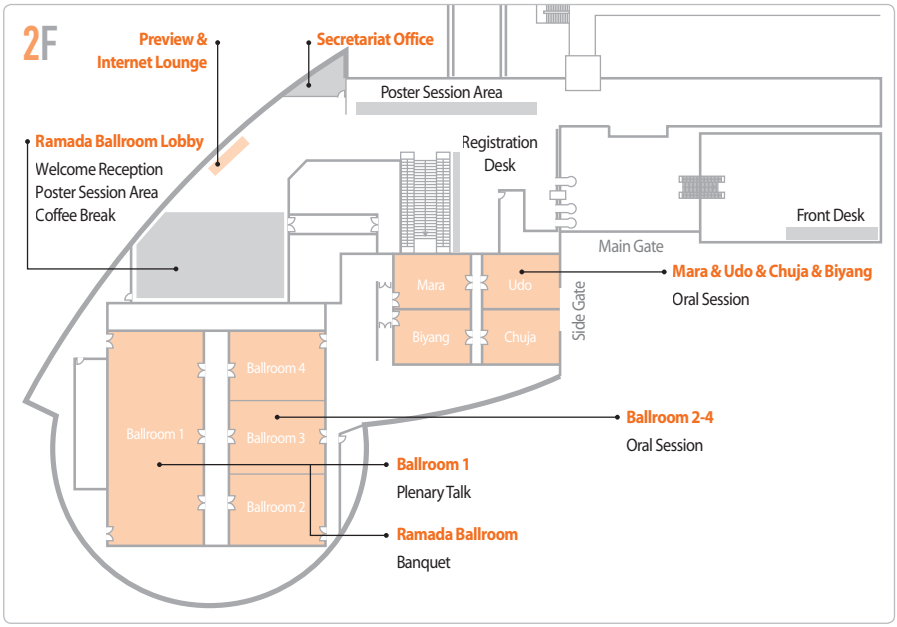
Program Committee

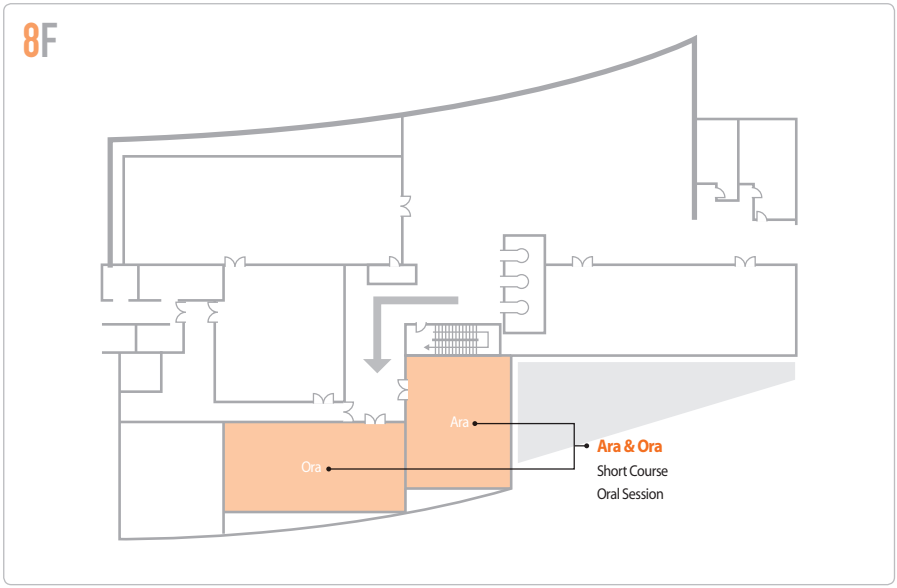
Chairman	**Jinho Ahn**	Hanyang University
Electronic Materials	**Byoung Hun Lee**	Gwangju Institute of Science and Technology
Nano	**Sang Ouk Kim**	Korea Advanced Institute of Science and Technology
Display	**Cheolmin Park**	Yonsei University
Energy	**Kisuk Kang**	Seoul National University
Computational Materials Science	**Seungwu Han**	Seoul National University

Symposium Organizer

Materials for Advanced Electronic Applications	**S1**	**Jiyoung Kim**	University of Texas at Dallas
		Pil-Ryung Cha	Kookmin University
	S2	**Hyunsang Hwang**	Pohang University of Science and Technology
		Moon Goo Jeon	Gwangju Institute of Science and Technology
	S3	**Sang-Im Yoo**	Seoul National University
	S4	**Byoung Hun Lee**	Gwangju Institute of Science and Technology
		Jungwoo Oh	Yonsei University
Nanoscale Materials, Processes and Devices	**S5**	**Sungjin Park**	Inha University
	S6	**Yoon Sung Nam**	Korea Advanced Institute of Science and Technology
	S7	**Jeong Young Park**	Korea Advanced Institute of Science and Technology
	S8	**Kornelius Nielsch**	University of Hamburg
		Hee-Woong Lee	Korea Electrotechnology Research Institute
		Jae Yong Song	Korea Research Institute of Standards and Science
	S9	**Min Park**	Korea Institute of Science and Technology
Materials and Devices for Frontier Display	**S10**	**Jong Kyu Kim**	Pohang University of Science and Technology
	S11	**Won Gun Koh**	Yonsei University
	S12	**Unyong Jeong**	Yonsei University
	S13	**Tae-Woo Lee**	Pohang University of Science and Technology
Energy Materials and Technology	**S14**	**Jihun Oh**	Korea Advanced Institute of Science and Technology
	S15	**Sang-Woo Kim**	Sungkyunkwan University
	S16	**Kisuk Kang**	Seoul National University
	S17	**Jung-Yong Lee**	Korea Advanced Institute of Science and Technology
Computational Materials Science	**S18**	**Jeong Woo Han**	University of Seoul
	S19	**Sang Soo Han**	Korea Institute of Science and Technology
	S20	**Seungwu Han**	Seoul National University
	S21	**Seungwu Han**	Seoul National University
	S22	**Young Keun Kim**	Korea University
	S23	**Hee-Woong Lee**	Korea Electrotechnology Research Institute
	S24	**Young-Chang Joo**	Seoul National University
		Seung Min J. Han	Korea Advanced Institute of Science and Technology
	S25	**Seong In Kim**	Cheorwon Plasma Research Institute
	S26	**Haein Yim**	Sookmyung Women's University
	S27	**Young-Chang Joo**	Seoul National University
		Seungwu Han	Seoul National University
	S28	**Moon-Ho Jo**	Pohang University of Science and Technology

Venue Layout





Program at a Glance

	Nov. 16 (Sun.)	Nov. 17 (Mon.)	Nov. 18 (Tue.)	Nov. 19 (Wed.)
08:00		**Poster Session 1** (08:00-09:00)	**Poster Session 2** (08:00-09:00)	**Poster Session 3** (08:00-10:00)
09:00		**Technical Session** (09:00-12:00)	**Technical Session** (09:00-12:00)	
10:00				**Plenary Talk 3** (10:00-10:45)
11:00				**Coffee Break** **Poster Awards** (11:00-11:30)
12:00		**Lunch** (12:00-13:00)	**Lunch** (12:00-13:00)	**Lunch** (11:30-13:00)
13:00		**Plenary Talk 1, 2** (13:00-14:30)	**Technical Session** (13:00-16:00)	**Technical Session** (13:00-15:00)
14:00		**Coffee Break**		
15:00		**Technical Session** (14:45-17:45)		**Coffee Break**
16:00			**Poster Session 2** / Coffee Break (16:00-18:00)	**Technical Session** (15:30-18:00)
17:00	**Welcome Reception** (17:00-18:00)			
18:00		**Poster Session 1** (17:45-19:00)	**Banquet** (18:00-20:00)	
19:00				
20:00	**Short Course** (19:00-22:00)			
21:00				
22:00				

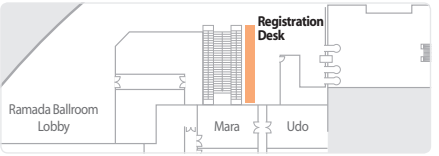
Conference Information

All about Registration

Location: Ramada Ballroom Lobby (2F)

Operating Time

Nov. 16 (Sun.)	15:00-18:00
Nov. 17-19 (Mon.-Wed.)	07:30-18:00



On-site Registration Fee

Registration Fee

Regular	USD 650	KRW 715,000
Student	USD 350	KRW 385,000

Option (for Student)

Banquet	USD 50	KRW 55,000

Regular's Registration Fee Includes

Admission to All Sessions, Abstracts (on USB), Welcome Reception, Lunch, Banquet

Student's Registration Fee Includes

Admission to All Sessions, Abstracts (on USB), Welcome Reception, Lunch

Personal Envelope

A personal envelope of registration is provided to each participant at the registration desk. It contains a name badge, coupons for welcome reception beverage, lunches, banquet and a receipt for the registration fee.

Name Badge
Admission to all session rooms and social programs

Coupons
Welcome reception beverage (Nov. 16)
Lunch (Nov. 17-19)
Banquet (Nov. 18)

Receipt
Receipt for the registration fee

Also, participants will be given a program book and a USB flash drive containing the electronic version of abstracts at the registration desk.

Program Book
Useful information of ENGE 2014 conference and every session

USB flash drive for PC & Smart Phone
Containing the electronic version of abstracts

Certificate of Attendance

A certificate of attendance will be issued upon request at the registration desk after 3 p.m. during the conference.

Catering Facilities

All participants who registered for ENGE 2014 can enjoy lunch & coffee without additional fees (included in the registration fee).

Coffee Break: Ramada Ballroom Lobby (2F)

Fresh coffee and tea will be served during the break times as below.

Operating Time	Nov. 17 (Mon.)	14:30-14:45
	Nov. 18 (Tue.)	16:00-16:30
	Nov. 19 (Wed.)	10:45-11:00 / 15:00-15:30

Lunch: Korean Restaurant (1F)

Lunch will be provided to all participants during the conference. Please bring your lunch coupons with your name badge.

Operating Time	Nov. 17-19 (Mon.-Wed.)	11:30-13:00

General Information

Announcement & Message Board

Announcement and message board will be set up near the registration desk area so that participants can get useful information from the secretariat or other participants.

Internet Lounge

The internet lounge located in the Ramada Ballroom Lobby (2F) may be used by conference participants free of charge to access the web.

Wireless Internet Access

Free WiFi is available in the ENGE 2014 venue as well as hotel room.
ID: RAMADA or RAMADA_PAD

ATM (Automated Teller Machines)

Participants who carry internationally recognized credit cards can get cash advances in Korean Won at the Automated Teller Machines installed in Ramada Plaza Jeju Hotel.
*The nearest ATM from the Ramada Ballroom Lobby is located in the front side of Casino (2F), Ramada Plaza Jeju Hotel.

Mobile Device Charging Service

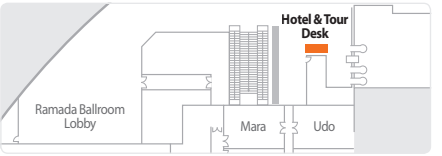
Mobile device charging is available at the registration desk.

Hotel & Tour

Location: Ramada Ballroom Lobby (2F)

Operating Time

Nov. 16 (Sun.)	15:00-18:00
Nov. 17-19 (Mon.-Wed.)	09:00-18:00



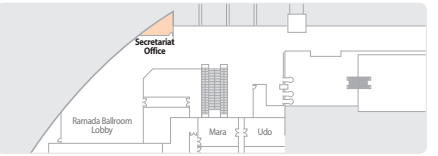
Hotel	Address	Distance from Venue	Tel
Ramada Plaza Jeju Hotel	66 Topdong Ro, Jeju	Venue	+82-64-729-8100
KAL Hotel Jeju	151 Jungang-ro, Jeju City, Jeju	10 minutes by taxi 30 minutes on foot	+82-64-724-2001
Jeju Pacific Hotel	Seosaro 20, Jeju-si, Jeju	5 minutes by taxi 15 minutes on foot	+82-64-758-2511
Jeju Ocean Suites	74 Tapdong Haean-ro, Jeju	5 minutes on foot	+82-64-720-6000
Jeju Palace Hotel	1192-18, Samdo 2 Dong, Jeju	10 minutes on foot	+82-64-753-8811
Hotel Robero	26 Gwandeok-ro, Jeju City, Jeju	7 minutes by taxi 20 minutes on foot	+82-64-757-7111

Secretariat Office

Location: Ramada Ballroom Lobby (2F)

ENGE 2014 participants can use the secretariat office as lost & found and coat room during the conference.

Operating Time	
Nov. 16 (Sun.)	15:00-18:00
Nov. 17-19 (Mon.-Wed.)	07:30-18:00



Social Programs

Welcome Reception

Date & Time	17:00-18:00, Nov. 16 (Sun.)
Place	Ramada Ballroom Lobby

You will experience a warm welcome from the host of ENGE 2014. All participants are highly welcome. Light refreshments and beverage will be provided for all participants.

Banquet

Date & Time	18:00-20:00, Nov. 18 (Tue.)
Place	Ramada Ballroom

The banquet will be a great opportunity to meet and network with colleagues in pleasant surroundings. Enjoy the climax of ENGE 2014 with an excellent dinner.

Best Poster Awards

Date & Time	11:00-11:30, Nov. 19 (Wed.)
Place	Ballroom 1

"ENGE 2014 Best Poster Awards" will be given to outstanding contribution to the field of electronic materials and nanotechnology for green environment among posters presented at the conference.

Technical Program

Short Courses



Course 1 **Atomic Monolayer Materials for Novel Device Platforms** Ara / 8F

[1]**Moon-Ho Jo** (POSTECH-IBS, Korea) 19:00-22:00, Nov. 16 (Sun.)

[2]**Jong-Hyun Ahn** (Yonsei University, Korea)

Atomic Two-Dimensional Materials as Novel Device Platforms:
Hexagonal Transition Metal Dichalcogenides and Cubic Semiconductors

Course 2 **Metamaterials: Introduction to Materials Scientists** Ora / 8F

[3]**Namkyoo Park** (Seoul National University, Korea) 19:00-22:00, Nov. 16 (Sun.)

Metamaterials for the Extreme Control of Waves:
Principles, Design Methods, Application Examples, and Outlook

Plenary Speakers



Plenary Speaker 1 Ballroom 1 / 2F

Zhong Lin Wang (Georgia Institute of Technology, USA) 13:00-13:45, Nov. 17 (Mon.)

Nanogenerators for Self-powered Systems and Piezotronics for Functional Devices

Plenary Speaker 2 Ballroom 1 / 2F

Rodney S. Ruoff (Ulsan National Institute of Science and Technology, Korea) 13:45-14:30, Nov. 17 (Mon.)

Carbon and Related Materials for the Future

Plenary Speaker 3 Ballroom 1 / 2F

Hideo Hosono (Tokyo Institute of Technology, Japan) 10:00-10:45, Nov. 19 (Wed.)

Elecrides : Materials, Properties and Application

Topic Abbreviation

Conference Topics	Abbreviation Oral	Poster
General Session		
Materials for Advanced Electronic Applications		
A. Materials and Processes for Logic and Memory Devices	**MA**	**MAP**
B. Materials and Process for BEOL and 3D Integration	**MB**	**MBP**
C. Computational Design and Analysis of Electronic Materials		**MCP**
D. Sensors and Oxide Semiconductor	**MD**	**MDP**
E. Magnetism and Magnetic Materials	**ME**	**MEP**
F. Materials and Process for Neuromorphic / Multivalued Logic Devices	**MF**	**MFP**
Nanoscale Materials, Processes and Devices		
A. Carbon Nanomaterials & Other Nanoscale Materials	**NA**	**NAP**
B. Soft Nanomaterials and Nanobiomaterials	**NB**	**NBP**
C. Top Down & Bottom Up Nanopatterning & Nanofabrication	**NC**	**NCP**
D. Nanoscale Devices & Characterization	**ND**	**NDP**
Materials and Devices for Frontier Display		
A. Flexible, Stretchable Displays and Printed Electronics	**DA**	**DAP**
B. LED Materials and Devices	**DB**	**DBP**
C. OLED Materials and Devices	**DC**	**DCP**
D. TFT Materials and Devices	**DD**	**DDP**
E. Emerging Materials and Devices for Unconventional Displays	**DE**	**DEP**
Energy Materials and Technology		
A. Advanced Li-ion Battery Materials	**EA**	**EAP**
B. New Energy Storage Systems and Materials beyond LIB	**EB**	**EBP**
C. Advances in Fuel Cells and Hydrogen Storage	**EC**	**ECP**
D. Water Splitting and Solar Fuel	**ED**	**EDP**
E. Photovoltaic Materials and Engineering	**EE**	**EEP**
F. Thermoelectric Power Devices and Nanogenerators	**EF**	**EFP**
Computational Materials Science		
A. Material Discovery by High-throughput Screening		**CAP**
B. Simulation of Organic Materials		**CBP**

Session Timetable

Nov. 17 (Mon.)

08:00-09:00 **Poster 1**	Ramada Ballroom Lobby Electronic Materials **MAP**(P.63) + **MBP-1**(P.64) + **MCP**(P.66) + **MFP**(P.66) Nano **NBP**(P.67) + **NCP**(P.68) Display **DBP-1**(P.70) + **DCP**(P.72) Energy **EAP**(P.74) + **EEP-1**(P.77) Computational MS **CAP**(P.82) + **CCP**(P.83) + **CFP**(P.84)									
09:00-12:00 **Oral**	Ballroom 2 **S1** (P.17)	Udo **MA + MF** (P.18)	Ballroom 3 **S10** (P.21)	Chuja **DC** (P.22)	Ballroom 1 **S16** (P.24)	Mara **EE-1** (P.25)		Ballroom 4 **S18** (P.28)	Ara **S5** (P.30)	Ora **NB + NC** (P.32)
12:00-13:00	Lunch (Korean Restaurant 1F)									
13:00-14:30	**Plenary Talk 1, 2** (Ballroom 1)									
14:30-14:45	Coffee Break									
14:45-17:45 **Oral**	Ballroom 2 **S2** (P.17)	Udo **MB** (P.19)	Ballroom 3 **S11** (P.22)	Chuja **DB** (P.23)	Ballroom 1 **S15** (P.24)	Mara **EE-2** (P.26)	Biyang **EA-1** (P.27)	Ballroom 4 **S20** (P.29)	Ara **S8** (P.31)	Ora **NA-1** (P.33)
17:45-19:00 **Poster 1**	Ramada Ballroom Lobby Electronic Materials **MAP**(P.63) + **MBP-1**(P.64) + **MCP**(P.66) + **MFP**(P.66) Nano **NBP**(P.67) + **NCP**(P.68) Display **DBP-1**(P.70) + **DCP**(P.72) Energy **EAP**(P.74) + **EEP-1**(P.77) Computational MS **CAP**(P.82) + **CCP**(P.83) + **CFP**(P.84)									

Nov. 18 (Tue.)

08:00-09:00 **Poster 2**	Ramada Ballroom Lobby Electronic Materials **MBP-2**(P.85) + **MDP**(P.85) Nano **NAP**(P.89) Display **DAP**(P.96) + **DBP-2**(P.98) Energy **EBP**(P.100) + **EDP**(P.102) + **EEP-2**(P.103) Computational MS **CBP**(P.107) + **CDP**(P.107) + **CEP**(P.109)									
09:00-12:00 **Oral**	Ballroom 2 **S3** (P.35)	Udo **MD** (P.36)	Ballroom 3 **S12** (P.38)	Chuja **DA** (P.40)	Ballroom 1 **S14** (P.42)	Mara **EF** (P.43)	Biyang **EA-2 + EB** (P.45)	Ballroom 4 **S21** (P.47)	Ara **S7** (P.48)	Ora **NA-2** (P.50)
12:00-13:00	Lunch (Korean Restaurant 1F)									
13:00-16:00 **Oral**	Ballroom 2 **S4** (P.35)	Udo **ME** (P.37)	Ballroom 3 **S13** (P.39)	Chuja **DD + DE** (P.41)	Ballroom 1 **S17** (P.42)	Mara **EC + ED** (P.44)		Ballroom 4 **S19** (P.47)	Ara **S6** (P.49)	Ora **ND** (P.51)
16:00-18:00 **Poster 2**	Ramada Ballroom Lobby Electronic Materials **MBP-2**(P.85) + **MDP**(P.85) Nano **NAP**(P.89) Display **DAP**(P.96) + **DBP-2**(P.98) Energy **EBP**(P.100) + **EDP**(P.102) + **EEP-2**(P.103) Computational MS **CBP**(P.107) + **CDP**(P.107) + **CEP**(P.109)									
18:00-20:00	**Banquet** (Ramada Ballroom)									

Nov. 19 (Wed.)

08:00-10:00 **Poster 3**	Ramada Ballroom Lobby Electronic Materials **MEP**(P.111) Nano **NDP**(P.114) Display **DDP**(P.118) + **DEP**(P.121) Energy **ECP**(P.122) + **EFP**(P.124)									
10:00-10:45	**Plenary Talk 3** (Ballroom 1)									
10:45-11:00	Coffee Break									
11:00-11:30	**Poster Awards** (Ballroom 1)									
11:30-13:00	Lunch (Korean Restaurant 1F)									
13:00-15:00 **Oral**	Ballroom 2 **S24-1** (P.53)		Ballroom 3 **S22-1** (P.54)	Chuja **S26-1** (P.55)	Ballroom 1 **S25-1** (P.56)		Biyang **S9** (P.58)	Ballroom 4 **S23-1** (P.58)	Ara **S27-1** (P.59)	Ora **S28-1** (P.61)
15:00-15:30	Coffee Break									
15:30-18:00 **Oral**	Ballroom 2 **S24-2** (P.53)		Ballroom 3 **S22-2** (P.55)	Chuja **S26-2** (P.56)	Ballroom 1 **S25-2** (P.57)			Ballroom 4 **S23-2** (P.59)	Ara **S27-2** (P.60)	Ora **S28-2** (P.61)

Presentation Guidelines

Oral Presentation

- Length of presentation material should be in accordance with your time assigned as follows;
  - Keynote & Invited Speech: 25 min. presentation + 5 min. Q&A
  - Oral Presentation: 12 min. presentation + 3 min. Q&A
- Due time is strongly encouraged.
- Presentation material is to be concise, succinct, and clearly understood.
- Presenters should prepare the presentation file in MS-PowerPoint in English.
- Please bring your PowerPoint presentation file on a CD or USB flash drive and submit it to the operator of each presentation room at least 15 minutes before each session starts.
- Each presenter is also asked to submit his/her own short autobiography to the session chair at least 10 minutes before each session starts.

No Camera & No Record

Please note that photo taking and video recording are strictly prohibited in the presentation room.

Poster Presentation

- Each poster will be assigned a panel, which has its own paper's number, at the conference.
- Poster presenters are required to prepare their own poster materials in advance.
- Please remove your poster within 1 hour after your session is ended. All remaining posters will be removed.
- The material such as some scissors and tapes will be provided in poster session place.

Presentation Time

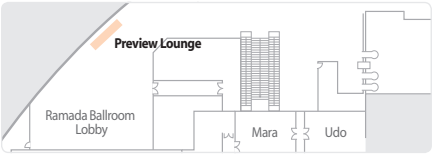
Date	Time	Detail	Available Time for Poster Attachment
Nov. 17 (Mon.)	08:00-09:00	Selection of Winning Poster	Post presentation from **10 PM, the day before presentation date to 30 min. prior the beginning of the Morning Session not to be considered as ABSENCE.**
	17:45-19:00	Announcement of Winning Poster	
Nov. 18 (Tue.)	08:00-09:00	Selection of Winning Poster	
	16:00-18:00	Announcement of Winning Poster	
Nov. 19 (Wed.)	08:00-10:00	Selection & Announcement of Winning Poster	
	11:00-11:30	Poster Awards	

Preview Lounge

Location: Ramada Ballroom Lobby (2F)

Operating Time

Nov. 16 (Sun.)	15:00-18:00
Nov. 17-19 (Mon.-Wed.)	07:30-18:00



- Every presenter should visit the preview lounge and check the final version of the presentation file 3 hours before each session begins to ensure the backgrounds, graphics, and linked images appear properly.
- If a presenter has any animation file(s), movie clip(s), DVD or sound in his or her presentation and requires other type(s) of equipment, please let the staff know 6 hours prior to your session.
- Presentation materials should be brought on a CD-ROM or USB flash drive.
- If a presenter brings his or her own laptop, especially MAC, he or she should also let the staff know 6 hours prior to your session.

Oral Presentation

Materials for Flexible Electronics

Nov. 17, 2014 (Mon.)

S1 (Materials for Flexible Electronics) Ballroom 2

Chairs: Jiyoung Kim (University of Texas at Dallas) 09:00-11:30
Pil-Ryung Cha (Kookmin University)

S1-3264 **Flexible Electronics and Self-Assembly**
09:00-09:30 Jaegab Lee
Keynote Speech *Kookmin University*

S1-1642 **2D Materials and Flexible Electronics**
09:30-10:00 Robert Wallace
Keynote Speech *University of Texas at Dallas*

S1-2338 **II-VI Materials and Devices for Large Area Radiation Sensors**
10:00-10:30 Manuel Quevedo[1], Israel Mejia[1], John Murphy[1], Lindsey Smith[1], David Allee[2], Bruce Gnade[1]
Invited Speech *[1]University of Texas at Dallas, [2]Arizona State University*

S1-2076 **Semiconducting Oxide Material & Device Development for Flexible and Transparent Electronic Platforms**
10:30-11:00 Husam Alshareef, Pradipta Nayak, Zhenwei Wang, Alfonso Caraveo
Invited Speech *King Abdullah University for Science & Technology*

S1-1315 **Low-temperature Sol-gel Metal Oxide Materials for Transistor Application: Photoactivation, Patterning, Printing, and Beyond**
11:00-11:30 Myung-Han Yoon, Sungjun Park, Sujin Sung, Wonjune Lee, Seung-Bok Cha, Dong-Hee Kang
Invited Speech *Gwangju Institute of Science and Technology*

Neuromorphic Electronics and Systems

Nov. 17, 2014 (Mon.)

S2 (Neuromorphic Electronics and Systems) Ballroom 2

Chair: Hyunsang Hwang (Pohang University of Science and Technology) 14:45-17:15

S2-0291 **Emerging Resistive Memory Technology for Neuromorphic Systems and Applications**
14:45-15:15 Manan Suri
Invited Speech *Indian Institute of Technology Delhi*

S2-0618 **Implementation of Short- and Long-term Memory and Current-Steering Digital-to-Analog Conversion Using Si Based Charge Trap Memory**
15:15-15:45 Jong-Ho Lee, Myoung-Sun Lee, Chul-Heung Kim
Invited Speech *Seoul National University*

S2-2986 **A Circuit of Random Weight Change Learning for Memristor Bridge Synapse-based Multilayer Neural Networks**
15:45-16:15
Invited Speech
Hyongsuk Kim, Changju Yang
Chonbuk National University

S2-1616 **Nano-scale Memristor Crossbar Array for Neuromorphic Applications**
16:15-16:45
Invited Speech
Truong Ngoc Son, Kyeong-Sik Min
Kookmin University

S2-1033 **Inference in Population Reperesentation of Noisy Artificial Neurons**
16:45-17:15
Invited Speech
Hyungkwang Lim, Doo Seok Jeong
Korea Institute of Science and Technology

Materials and Processes for Logic and Memory Devices
Materials and Process for Neuromorphic / Multivalued Logic Devices

Nov. 17, 2014 (Mon.)

MA (Materials and Processes for Logic and Memory Devices)
MF (Materials and Process for Neuromorphic / Multivalued Logic Devices) Udo

Chairs: Jungwoo Oh (Yonsei University) 09:00-12:00
Moonho Ham (Gwangju Institute of Science and Technology)

MA-2158 **Cost Effective Integration of Contacts for the Vertically Stacked Multi-level Gates and for the Epitaxially Grown Single-crystal Bit Lines in 3D NAND Flash**
09:00-09:30
Invited Speech
Wan-Gyu Lee[1], Jeoung Woo Kim[1], Ho-Seung Jeon[1], Ga-Won Lee[2], Seung-Dong Yang[2]
[1]National NanoFab Center, [2]Chungnam National University

MA-2516 **Suppression of Void Formation by Optimizing Deposition Conditions of Carbon doped Ge2Sb3Te5 Films for Cyclic Endurance of Phase Change Memory**
09:30-09:45
J. H. Park[1,2], S. W. Kim[1], J. H. Kim[1], D. H. Ko[1], Z. Wu[2], J. K. Ahn[2], S. L. Cho[2], D. H. Ahn[2], J. M. Lee[2], S. U. Nam[2]
[1]Yonsei University, [2]Samsung Electronics Co., Ltd.

MA-2041 **The Influence of Adhesive Materials on 3D Integrated Graphene-FETs**
09:45-10:00
Syed Mohammad Najib Hasan, Sang Kyung Lee, Sangchul Lee, Byoung Hun Lee
Gwangju Institute of Science and Technology

MA-2011 **Contact Resistance Modulation using Area to Peripheral Ratio of Graphene Contact Pattern**
10:00-10:15
Chunhum Cho, Sang Kyung Lee, Sangchul Lee, Young Gon Lee, Woojin Park, Jinwoo Noh, Hyeon Jun Hwang, Byoung Hun Lee
Gwangju Institute of Science and Technology

MA-1885 10:15-10:30
Formation of Ge-Sb-Te Thin Film by Atomic Layer Deposition of Ge-Sb Thin Films and its Tellurization
Byeol Han[1], Yu-Jin Kim[1], Jae-Min Park[1], Wonyong Koh[2], Won-Jun Lee[1]
[1]Sejong University, [2]UP Chemical Co., Ltd.

MA-1394 10:30-10:45
Designing Desirable Resistive Random-access-memory by First-principles Approach
Moon Young Yang[1], Katsumasa Kamiya[2], Blanka Magyari-Köpe[3], Yoshio Nishi[3], Kenji Shiraishi[4]
[1]Korean Advanced Institute of Science and Technology, [2]Kanagawa Institute of Technology, [3]Stanford University, [4]Nagoya University

MA-1267 10:45-11:00
Structural Characterization of Ohmic Contact using Cu Outer Layer for AlGaN/GaN High Electron Mobility Transistors
Seonno Yoon, Jangwon Bang, Jungwoo Oh
Yonsei University

MF-1765 11:00-11:15
Develop and Characterise FLY ASH and Polymer Composites for Dielectric Capacitor Applications
Sri Bandyopadhyay, Danyang Wang, Alagu Anbanantha Moorthy
University of New South Wales, Sydney

MF-1435 11:15-11:30
Ion-gel Gated E-nanowire Synaptic Transistors
Wentao Xu, Sung-Yong Min, Tae-Sik Kim, Tae-Woo Lee
Pohang University of Science and Technology

MF-1285 11:30-11:45
Reliability of Neural Information Conveyed by Unreliable Neuristor-based Leaky Integrate -and-fire Neurons
Hyungkwang Lim[1], Jun Yeong Seok[1], Vladimir Kornijcuk[2], Cheol Seong Hwang[1], Doo Seok Jeong[2]
[1]Seoul National University, [2]Korea Institute of Science and Technology

MF-1193 11:45-12:00
Multiprotocol-induced Plasticity of Artificial Synapses
Vladimir Kornijcuk[1], Omid Kavehei[2], Hyungkwang Lim[1], Jun Yeong Seok[3], Seong Keun Kim[1], Inho Kim[1], Byung Joon Choi[3], Doo Seok Jeong[1]
[1]Korea Institute of Science and Technology, [2]University of Melbourne, [3]Seoul National University of Science and Technology

Materials and Process for BEOL and 3D Integration

Nov. 17, 2014 (Mon.)

MB (Materials and Process for BEOL and 3D Integration) Udo

Chairs: Changhwan Choi (Hanyang University) 14:45-18:15
Myung-Han Yoon (Gwangju Institute of Science and Technology)

MB-0280 14:45-15:15 Invited Speech
On the Potential of Tungsten as the Next-generation Semiconductor Interconnects
Dooho Choi
Korea Railroad Research Institute

MB-3169 15:15-15:30
Electromigration-limited Reliability of Advanced Metallization for Memory Devices
Kyung-Tae Jang, Yong-Jin Park, Min-Woo Jeong, Seung-Min Lim, Han-Wool Yeon, Ju-Young Cho, Young-Chang Joo
Seoul National University

MB-3048 15:30-15:45
A Sludge Formation Mechanism of the Methanesulfonic Acid based Tin-Silver Electrolyte Bath for Flip-chip Packaging
Mi-Seok Park, HyukSang Kwon
Korea Advanced Institute of Science and Technology

MB-3030 15:45-16:00
Properties of Plasma-enhanced Atomic Layer Deposited TiCx Films as a Diffusion Barrier for Cu Metallization
Sang-Kyung Choi, Hangil Kim, So Ik Bae, Taehoon Cheon, Soo-Hyun Kim
Yeungnam University

MB-3022 16:00-16:15
Atomic Layer Deposition of Ru Thin Films using a New Beta-diketonate Ru Precursor and NH3 Plasma as a Reactant and Application to the Seed Layer for Cu Metallization
Jae-Hun Jung[1], Seung-Joon Lee[1], Hyun-Jung Lee[1], Taehoon Cheon[1], So Ik Bae[1], Soo-Hyun Kim[1], Masayuki Saito[2], Kazuharu Suzuki[2], Shunichi Nabeya[2], Jeongyeop Lee[3], Sangdeok Kim[3], Seungjin Yeom[3]
[1]Yeungnam University, [2]TANAKA Kikinzoku Kogyo K.K, [3]SK Hynix Semiconductor

MB-2991 16:15-16:30
Direct Bonding of Flexible Polymer Assisted by Plasma Polymerization
Kwang-Ho Jung, Kwang-Seok Kim, Seung-Boo Jung
Sungkyunkwan University

MB-2933 16:30-16:45
Effect of Moisture Absorption on the Warpage of Flexible Polymer Substrates
Jae-Bum Pyo[1], Tae-ik Lee[1], Cheolgyu Kim[1], Min Sung Kim[2], Taek-Soo Kim[1]
[1]Korea Advanced Institute of Science and Technology, [2]Samsung Electro-Mechanics

MB-2590 16:45-17:00
Mechanical and Electrical Reliabilities of Sn-Bi-Ag/Cu Solder Joints in LED Package with Heat Treatment
Woo-Ram Myung, Yongil Kim, Min-Kwan Ko, Seung-Boo Jung
Sungkyunkwan University

MB-2322 17:00-17:15
Study on Adhesion Change between Metal and Polymer When Exposed to Hot Humid Environment
Key-one Ahn[1], Se-Hoon Park[2], Young-Ho Kim[1]
[1]Hanyang University, [2]Korea Electronics Technology Institute

MB-2088 17:15-17:30
Effect of Zn Concentration of Cu-Zn Wetting Layers on Interfacial Reaction of Sn-3.0 Ag 0.5 Cu Solder
Jae Yong Park, Young Min Kim, Young-Ho Kim
Hanyang University

MB-1976 **Adhesion of Electroless-plated Copper to the Polymer Substrate**
17:30-17:45 Sun-Chul Kim[1], Ha-Seob Seong[1], Key-one Ahn[1], Dong Joo Choi[1], Ja-Yeon Lee[1], Young-ju Ko[2], Suk-beom Yoon[2], Mi-lim Seo[2], Young-Ho Kim[1]
[1]Hanyang University, [2]DAEDUCK Electronics co. LTD

MB-1383 **Fabrication of Low-Temperature Polycrystalline Silicon Waveguide Crystallized by NiSi2 Seed-Induced Crystallization**
17:45-18:00 Yoon Young Bae[1], Jae Hyo Park[2], Donghwan Ahn[1]
[1]Koomin University, [2]Seoul National University

MB-0550 **Fundamental Study of Nucleation and Growth of Cu-Ag Alloy Layers Directly Electrodeposited on W Diffusion Barrier for Microelectronic Device Interconnect**
18:00-18:15 Kang O Kim, Sunjung Kim
University of Ulsan

Advanced LED Technologies

Nov. 17, 2014 (Mon.)

S10 (Advanced LED Technologies) Ballroom 3

Chair: Jong Kyu Kim (Pohang University of Science and Technology) 09:00-11:30

S10-0201 **Self-Powered Bio-Integrated Flexible GaN and GaAs LED**
09:00-09:30 Keon Jae Lee
Invited Speech *Korea Advanced Institute of Science and Technology*

S10-1542 **Morphology Control of GaN-based Nano-LEDs Grown by Pulsed-mode MOCVD Epitaxy and its Material/Optical Chracterization**
09:30-10:00 Si-Young Bae[1], Jun-Yeob Lee[2], Byung Oh Jung[1], Jung-Hong Min[2], Dong-Seon Lee[2], Yoshihiro Kato[3], Masataka Imura[4], Yoshio Honda[1], Hiroshi Amano[1]
Invited Speech *[1]Nagoya University, [2]Gwangju Institute of Science and Technology, [3]Tokyo Electron Ltd, [4]National Institute for Materials Science*

S10-3189 **Enhanced Optical and Electrical Properties of AlGaN-based Deep-Ultraviolet Light-Emitting Diodes by Selective-Area-Grown GaN Microstructures**
10:00-10:30 Jong Kyu Kim
Invited Speech *Pohang University of Science and Technology*

S10-2420 **Alumina Cavity Pattern on Substrate for Improved GaN Epitaxy and Enhanced LED Performance**
10:30-11:00 Daeyoung Moon[1], Jeonghwan Jang[1], Bumho Kim[2], Kisu Joo[1], Duk-Kyu Bae[2], Yongjo Park[2], Euijoon Yoon[1]
Invited Speech *[1]Seoul National University, [2]Advanced Institute of Convergence Technology*

S10-1549 **Nitride Semiconductor Nanostructures for Solid State Lighting and Beyond**
11:00-11:30 Yong-Hoon Cho
Invited Speech *Korea Advanced Institute of Science and Technology*

Bio MEMS & Imaging Technologies

Nov. 17, 2014 (Mon.)

S11 (Bio MEMS & Imaging Technologies) Ballroom 3

Chair: Won Gun Koh (Yonsei University) 14:45-17:45

S11-3104 **Microfluidic Devices with Integrated Biosensors for Cell Analysis**
14:45-15:15 Alexander Revzin
Invited Speech *University of California, Davis*

S11-3064 **Bioanalytical Devices for Real Time Diagnosis for Disease, Environment, and Human Emotion**
15:15-15:45 Hyo-Il Jung
Invited Speech *Yonsei University*

S11-3262 **On-Chip Lipid Microfluidics: Controlled Self-Assembly to Form Biomembranes**
15:45-16:15 Nam-Joon Cho
Invited Speech *Nanyang Technological University*

S11-3066 **Polymeric Biomaterials for Gene, Drug and Nitric Oxide Delivery**
16:15-16:45 Won Jong Kim
Invited Speech *Pohang University of Science and Technology*

S11-0362 **Development of In Situ Biocompatible Hydrogel for Targeted Anti-cancer Therapy**
16:45-17:15 Saji Uthaman, Sunghoon Cho, Sung Jun Park, Jong-Oh Park, Sukho Park, In-Kyu Park
Invited Speech *Chonnam National University*

S11-0240 **Microfluidic Encapsulation and Controlled Release**
17:15-17:45 Shin-Hyun Kim
Invited Speech *Korea Advanced Institute of Science and Technology*

OLED Materials and Devices

Nov. 17, 2014 (Mon.)

DC (OLED Materials and Devices) Chuja

Chair: Pooi See Lee (Nanyang Technological University) 09:00-10:30

DC-3156 **New Purification Technology of HTL Materials using Ionic Liquids in Vacuum**
09:00-09:15 T.W. Kim, J.C. Park, M.J. Kang, A.R. Lee
Korea Institute of Industrial Technology

DC-2929 09:15-09:30
Polyelectrolyte/Graphene Oxide Barrier Film for Flexible OLED
Seung-Yeol Yang, Hwa-Yong Lee, Yong-Seog Kim
Hongik University

DC-2135 09:30-09:45
Ultra-thin Metal/Dielectric Transparent Film for Optoelectronic Devices
Illhwan Lee, Sungjun Kim, Jong-Lam Lee
Pohang University of Science and Technology

DC-0484 09:45-10:00
OLED Encapsulation using a Double Line Structure of Polymer and Low Melting Point Alloy
Cheol-Hee Moon
Hoseo University

DC-0352 10:00-10:15
Fine-tuning Transition Metal Oxides Thickness in Blue Organic Light-emitting Diode
Tien-Lung Chiu, Ya-Ting Chuang
Yuan Ze University

DC-0824 10:15-10:30
High Quality Inductively Coupled Plasma Chemical Vapor Deposited SiOxNy Gas Barrier Films for OLED Display
Sunghwan Bang, Jae Ho Suk, Taejoon Choi, Kunsu Kim, Nongmoon Hwang
Seoul National University

LED Materials and Devices

Nov. 17, 2014 (Mon.)

DB (LED Materials and Devices) Chuja

Chairs: Yongjo Park (Seoul National University) 14:45-15:45
Kihyon Hong (Korea Institute of Materials Science)

DB-2800 14:45-15:00
Fabrication of Copper Nanocomposite Paste for High-Power LED Package
Kwang-Seok Kim, Bum-Geun Park, Seung-Boo Jung
Sungkyunkwan University

DB-2576 15:00-15:15
Design and Growth of High Efficiency Deep Ultraviolet Light Emitting Diodes with Optimized Active Layer
Jinwan Kim, Kyungjae Lee, Minhwan Jeon, Daeyong Eom, Jaedo Pyun, Cheon Heo, Okhyun Nam
Korea Polytechnic University

DB-2518 15:15-15:30
Elastic Softening of Sapphire by Si Diffusion for Dislocation-free GaN
Sung Bo Lee[1], In-Sung Park[1], Young-Min Kim[2], Seung Jo Yoo[2], Jin-Gyu Kim[2], Heung Nam Han[1], Dong Nyung Lee[1]
[1]Seoul National University, [2]Korea Basic Science Institute

DB-2235 **Computational Analysis of ZnO/MgO Hierarchical Nano Branched Structure on V-LED with Finite-difference Time-domain Method**
15:30-15:45
Jae Yong Park[1], Byeong Uk Ye[2], Buem Joon Kim[1], Jeong Min Baik[2], Jong-Lam Lee[1]
[1]Pohang University of Science and Technology, [2]Ulsan National Institute of Science and Technology

Recent Progress on Advanced Batteries

Nov. 17, 2014 (Mon.)

S16 (Recent Progress on Advanced Batteries) Ballroom 1

Chair: Kisuk Kang (Seoul National University) 09:00-11:30

S16-0729 **Comparative Studies of Li vs. Na Systems: Phase Diagram and New Polyanion Cathodes**
09:00-09:30
Invited Speech
Atsuo Yamada
The University of Tokyo

S16-2483 **Bio-inspired Electrode Materials for Li Rechargeable Batteries**
09:30-10:00
Invited Speech
Kisuk Kang
Seoul National University

S16-2347 **First Principles Design of Lithium Superionic Conductor Electrolytes for Lithium-Ion Rechargeable Batteries**
10:00-10:30
Invited Speech
Shyue Ping Ong[1], Yifei Mo[2], William D Richards[3], Lincoln Miara[4], Hyosug Lee[4], Gerbrand Ceder[3]
[1]University of California, San Diego, [2]University of Maryland, College Park, [3]Massachusetts Institute of Technology, [4]Samsung Advanced Institute of Technology

S16-0547 **Recent Progress on Anode Materials for Room-temperature Stationary Sodium-ion Batteries**
10:30-11:00
Invited Speech
Yong-Sheng Hu
Institute of Physics, Chinese Academy of Sciences

S16-1653 **A Study on the Extra Capacity in Metal Oxide Electrode Materials for Li Rechargeable Batteries**
11:00-11:30
Invited Speech
Hyunchul Kim, Yunok Kim, Won-Sub Yoon
Sungkyunkwan University

Nanogenerators for Self-Powering Electronics

Nov. 17, 2014 (Mon.)

S15 (Nanogenerators for Self-Powering Electronics) Ballroom 1

Chairs: Jeong Min Baik (Ulsan National Institute of Science and Technology) 14:45-18:15
Sang-Woo Kim (Sungkyunkwan University)

S15-2517 **Nanoscale Energy Harvesting: Why and How?**
14:45-15:15
Invited Speech
Christian Falconi
University of Rome Tor Vergata

S15-3044 **Electrospun Fibrous Piezoelectric Nanogenerators for Self-powered Flexible Electronics**
15:15-15:45 Jung Ho Kim
Invited Speech *University of Wollongong*

S15-3358 **Transparent Flexible Nanogenerators for Self-Powering Wearable/Portable Electronics**
15:45-16:15 Sang-Woo Kim
Invited Speech *Sungkyunkwan University*

S15-0682 **A Flexible Piezo-triboelectric Hybrid Generator for Mechanical Energy Harvesting**
16:15-16:45 Chong-Yun Kang, Woo Suk Jung, Seok-Jin Yoon
Invited Speech *Korea Institute of Science and Technology*

S15-1288 **Ordered Nanostructured Platforms for High-Power Generation and Self-Powered Sensors**
16:45-17:15 Jeong Min Baik
Invited Speech *Ulsan National Institute of Science and Technology*

S15-1084 **Robust, Large-area Piezoelectric Nanogenerator based on Aluminum Foil and its Applications**
17:15-17:45 Sangmin Lee
Invited Speech *Chung-Ang University*

S15-0155 **Self-Powered Flexible Electronic Systems**
17:45-18:15 Keon Jae Lee
Korea Advanced Institute of Science and Technology

Photovoltaic Materials and Engineering

Nov. 17, 2014 (Mon.)

EE-1 (Photovoltaic Materials and Engineering 1) Mara

Chairs: Tien-Lung Chiu (Yuan Ze University) 09:00-10:45
Seok Joon Kwon (Korea Institute of Science and Technology)

EE-1-3165 **CIGS Thin Films Grown by One-step Sputtering Method Employing Selenium-contained Single Target**
09:00-09:15 Seung-Hyoun Lee, Jae-Chul Park, A-Ri Lee, Guk-Jong Song, Tae-Won Kim
Korea Institute of Industrial Technology

EE-1-3161 **Large Grain Growth of One-step Sputtered CIGS Thin Films by using CuSe Precursor Layer**
09:15-09:30 Jae-Cheol Park, Seung-Hyoun Lee, Tae-Won Kim
Korea Institute of Industrial Technology

EE-1-2380 09:30-09:45
Mesoporous Titania Single Nanocrystals for Efficient Dye-Sensitized Solar Cells
Jianjian Lin[1], Jung Ho Kim[1], Andrew Nattestad[1], Lianzhou Wang[2], Yoon-Uk Heo[3], Yusuke Yamauchi[4], Shixue Dou[1]
[1]University of Wollongong, [2]The University of Queensland, [3]Pohang University of Science and Technology, [4]World Premier International Research Center for Materials Nanoarchitectonics

EE-1-2305 09:45-10:00
Impact of Surface Texturing by Pulsed Nd: YAG Laser on Monocrystalline Silicon Solar Cell
Nurul Huda Abdul Razak[1], Nowshad Amin[1], Zeid A Alothman[2]
[1]Universiti Kebangsaan Malaysia, [2]King Saud University

EE-1-2184 10:00-10:15
Laser Irradiation for Controlling the Stoichiometry of MoO3 Hole Transport Layer in Flexible Organic Solar Cells
Wan Jae Dong, Jong-Lam Lee
Pohang University of Science and Technology

EE-1-1354 10:15-10:30
Knit Coir Mat Structured Cu2-xS Counter Electrode for Quantum Dot Sensitized Solar Cells
Dennyson Saviriraj, Hee-Je Kim, Prabakar Kandasamy
Pusan National University

EE-1-1891 10:30-10:45
Metal Oxide Semiconductor Nanostructure and its Composite for Application in Dye-sensitized Solar Cell and Visible Photocatalysis
Jhasaketan Nayak[1], Heje Kim[2]
[1]Indian School of MInes Dhanbad India, [2]Pusan National University

Nov. 17, 2014 (Mon.)

EE-2 (Photovoltaic Materials and Engineering 2)

Mara

Chairs: Byungha Shin (Korea Advanced Institute of Science and Technology)
Barry (C) Thompson (University of Southern California)

14:45-16:45

EE-2-0347 14:45-15:15 Invited Speech
Stable Efficiency of Organic Solar Cell with Etching Buffer Layer
Tien-Lung Chiu, Mi Zhang, Shun-Po Yang
Yuan Ze University

EE-2-1759 15:15-15:30
Organic-Acid Texturing of Transparent Electrodes Toward Broadband Light Trapping in Thin-Film Solar Cells
Woojin Lee[1], Taehyun Hwang[1], Seung-Yoon Lee[1], Joonhyeon Kang[1], Taeho Moon[2], Byungwoo Park[1]
[1]Seoul National University, [2]Dankook University

EE-2-1641 15:30-15:45
Oriented Hierarchical TiO_2 Nanotubes on Ti Substrate: Evolution of Nanostructures for Dye-Sensitized Solar Cells
Byungho Lee, Jae Ik Kim, Sangheon Lee, Taehyun Hwang, Seunghoon Nam, Kunsu Kim, Jaewon Kim, Byungwoo Park
Seoul National University

EE-2-1588 15:45-16:00 **Structural and Optical Properties of Pseudoternary CdxZn1-xSySe1-y Nanowires: Experimental and Computational Studies**
Seok Joon Kwon, Jae-Gwan Park
Korea Institute of Science and Technology

EE-2-1155 16:00-16:15 **Effect of NaOH Treatment on Photocatalysis of AgO/TiO2 Film processed by Plasma Electrolytic Oxidation**
Yeon Sung Kim[1], Kang Min Lee[1], Ki Ryong Shin[1], Young Gun Ko[2], Dong Hyuk Shin[1]
[1]Hanyang University, [2]Yeungnam University

EE-2-0899 16:15-16:30 **Optimized Electronic Structure of Cu(In,Ga)Se2 Solar Cell with Atomic Layer Deposited Zn(O,S) Buffer Layer for the High Power Conversion Efficiency**
Kiryung Eom, Shankara Kalanur, Hyungtak Seo
Ajou University

EE-2-3257 16:30-16:45 **Preparation of Ag Doped CuS Nanoparticles as an Efficient Counter Electrode for Quantum Dot Sensitized Solar Cell**
Dennyson Savariraj, Soo Kyoung Kim, Hee-Je Kim, Prabakar Kandasamy
Pusan National University

Advanced Li-ion Battery Materials

Nov. 17, 2014 (Mon.)

EA-1 (Advanced Li-ion Battery Materials 1) Biyang

Chairs: Shyue Ping Ong (University of California, San Diego) 14:45-17:15
Yong-Sheng Hu (Institute of Physics, Chinese Academy of Sciences)

EA-1-1457 14:45-15:15 Invited Speech **Polymeric Fullerene Coating for Durable Silicon Anodes of Lithium Ion Batteries**
Minwoong Joe[1], Young-Kyu Han[1], Kwang-Ryeol Lee[2], Hiroshi Mizuseki[2], Seungchul Kim[2]
[1]Dongguk University, [2]Korea Institute of Science and Technology

EA-1-3042 15:15-15:30 **Electrochemically Tunable Thermal Conductivity of Lithium Cobalt Oxide**
Jiung Cho[1], Paul Braun[2], David Cahill[2]
[1]Korea Basic Science Institute, [2]University of Illinois at Urbana-Champaign

EA-1-2874 15:30-15:45 **Si/C Nanocomposite Prepared by High Energy Mechanical Milling as Battery Electrode**
Umer Farooq[1], Jeong-Hee Choi[2], Syed Atif Pervez[1], Chil-Hoon Doh[1]
[1]University of Science and Technology, [2]Korea Electrotechnology Research Institute

EA-1-2734 15:45-16:00 **Codeposited Si - Al Thin Film Anode for Lithium Ion Batteries**
Vaishali Arun Patil[1], Arun Patil[2], Seok-Jin Yoon[1], Ji-Won Choi[1]
[1]Korea Institute of Science and Technology, [2]Vishwakarma College of Arts Commerce and Science

EA-1-2698 **Computational Studies on Graphite Intercalation Compounds for Graphene Exfoliation**
16:00-16:15 Gabin Yoon, Kisuk Kang
Seoul National University

EA-1-2634 **Inter-connected MoO2 Nanoparticles Self-assembled via Graphene-Encapsulation for High Performance Lithium Ion Batteries**
16:15-16:30 Kowsalya Palanisamy, Yunok Kim, Jeongbae Yoon, Hyejin Lee, Jaeseung Yoo, Woong Oh, Jaesang Yoon, Won-Sub Yoon
Sungkyunkwan University

EA-1-2618 **Anti-site Recombination in LiFePO4 Cathode for LIB: Combined DFT and Experimental Study**
16:30-16:45 Inchul Park, Kyu-Young Park, Kisuk Kang
Seoul National University

EA-1-1950 **Synthesis of Porous Silicon Using Self-assembly Technique of Gold as an Anode for Lithium Secondary Battery**
16:45-17:00 Martin Halim[1], Jung Sub Kim[2], Joong Kee Lee[1]
[1]Korea University of Science and Technology, [2]Korea University

EA-1-1947 **Polymer-templated C60/SnO2:F Anode Material for 3D Lithium Ion Batteries**
17:00-17:15 Chairul Hudaya[1], Martin Halim[1], Kyuha Lee[1], Bup Ju Jeon[2], Joong Kee Lee[1]
[1]Korea Institute of Science and Technology, [2]Shinhan University

Catalyst for Energy Applications

Nov. 17, 2014 (Mon.)

S18 (Catalyst for Energy Applications) Ballroom 4

Chairs: Jeong Woo Han (University of Seoul) 09:00-12:00
Kristin Persson (Lawrencec Berkeley National Laboratory)

S18-0299 **Quantum Chemical Analysis and Virtual Screening for Homogeneous Catalysts**
09:00-09:30 H. Shaun Kwak, Alexander Goldberg, Jacob Gavartin, David J. Giesen, Thomas F. Hughes,
Invited Speech Yixiang Cao, Woody Sherman, Mathew D. Halls
Schrodinger, Inc.

S18-0799 **Interplay of Ligand and Strain Effects in Determining the HCOOH Decomposition on the Bimetallic Pd/M Catalysts**
09:30-10:00
Invited Speech Hyung Chul Ham, Sangheon Lee, Jinwon Cho
Korea Institute of Science and Technology

S18-0432 **DFT Modeling of Water Oxidation: from Molecular Catalysts to Surface Oxides**
10:00-10:30 Simone Piccinin
Invited Speech *CNR-IOM (National Research Council - Institute of Materials)*

S18-0328 **Re-visiting the O/Cu System – When Metastable Surface Oxides Could Become an Issue!**
10:30-11:00 Norina Richter, Chang-Eun Kim, Aloysius Soon
Invited Speech *Yonsei University*

S18-0526 **Silicene for Green Energy Battery Technology, Sensors and Electronic Devices**
11:00-11:30 Michelle J.S. Spencer
Invited Speech *RMIT University*

S18-0636 **Reaction Mechanisms of Self-regenerative Catalysts: Case Study of Pd-BaCeO3**
11:30-12:00 Chan-Woo Lee
Invited Speech *Korea Institute of Energy Research*

Materials Discovery

Nov. 17, 2014 (Mon.)

S20 (Materials Discovery) Ballroom 4

Chairs: Aloysius Soon (Yonsei University) 14:45-18:15
Simone Piccinin (National Research Council - Institute of Materials)

S20-0329 **Accelerated Discovery of Materials for Energy Applications based on Systematic Density-functional Calculations**
14:45-15:15
Keynote Speech Isao Tanaka
Kyoto University

S20-2540 **Combining Information Technology with First-Principles Modeling towards Materials Design for Energy Applications**
15:15-15:45
Keynote Speech Kristin Persson
Lawrence Berkeley National Laboratory

S20-0169 **High-throughput Quantum Chemistry and Virtual Screening for Materials Discovery**
15:45-16:15
Invited Speech Mathew D Halls, David J Giesen, Thomas F Hughes, Alexander Goldberg, Yixiang Cao, H Shaun Kwak, Jacob Gavartin
Schrödinger Inc.

S20-0206 **Materials Discovery via CALYPSO Methodology**
16:15-16:45
Invited Speech Yanming Ma
Jilin University

S20-2522 **High-Throughput Simulation Platform**
16:45-17:15
Invited Speech Jiho Yoo
Samsung Advanced Institute of Technology

S20-0359 **Efficient Exploration of Fast Li ion Conductors by using Density Functional Theory with Informatics**
17:15-17:45
Invited Speech Masanobu Nakayama[1,2,3], Randy Jalem[2]
[1]Nagoya Institute of Technology, [2]Kyoto University, [3]JST-PRESTO

S20-1593 **Searching for Functional Oxides using High-throughput ab Initio Screening**
17:45-18:00 Kanghoon Yim, Joohee Lee, Kyuhyun Lee, Ho-Hyun Nahm, Yong Youn, Seungwu Han
Seoul National University

S20-0300 **Virtual Screening of Organic Semiconductor Materials using Quantitative Structure-property Relationships with Topological Descriptors**
18:00-18:15 H. Shaun Kwak, Alexander Goldberg, David J. Giesen, Thomas F. Hughes, Yixiang Cao, Woody Sherman, Mathew D. Halls
Schrodinger, Inc.

Progress in Carbon-based Nanomaterials

Nov. 17, 2014 (Mon.)

S5 (Progress in Carbon-based Nanomaterials) Ara

Chairs: Sungjin Park (Inha University) 09:00-12:00
Ilkwon Oh (Korea Advanced Institute of Science and Technology)

S5-1470 **Functionalized, Heterogenous Carbons: From Fundamentals to Applications**
09:00-09:30 Christopher W. Bielawski
Keynote Speech *Ulsan National Institute of Science and Technology*

S5-0409 **Molecular Assembly & Substitutional Doping of Graphitic Carbons**
09:30-10:00 Sang Ouk Kim
Invited Speech *Korea Advanced Institute of Science and Technology*

S5-1608 **Graphene for Electrochemical Biosensing**
10:00-10:30 Martin Pumera
Invited Speech *Nanyang Technological University*

S5-1745 **Printable, Spinnable Conducting Pastes based on Nanocarbon Materials**
10:30-11:00 Geon-Woong Lee
Invited Speech *Korea Electrotechnology Research Institute*

S5-2475 **Flexible Supercapacitor Devices Using Functionalized Graphenes**
11:00-11:30 Ho Seok Park
Invited Speech *Sungkyunkwan University*

S5-2527 **Graphene-based 3D Nanostructures for Energy Storage and Actuating Systems**
11:30-12:00 Ilkwon Oh
Invited Speech *Korea Advanced Institute of Science and Technology*

German-Korean Thermoelectric Nanostructured Materials

Nov. 17, 2014 (Mon.)

S8 (German-Korean Thermoelectric Nanostructured Materials) Ara

Chairs: Kornelius Nielsch (University of Hamburg) 14:45-18:15
Jae Yong Song (Korea Research Institute of Standards and Science)

S8-2972 **A MEMS-based Thermoelectric Nanowire Characterization Platform (TNCP): Concept, Fabrication and Application**
14:45-15:15
Keynote Speech
Peter Woias[1], Zhi Wang[1], Danny Kojda[2], Michael Kroener[1], Hoda Moosavi[1], Kornelius Nielsch[3], Oliver Eible[4], Ruediger Mitdank[2], Saskia Fischer[2]
[1]Albert-Ludwig-University Freiburg, [2]Humboldt-University Berlin, [3]University Hamburg, [4]Eberhard-Karls-University Tuebingen

S8-1097 **Thermoelectrics from Group IV Semiconductor Nanoparticles**
15:15-15:45
Invited Speech
Hartmut Wiggers, Gabi Schierning
University of Duisburg-Essen

S8-3111 **A Nano Scale Meta-domains on Thermoelectric Property in Telluride Compound System**
15:45-16:15
Invited Speech
Sudong Park[1], Jaekee Rhy[1], Jongho Park[1], Jihee Son[1], Byungki Ryu[1], Minwook Oh[1], Bongseo Kim[1], Kijeong Kong[2]
[1]Korea Electrotechnology Research Institute, [2]Korea Research Institute of Chemical Technology

S8-1577 **Lattice Thermodynamics and Phonon Properties in Nanostructured Thermoeletrics**
16:15-16:45
Invited Speech
Raphael P Hermann
Forschungszentrum Juelich GmbH

S8-0391 **Thermoelectric Properties of Intrinsic Low-dimensional System**
16:45-17:15
Invited Speech
Jong-Soo Rhyee
Kyung Hee University

S8-0555 **Combined Structural and Full-Thermoelectric Characterization of Individual Nanowires**
17:15-17:45
Invited Speech
Saskia F. Fischer[1], Danny Kojda[1], Rüdiger Mitdank[1], Anna Mogilatenko[2], William Töllner[3], Zhi Wang[4], Michael Kröner[4], Peter Woias[4], Kornelius Nielsch[3]
[1]Humboldt Universität zu Berlin, [2]Ferdinand-Braund Institut für Höchstfrequenztechnik, [3]Universität Hamburg, [4]Universität Freiburg

S8-2225 **Thermoelectric Properties of MIC processed SiGe Thin Films**
17:45-18:15
Invited Speech
Marc Lindorf[1], Hartmut Rohrmann[2], Manfred Albrecht[1]
[1]University of Augsburg, [2]Oerlikon Advanced Technologies AG

Soft Nanomaterials and Nanobiomaterials
Top Down & Bottom Up Nanopatterning & Nanofabrication

Nov. 17, 2014 (Mon.)

NB (Soft Nanomaterials and Nanobiomaterials)
NC (Top Down & Bottom Up Nanopatterning & Nanofabrication) Ora

Chairs: Anderson Ho Cheung Shum (University of Hong Kong) 09:00-11:30
Jonghwa Eom (Sejong University)

NB-2410 09:00-09:15 **Planar and Curved Polyimide Membranes Fabricated using ZnO Nanowire Array Templates**
Hyun Ah Cho, Boo Hyun An, Woong Kim, Young Keun Kim
Korea University

NB-1790 09:15-09:30 **Effect of Chelating Agents on the Stability of Nano TiO2 Sol Particles for Sol-gel Coating**
Wan-Young Maeng[1], Mi Yoo[2]
[1]Korea Atomic Energy Research Institute, [2]Chungnam National University

NC-2735 09:30-09:45 **Self-assembled Growth of Catalyst-free Inclined (10-13) GaN Nanowire on Nanoimprinted M-sapphire by Metal-organic Vapour Phase Epitaxy**
Kyuseung Lee, Sooryong Chae, Jongjin Jang, Daehong Min, Jaehwan Kim, Okhyun Nam
Korea Polytechnic University

NC-2609 09:45-10:00 **Nanofabrication Using a Micro/Macro Scale Electric Field Assembler System "Synergy of Top-Down and Bottom-Up Technologies"**
Youngjun Song, Michael J. Heller
University of California, San Diego

NC-2170 10:00-10:15 **Highly Reliable Nanotransfer Printing with Sub-10-nm Resolution via Solvent-vapor-assisted Adhesion Control**
Jae Won Jeong, Se Ryeun Yang, Yoon Hyung Hur, Gwang-min Baek, Soonmin Yim, Yeon Sik Jung
Korea Advanced Institute of Science and Technology

NC-2143 10:15-10:30 **Formation of Sub-20 nm Line/Space Patterns with a High Aspect Ratio using High-χ Block Copolymer and Thick Brush Layers**
Jung Hye Lee, Se Ryeun Yang, Jong Min Kim, Yeon Sik Jung
Korea Advanced Institute of Science and Technology

NC-2070 10:30-10:45 **Improvement of Stochastic Imaging Performance in Contact Hole Pattern by using Attenuated Phase-shift Mask for EUVL**
Jung Sik Kim, Seongchul Hong, Jae Uk Lee, Seung Min Lee, Jung Hwan Kim, Hyun Min Song, Jinho Ahn
Hanyang University

NC-2006 10:45-11:00 **Rapid Formation of Straight Line Patterns through Warm Solvent Annealing of Extremely High-χ Block Copolymers**
Jong Min Kim, Yoon Hyung Hur, Yeon Sik Jung
Korea Advanced Institute of Science and Engineering

NC-1850 11:00-11:15 **Host-guest Positioning of Au Nanoparticles in HPL Structure of Self-assembled Block Copolymer**
Tae Won Nam, Yeon Sik Jung, Yong Joo Kim, Jae Won Jeong, Min Jae Choi
Korea Advanced Institute of Science and Technology

NC-1344 11:15-11:30 **Metal Assisted Chemical Etch of Si for Three-Dimensional Information and Energy Devices**
Keorock Choi, Yunwon Song, Jungwoo Oh
Yonsei University

Carbon Nanomaterials & Other Nanoscale Materials

Nov. 17, 2014 (Mon.)

NA-1 (Carbon Nanomaterials & Other Nanoscale Materials 1) Ora

Chairs: Christopher Bielawski (Ulsan National Institute of Science and Technology) 14:45-17:00
Ilkwon Oh (Korea Advanced Institute of Science and Technology)

NA-1-3129 14:45-15:00 **Ultra-high Stretchable and Wearable Strain Sensor for Monitoring Human Motion by Aligned Carbon Nanotube Fiber**
Seongwoo Ryu
Massachusetts Institute of Technology

NA-1-2444 15:00-15:15 **Porous Carbon Nanoparticle Networks with Tunable Absorbability**
Do-Hyun Kim, Myoung-Woon Moon
Korea Institute of Science and Technology

NA-1-2357 15:15-15:30 **Influence of O2 Plasma Treatment on Top Gate Graphene Field-effect Transistors**
Yun Ji Kim, Sang Kyung Lee, Young Gon Lee, Byoung Hun Lee
Gwangju Institute of Science and Technology

NA-1-2101 15:30-15:45 **Charge Carrier Transport through the Interface between Hybrid Electrodes and Organic Materials in Flexible Organic Light Emitting Diodes (f-OLED)**
Huanyu Zhou, Hahn-Gil Cheong, Jin-Woo Park
Yonsei University

NA-1-2089 15:45-16:00 **Foldable Transparent Film Heaters based on Silver Nanowires and Metal Oxides**
Hahn-Gil Cheong, Jin-Hoon Kim, Jin-Woo Park
Yonsei University

NA-1-2032 16:00-16:15
Fabrication and Characterization of CNTs/graphene-based Nanostructure Gas Sensors for CO2
Jinhwan Kim, Hyonkwang Choi, Yunjae Park, Minjeong Park, Minhyon Jeon
Inje University

NA-1-2009 16:15-16:30
Polyaniline-coated Carbon Papers for Supercapacitor Electrodes
Dong Joo Choi[1], Alberto Boscá[2], Jorge Pedrós[3], Javier Martínez[2], Violeta Barranco[4], José María Rojo[4], Fernando Calle[3], Young-Ho Kim[1]
[1]Hanyang University, [2]Universidad Politécnica de Madrid, [3]Universidad Politécnica de Madrid, [4]Consejo Superior de Investigaciones Científicas

NA-1-1963 16:30-16:45
Encapsulation of Ionic Polymer-graphene Composite Actuator with Dielectric Elastomer using Gel Dip Coating
Yunjae Park, Hyonkwang Choi, Minjeong Park, Jaewon Han, Minhyon Jeon
Inje University

NA-1-1806 16:45-17:00
Crack-free Hybrid(TBOT-MAPTS) Coating Synthesis via Sol-gel Method
Wan-Young Maeng[1], Jung-Jung Noh[2]
[1]Korea Atomic Energy Research Institute, [2]Korea University of Technology and Education

Recent Advances in Hard Magnetic Materials

Nov. 18, 2014 (Tue.)

S3 (Recent Advances in Hard Magnetic Materials) Ballroom 2

Chair: Sang-Im Yoo (Seoul National University) 09:00-12:00

S3-0197 **Practical Aspects of Modern and Future Permanent Magnets**
09:00-09:30 R William McCallum[1], Laura H Lewis[2], Ralph Skomski[3], Matthew J Kramer[1], Iver E Anderson[1]
Keynote Speech *[1]Iowa State University, [2]Northeastern University, [3]University of Nebraska*

S3-1676 **Grain Boundary Restructuring of Sintered NdFeB Magnets**
09:30-10:00 Mi Yan
Invited Speech *Zhejiang University*

S3-3250 **Magnetic Property of Nd-Fe-B-type Powder prepared by Hydrogen Treatment**
10:00-10:30 Hae-Woong Kwon[1], Jung-Goo Lee[2], Ji-Hoon Yu[2]
Invited Speech *[1]Pukyong National University, [2]Korea Institute of Materials Science*

S3-1697 **Rare-earth Free Permanent Magnets**
10:30-11:00 Yang-Ki Hong, Jihoon Park
Invited Speech *The University of Alabama*

S3-3204 **High Performance Nanocrystalline Nd-Fe-B Magnets Prepared by Hot Deformation**
11:00-11:30 Zhaohui Guo, Xiao Du, Zheng Jing, Minggang Zhu, Wei Li
Invited Speech *Central Iron & Steel Research Institute*

S3-2430 **Fabrication of Mn-Al based Magnetic Powder and Reduction-Diffusion Route for Permanent Magnet**
11:30-12:00 Chul-Jin Choi, Jung-Goo Lee, Dong-Soo Kim
Invited Speech *Korea Institute of Materials Science*

Novel Materials and Devices for Logic Applications

Nov. 18, 2014 (Tue.)

S4 (Novel Materials and Devices for Logic Applications) Ballroom 2

Chairs: Byoung Hun Lee (Gwangju Institute of Science and Technology) 13:00-16:30
Jungwoo Oh (Yonsei University)

S4-0167 **Logic Devices with Graphene p-n Junctions**
13:00-13:30 Ji Ung Lee
Invited Speech *University of Albany*

S4-0246 **Logic Operations of InSb Diodes with Magnetic Field Induced from Integrated Nanomagnets**
13:30-14:00 Joonyeon Chang[1], Jinki Hong[2], Jin Dong Song[1], Mark Johnson[3]
Invited Speech *[1]Korea Institute of Science and Technology, [2]Korea University, [3]US Naval Research Lab.*

S4-1674 **Nano-Electronic Emerging Devices for Tera-Level Applications**
14:00-14:30 Kyung Rok Kim, Sunhae Shin, Min Woo Ryu, Jong Yul Park, Sung-Ho Kim
Invited Speech *Ulsan National Institute of Science and Technology*

S4-3252 **GaN-Based Devices in Green Energy Applications**
14:30-15:00 H. Rusty Harris, Derek W. Johnson, Jung Hwan Woo, Pradhyumna Ravikirthi, Michael Babb, Pranav Sharma, Iman R. Gatabi
Invited Speech *Texas A&M University*

S4-1629 **Recent Trends in Silicon Nanophotonic Architectures**
15:00-15:30 Jung Ho Ahn, Sukhan Lee, Yujin Park
Invited Speech *Seoul National University*

S4-1659 **Copper/Graphene Stacks for Advanced Interconnect Technology**
15:30-16:00 Moon-Ho Ham
Invited Speech *Gwangju Institute of Science and Technology*

S4-1692 **Molecular- and Polymer-based Electronic Devices on Rigid and Flexible Substrates**
16:00-16:30 Takhee Lee
Invited Speech *Seoul National University*

Sensors and Oxide Semiconductor

Nov. 18, 2014 (Tue.)

MD (Sensors and Oxide Semiconductor) Udo

Chairs: Takhee Lee (Seoul National University) 09:00-11:15
Sungkyu Park (Chung-Ang University)

MD-2942 **Effect of Rare-earth Gd Incorporation on the Characteristics of ZnO Thin Film**
09:00-09:15 Siti Nooraya Mohd Tawil[1], Norhidayah Che Ani[2], Nurulnadia Sarip[2], Sharul Ashikin Kamaruddin[2], Nurul Fadzilah Ab Rasid[1], Azizi Miskon[1], Mohd Zainizan Sahdan[2]
[1]National Defence University of Malaysia, [2]Universiti Tun Hussein Onn Malaysia

MD-2692 **Fe-doped ZnO Nanowire Arrays for Formaldehyde Gas Detection**
09:15-09:30 Hyo Won Seo, Su Hyo Kim, Yoo Sang Jeon, Jun Hua Wu, Young Keun Kim
Korea University

MD-2042 **The Shear Effect Induced Enhancement of Piezoelectric Property of PVDF-TrFE Thin Films**
09:30-09:45 Jin Ho Yang, Hyeon Jun Hwang, Han Na Choi, Byoung Hun Lee
Gwangju Institute of Science and Technology

MD-1206 **Electrical Properties of High Mobility Ultrathin Amorphous Indium Zinc Oxide Deposited by Atomic Layer Deposition**
09:45-10:00 Yeong-Ho Cho[1], Do-Joong Lee[2], Seong-Yong Cho[1], Hyun-Mi Kim[1], Ki-Bum Kim[1]
[1]Seoul National University, [2]Brown University

MD-0501 10:00-10:15
Energetics and Kinetics of Bulk Reconstruction of O-O Bond in ZnO
Youngho Kang, Dongheon Lee, Seungwu Han
Seoul National University

MD-0319 10:15-10:30
Polymer-assisted Solution Deposition of Titanium Doped Indium Oxide Transparent Electrodes
Sujaya Kumar Vishwanath, Chaelhy Yu, Chanho Yang, Seok-Cheol Ko, Jihoon Kim
Kongju National University

MD-2722 10:30-10:45
Electrical and Optical Properties of Asymmetric Dielectric/Metal/Dielectric (DMD) Electrodes Prepared by Radio-Frequency Sputtering
Rina Pandey[1,2], Chang Hwan Wie[2], Do Kyung Hwang[2], Won Kook Choi[2]
[1]Korean University of Science and Technology, [2]Korea Institute of Science and Technology

MD-2358 10:45-11:00
Fast Response Schottky Barrier ZnO Potodetector by Optimized Surface State using Hydrothermal Growth
Cheolmin Park[1], Jihye Lee[2], Hye-Mi So[2], Seung-Mo Lee[2], Won Seok Chang[2]
[1]University of Science and Technology, [2]Korea Institute of Machinery & Materials

MD-3366 11:00-11:15
Effect of the Temperature Gradient at the Solidification Front on THM Growth of CdTe Single Crystals
Sang-Hee Suh, Youngjoon Suh, Jin-Sang Kim
Korea Institute of Science and Technology

Magnetism and Magnetic Materials

Nov. 18, 2014 (Tue.)

ME (Magnetism and Magnetic Materials) Udo

Chairs: Jongill Hong (Yonsei University) 13:00-15:15
Chul-Jin Choi (Korea Institute of Materials Science)

ME-2629 13:00-13:30 Invited Speech
Chirality Switching Dynamics Induced by Dynamic Dipole Coupling in Dual-vortex Nanopillars
Joseph Kolthammer[1], Yang-Ki Hong[2], Haitian Xu[1], John Rudge[1], Byoung-Chul Choi[1]
[1]University of Victoria, [2]University of Alabama

ME-1078 13:30-14:00 Invited Speech
Modification of Spin-orbit Coupling in the Co/Pd Multilayers
Sanghoon Kim, Jehyun Kim, Soogil Lee, Jongill Hong
Yonsei University

ME-2082 14:00-14:15
CoFeAu Hybrid Nanoparticles from Polymer-based Nanoemulsion: Preparation and Multifunctional Properties
HongLing Liu[1], HongQin Shao[1], XiaoYan Zhang[1], WenZheng Cheng[1], XianHong Wang[1], JunHua Wu[2]
[1]Henan University, [2]South University of Science and Technology of China

ME-1567 14:15-14:30
Structural and Magnetic Properties of Nano Grain Sized Zn Ferrite/Hydroxyapatite Bioceramics Fabricated by Solid State Reaction Method
Klumdoung Pattarinee[1], Pankaew Piyapong[2]
[1]Rajamangala University of Technology Krungthep, [2]Rajamangala University of Technology Phra Nakhon

ME-1095 14:30-14:45
Magnetic Anisotropy in Iron-doped Lithium Nitride - 3d Stronger than 4f!?
R. William McCallum, Anton Jesche, Srinivasa Thimmaiah, Jenee L. Jacobs, Valentin Taufour, Andreas Kreyssig, Robert S. Houk, Sergey L. Budko, Paul C. Canfield
Iowa State University

ME-0836 14:45-15:00
Influence of Columnar Grain Structure on the Perpendicular Magnetic Domain Structure of Epitaxial L10 FePt Thin Film
W. H. Lee[1], J. H. Yoo[2], J. M. Yang[2], J. K. Park[1]
[1]Korea Advanced Institute of Science and Technology, [2]National Nanofab Center

ME-0342 15:00-15:15
Enhanced Magnetic Performance of CoFe2O4/(Bi0.5Na0.5)TiO3 Magnetoelectric Composites
Narumon Lertcumfu[1], Pharatree Jaita[1], Parkpoom Jarupoom[2]
[1]Chiang Mai University, [2]Rajamangala University of Technology Lanna

Challenges for Deformable Displays

Nov. 18, 2014 (Tue.)

S12 (Challenges for Deformable Displays) Ballroom 3

Chair: Unyong Jeong (Yonsei University) 09:00-12:00

S12-2415 09:00-09:30 Invited Speech
Intrinsically Stretchable Polymer OLEDs and Displays
Qibing Pei
University of California, Los Angeles

S12-3108 09:30-10:00 Invited Speech
Inkjet-Printed Conductors for Stretchable Electronics Applications
Yongtaek Hong, Sangwoo Kim, Taehoon Kim, Junghwan Byun, Seongdae Choi, Seungjun Chung, Jaemyeon Lee
Seoul National University

S12-3123 10:00-10:30 Invited Speech
Si Nanomembrane for Flexible and Stretchable Electronics
Jong-Hyun Ahn
Yonsei University

S12-0454 10:30-11:00 Invited Speech
Hybrid Transparent Conductors for Deformable Displays
Pooi See Lee, Jiangxin Wang, Wenbin Kang, Kenji Chee
Nanyang Technological University

S12-0970 **Stretchable, Transparent Electrodes using One-dimensional and Two-dimensional Nanomaterials**
11:00-11:30
Invited Speech Jang-Ung Park
Ulsan National Institute of Science and Technology

S12-0557 **Deformable Light Emitting Devices by Electrochemical Luminescence**
11:30-12:00 Minkwan Shin, Unyong Jeong
Invited Speech *Yonsei University*

Flexible/Printed Electronics and Displays

Nov. 18, 2014 (Tue.)

S13 (Flexible/Printed Electronics and Displays) Ballroom 3

Chair: Tae-Woo Lee (Pohang University of Science and Technology) 13:00-16:00

S13-3362 **Molecular Assembly of Organic Semiconductors for High-Performance Flexible Electronics**
13:00-13:30
Keynote Speech Kilwon Cho
Pohang University of Science & Technology

S13-2551 **Ultraflexible Organic Electronic Systems for Imperceptible Bio-medical Sensors**
13:30-14:00 Tsuyoshi Sekitani
Invited Speech *Osaka University*

S13-1804 **Stretchable TFTs and Interconnections for Display Application**
14:00-14:30 Jae Bon Koo
Invited Speech *Electronics and Telecommunication Research Institute*

S13-3103 **Natural Dielectrics in Flexible Organic Field-effect Transistors**
14:30-15:00 Tzung-Fang Guo, Chun-Ting Yeh, Tzung-Da Tsai, I-Tsung Chen, Ten-Chin Wen
Invited Speech *National Cheng Kung University*

S13-2394 **Flexible and Printed Organic and Metal-oxide Thin-film-devices for Next Generation Electronics**
15:00-15:30
Invited Speech Sungkyu Park
Chung-Ang University

S13-0573 **New Blue Emitting Materials in White OLED using Hybrid Process Based on Solution and Vacuum Methods**
15:30-16:00
Invited Speech Jongwook Park, Jaehyun Lee, Seungho Kim, Hwangyu Shin, Hayoon Lee
Catholic University of Korea

Flexible, Stretchable Displays and Printed Electronics

Nov. 18, 2014 (Tue.)

DA (Flexible, Stretchable Displays and Printed Electronics)

Chuja

Chairs: Hongdoo Kim (Kyung Hee University)
Hyungtak Seo (Ajou University)

09:00-11:30

DA-0187 09:00-09:30 Invited Speech
Aerosol Jet Printed, Complementary Circuits Constructed from p- and n-Type Electrolyte Gated Transistors
Kihyon Hong[1], Se Hyun Kim[2], Yong Hyun Kim[3], C. Daniel Frisbie[4]
[1]Korea Institute of Materials Science, [2]Yeungnam University, [3]Pukyong National University, [4]University of Minnesota

DA-3007 09:30-09:45
Mechanism of Metal Nanowire Formation via Polyol Process
Hwa-Yong Lee, Young-Soo Chae, Yongwoo Kwon, Yong-Seog Kim
Hongik University

DA-2978 09:45-10:00
Flexural Modulus Measurement and Warpage Analysis of Multilayers on Polymer Composite Substrates for Flexible Electronics
Tae-ik Lee[1], Cheolgyu Kim[1], Min Sung Kim[2], Taek-Soo Kim[1]
[1]Korea Advanced Institute of Science and Technology, [2]Samsung Electro-Mechanics

DA-2672 10:00-10:15
An Inorganic Emissive Structure with Excellent Mechanical Compliance for Stretchable Light-emitting Devices
Jiangxin Wang, Pooi See Lee
Nanyang Technological University

DA-2668 10:15-10:30
Rationally Designed Topographic Configuration of Elastomeric System for Inkjet Printed Stretchable Electronics
Byeongmoon Lee, Junghwan Byun, Yongtaek Hong
Seoul National University

DA-2659 10:30-10:45
Guided Crack Formation and Stress Localization of Metallic Thin Film by using Inkjet-printed Embedded Polymeric Micro-islands for Stretchable Electronic Applications
Junghwan Byun, Byeongmoon Lee, Sangwoo Kim, Yongtaek Hong
Seoul National University

DA-2652 10:45-11:00
In Situ Fabrication of all-inkjet-printed Carbon Nanotube Thin-Film Transistors Directly Onto Stretchable Substrate
Jewook Ha, Taehoon Kim, Narkhyeon Seong, Hyeonggyu Kim, Yongtaek Hong
Seoul National University

DA-2278 11:00-11:15
Fabrication of Embedded Silver Circuit for Flexible Electronics
Bum-Geun Park, Kwang-Seok Kim, Seung-Boo Jung
Sungkyunkwan University

DA-2079 **Electronic Properties of Transparent Nano-Composite Electrodes for the Application in Flexible Electronics**
11:15-11:30
Ross E. Triambulo, Jin-Woo Park
Yonsei University

TFT Materials and Devices
Emerging Materials and Devices for Unconventional Displays

Nov. 18, 2014 (Tue.)

DD (TFT Materials and Devices)
DE (Emerging Materials and Devices for Unconventional Displays) Chuja

Chairs: Gwan-Hyoung Lee (Yonsei University) 13:00-15:30
Unyong Jeong (Yonsei University)

DD-1161 **Study of Low Temperature Solution-Processed Oxide Dielectric with ZnO-TFTs**
13:00-13:30
Invited Speech
Jaeeun Hwang, Kyungmin Lee, Hongdoo Kim
Kyung Hee University

DD-0462 **Significant Mobility Enhancement in Dual-Active-Layers a-IGZO TFT via Homogeneous Conductive Layer Formation by Photochemical Surface H-doping**
13:30-14:00
Invited Speech
Hyungtak Seo[1], Myeong-Ho Kim[2], Young-Ahn Lee[1], Sang-Youn Lee[1], Duck-Kyun Choi[2]
[1]Ajou University, [2]Hanyang University

DD-2140 **Improved Random Networks of Solution-processed Single-walled Carbon Nanotube with Reduced Deposition Time by using Nitric Acid**
14:00-14:15
Taehoon Kim[1], Narkhyeon Seong[1], Hyeonggyu Kim[1], Tae-Jun Ha[2], Yongtaek Hong[1]
[1]Seoul National University, [2]Kwangwoon University

DD-2110 **Tunable Threshold Voltage in Solution-processed Single-walled Carbon Nanotube Thin-film Transistors**
14:15-14:30
Narkhyeon Seong[1], Taehoon Kim[1], Hyeonggyu Kim[1], Tae-Jun Ha[2], Yongtaek Hong[1]
[1]Seoul National University, [2]Kwangwoon University

DD-1125 **Tunneling Effect of Thin Film Transistors for Flexible Display**
14:30-14:45
Teresa Oh
Cheongju University

DE-3144 **Two-Dimensional Layered Materials for Displays and Optical Applications**
14:45-15:15
Invited Speech
Gwan-Hyoung Lee
Yonsei University

DE-0917 **Optimization of the Surface Light Source with Multi-color LEDs for Plant Factory**
15:15-15:30
Taek-Sung Lee[1], Seok-Joo Byun[2], Hyoung Seok Kim[3], Chu Won Nho[3]
[1]Korea Institute of Science and Technology, [2]Insideoptics Co. LTD, [3]Korea Institute of Science and Technology Gangneung Institute

Advanced Materials Toward Solar Fuel Production

Nov. 18, 2014 (Tue.)

S14 (Advanced Materials Toward Solar Fuel Production) Ballroom 1

Chair: Jihun Oh (Korea Advanced Institute of Science and Technology) 09:00-12:00

S14-1139 **Titania-hybridized with Reduced Graphene Oxides for Enhanced Solar Photocatalysis**
09:00-09:30 Wonyong Choi, Hyoung-il Kim, Gun-hee Moon
Invited Speech *Pohang University of Science and Technology*

S14-0565 **Semiconductor Photocatalysts for Water Splitting and CO2 Fixation**
09:30-10:00 Kazuhiko Maeda
Invited Speech *Tokyo Institute of Technology*

S14-0366 **Mn based Water Oxidation Catalysts that Mimic Mn Cubane Structure in Photosystem II**
10:00-10:30 Ki Tae Nam, Kyoungsuk Jin, Sung Eun Jerng, Donghyuk Jeong
Invited Speech *Seoul National University*

S14-0479 **High Efficiency One-Step Solar-to-Hydrogen Conversion on Metal-Nitride Nanowires**
10:30-11:00 Zetian Mi, Md Golam Kibria
Invited Speech *McGill University*

S14-0196 **Solar Water Oxidation and CO2 Conversion using Semiconductor Electrodes**
11:00-11:30 Sung Kyu Choi, Unseock Kang, Hye Won Jeong, Hyunwoong Park
Invited Speech *Kyungpook National University*

S14-0223 **Improving Charge Transfer in Photoelectrodes for Visible Light Water Splitting**
11:30-12:00 Yixin Zhao
Invited Speech *Shanghai Jiao Tong University*

Advanced Materials and Devices for Solar Energy Conversion

Nov. 18, 2014 (Tue.)

S17 (Advanced Materials and Devices for Solar Energy Conversion) Ballroom 1

Chairs: Jung-Yong Lee (Korea Advanced Institute of Science and Technology) 13:00-16:30
Bumjoon Kim (Korea Advanced Institute of Science and Technology)

S17-1590 **Materials and Approaches for Efficient Inorganic-organic Hybrid Solar Cells**
13:00-13:30 Sang Il Seok
Invited Speech *Korea Research Institute of Chemical Technology*

S17-3102 **Lead Chalcogenides Nanocrystal Quantum Dots for Photovoltaic Applications: Enhanced Ambient Stability of Materials and Devices**
13:30-14:00 Sohee Jeong
Invited Speech *Korea Institute of Machinery and Materials*

S17-2307 **Perspectives of Earth-abundant Cu2ZnSnS4 Solar Cells**
14:00-14:30 Byungha Shin
Invited Speech *Korea Advanced Institute of Science and Technology*

S17-3356 **Photovoltaic Cells Incorporating Tailored Organic and Inorganic Nanostructures**
14:30-15:00 Jiangeng Xue
Invited Speech *University of Florida*

S17-1133 **Engineering Energy Transfer in Organic Photovoltaic Cells for Efficient Exciton Harvesting**
15:00-15:30 Russell J. Holmes
Invited Speech *University of Minnesota*

S17-0266 **Improving Spectral Response in Polymer-fullerene Bulk Heterojunction Solar Cells**
15:30-16:00 Barry (C) Thompson
Invited Speech *University of Southern California*

S17-0781 **Design of Electroactive Materials for Improving Mechanical and Thermal Stabilities in Efficient Polymer Solar Cells**
16:00-16:30 Bumjoon Kim
Invited Speech *Korea Advanced Institute of Science and Technology*

Thermoelectric Power Devices and Nanogenerators

Nov. 18, 2014 (Tue.)

EF (Thermoelectric Power Devices and Nanogenerators) Mara

Chairs: Chong-Yun Kang (Korea Institute of Science and Technology) 09:00-11:00
Jeong Min Baik (Ulsan National Institute of Science and Technology)

EF-2730 **Structural Variation and Piezoelectric Energy Harvesting of the KNbO3 Nanowires**
09:00-09:30 Mi-Ri Joung[1], Haibo Xu[1], In-Tae Seo[1], Mir Im[1], Sahn Nahm[1], Seok-Jin Yoon[2], Chong-Yun Kang[2], Hyun-Min Park[3]
Invited Speech *[1]Korea University, [2]Korea Institute of Science and Technology, [3]Korea Research Institute of Standards and Science*

EF-1498 **Effects of Composition on Thermoelectric Properties of Co-Sb Thin Films Prepared by RF Co-Sputtering**
09:30-09:45 Aziz Ahmed[1], Seungwoo Han[2]
[1]University of Science and Technology, [2]Korea Institute of Machinery and Materials

EF-0862 **Deposition of n-type Bi2Te3 Thin Films on Polyimide by using RF Co-sputtering Method**
09:45-10:00 Sung-Jae Joo, Bong-Seo Kim, Bok-Ki Min, Min-Wook Oh, Ji-Eun Lee, Byung-Ki Ryu, Su-Dong Park, Hee-Woong Lee
Korea Electrotechnology Research Institute

EF-0788 10:00-10:15
A Study on Thermoelectric Device Aspects: Microstructure Evolution and Contact Resistance
Ho Yong[1], Seong-jae Jeon[2], Sekwon Na[1], Seungmin Hyun[2], Hoo-Jeong Lee[1]
[1]Sungkyunkwan University, [2]Korea Institute of Machinery & Materials

EF-0493 10:15-10:30
The Development of Controlling Method of Spontaneously Generated Electrical Charge of a Droplet Dispened from a Pipette Tip
Dongwhi Choi, Dong Sung Kim
Pohang University of Science and Technology

EF-0413 10:30-10:45
High Temperature Transport Properties of Sb-doped GeTe Thermoelectric Compounds
Bong-Seo Kim, Chang-Woo Cho, Byung-Ki Ryu, Ji-Eun Lee, Sung-Jae Joo, Bok-Ki Min, Min-Wook Oh, Su-Dong Park, Hee-Woong Lee
Korea Electrotechnology Research Institute

EF-0384 10:45-11:00
Electrical and Thermal Properties of Bismuth Sodium Titanate doped Calcium Lanthanum Manganese Oxide
Preeyakarn Eaksuwanchai, Sukanda Jiansirisomboon, Anucha Watcharapasorn
Chiangmai University

Advances in Fuel Cells and Hydrogen Storage
Water Splitting and Solar Fuel

Nov. 18, 2014 (Tue.)

EC (Advances in Fuel Cells and Hydrogen Storage)
ED (Water Splitting and Solar Fuel) Mara

Chairs: Simone Piccinin (National Research Council - Institute of Materials) 13:00-15:45
WooChul Jung (Korea Advanced Institute of Science and Technology)

EC-1284 13:00-13:30 Invited Speech
Robust Metal-Ceramic Convergence Nanostructures with Exceptionally High Electrochemical Reaction Activity for High Temperature Fuel Cell Electrodes
Yoonseok Choi, Siwon Lee, WooChul Jung
Korea Advanced Institute of Science and Technology

EC-2916 13:30-13:45
Effect of Co Electroplating on the Cr Vaporization and Oxidation Behavior of High Cr Ferritic Stainless Steel Interconnects for SOFC Application
Byung Kyu Kim[1], Suk-Chul Kwak[1], Dong-Ik Kim[1], Young Whan Cho[1], Kyung-Woo Yi[2]
[1]Korea Institute of Science and Technology, [2]Seoul National University

EC-2836 13:45-14:00
Metallic Membranes for Hydrogen Separation: Vanadium-based and Amorphous Membranes
Jin-Yoo Suh[1], Young-Su Lee[1], Jae-Hyeok Shim[1], Yong Jeong Kim[2], Young Whan Cho[1]
[1]Korea Institute of Science and Technology, [2]Nara Cell Tech Corporation

EC-1937 **First Principle Studies of Catalytically Active Metal-phospide Systems**
14:00-14:15 Kapil Gupta[1], Satadeep Bhattacharjee[1], Seung-Cheol Lee[2], U. V. Waghmare[3]
[1]Indo-Korea Science and Technology Centre, [2]Korea Institute of Science and Technology, [3]Jawaharlal Nehru Centre for Advanced Scientific Research Centre

EC-1888 **Role of Electron Transfer in the Site Specific Adsorption of NH3 on CoPt Alloys**
14:15-14:30 Satadeep Bhattacharjee[1], Kapil Gupta[1], Umesh V Waghmare[2], Seung Cheol Lee[1]
[1]Indo-Korea Science and Technology Center, [2]Jawaharlal Nehru Centre for Advanced Scientific Research

ED-3033 **New Pyrophosphate based Li-battery Material (Li2MnP2O7) with Tunable Mn Valency as a Water Oxidation Catalyst**
14:30-14:45 Hyunah Kim[1], Jimin Park[2], Kitae Nam[1], Kisuk Kang[1]
[1]Seoul National University, [2]Korea Institute of Science and Technology

ED-2256 **Cu2O Photocathodes Coated with Protective and Anti-reflective TiO2 Layer for Photoelectrochemical Hydrogen Evolution**
14:45-15:00 Jaesuk Choi, Jihun Oh, Yeon Sik Jung
Korea Advanced Institute of Science and Technology

ED-1794 **3D Printed Hierarchical Catalyst Structures of nZVI Particles for Groundwater Remediation**
15:00-15:15 Wonjin Jo, Seunghak Lee, Jaewon Jang, Seockheon Lee, Heon Ju Lee
Korea Institute of Science and Technology

ED-1663 **Solar Light Driven Photocatalytic Activity of Pt-Mesoporous Oxides and Pt-Hierarchical N doped TiO2 Nanostructures**
15:15-15:30 Brundabana Naik, Song Yi Moon, Chan-Ho Jung, Jeong Young Park
Korea Advanced Institute of Science and Technology

ED-1502 **Effects of Seed Layer on Hydrothermally Grown Rutile TiO2 Nanorod Arrays on FTO Glass for Photocatalytic Hydrogen Generation**
15:30-15:45 Hyun Kim, Bee Lyong Yang
Kumoh National Institute of Technology

Advanced Li-ion Battery Materials
New Energy Storage Systems and Materials beyond LIB

Nov. 18, 2014 (Tue.)

EA-2 (Advanced Li-ion Battery Materials 2)
EB (New Energy Storage Systems and Materials beyond LIB) Biyang

Chair: Kisuk Kang (Seoul National University) 09:00-11:30

EA-2-0937 **Inhomogeneous Reaction in Lithium Ion Batteries**
09:00-09:30 Yoshio Ukyo
Invited Speech *Kyoto University*

EA-2-1651 09:30-09:45
Reduced Graphene Oxide/Carbon Double-Coated 3-D Porous $LiMn_{0.8}Fe_{0.2}PO_4$ Aggregates as High-Rate Cathode Materials for Li-Ion Battery
Sungun Wi, Seunghoon Nam, Joonhyeon Kang, Jaewon Kim, Hyungsub Woo, Byungwoo Park
Seoul National University

EA-2-0622 09:45-10:00
Extremely High-Performance of $LiMn_{0.8}Fe_{0.2}PO_4$ with Hybrid Conductive Additives Based on Etched and Functionalized Multi-walled Carbon Nanotubes
Hyung Cheoul Shim[1], Taehwan Yu[2], Seungmin Hyun[1]
[1]Korea Institute of Machinery and Materials, [2]Samsung Fine Chemicals

EA-2-0553 10:00-10:15
Application of Porous Cu-Sn Alloy Current Collector Formed by Electrochemical Deposition to Li-ion Batteries
Bora Ye, Sunjung Kim
University of Ulsan

EA-2-0498 10:15-10:30
A Study on the Structural and Electrochemical Properties of LiNi0.5Mn1.5O4 for Lithium Ion Batteries: Effect of Ru Doping and Li2O-2B2O3 Coating
Ji Su Chae[1], Sun-Min Park[1], Won-Sub Yoon[2], Kwang Chul Roh[1]
[1]Korea Institute of Ceramic Engineering & Technology, [2]Sungkyunkwan University

EA-2-1912 10:30-10:45
Behavior Solid Electrolyte for All-solid-state Batteries in High-Intensity Radiation Environments
Seung Hyun Jee[1], You Na Lee[1], In Yea Kim[1], Kang Soo Lee[2], Sung Pil Woo[2], Young Soo Yoon[1]
[1]Gachon University, [2]Yonsei University

EB-2890 10:45-11:00
Superior Rechargeability and Efficiency of Lithium–Oxygen Batteries: Hierarchical Air Electrode Architecture Combined with a Soluble Catalyst
Jinsoo Kim, Hee-Dae Lim, Hyelynn Song, Yong Hyup Kim, Kisuk Kang
Seoul National University

EB-2689 11:00-11:15
First Principles Study of the Oxygen Evolution Reaction Mechanism in Metal-oxygen Batteries
Byungju Lee, Dong-Hwa Seo, Hee-Dae Lim, Inchul Park, Kyu-Young Park, Jinsoo Kim, Kisuk Kang
Seoul National University

EB-0333 11:15-11:30
Improving Filtering Characteristics of Systems with Energy Storing Elements Utilizing the Zero Locations of System Function
Keehong Um
Hansei University

Introduction to Computational Materials Methods and Applications

Nov. 18, 2014 (Tue.)

S21 (Introduction to Computational Materials Methods and Applications)

Ballroom 4

Chairs: Seungwu Han (Seoul National University)
De-en Jiang (University of California, Riverside)

09:00-12:00

S21-1731 **Simulation of Scanning Seebeck Microscopy Images**
09:00-09:30 Yong-Hyun Kim
Invited Speech *Korea Advanced Institute of Science and Technology*

S21-0251 **Drastic Change of the Poisson's Ratios in Metal Nanoplates**
09:30-10:00 Duc Tam Ho, Soon-Dong Park, Sung Youb Kim
Invited Speech *Ulsan National Institute of Science and Technology*

S21-0699 **Kinetic Monte Carlo Simulations for Defect Diffusion and Evolution Behaviors in Materials**
10:00-10:30 Takuji Oda
Invited Speech *Seoul National University*

S21-1586 **Computational Study on Assembly of Colloidal Nanoparticles Using Kinetic Monte Carlo Simulation**
10:30-11:00 Seok Joon Kwon, Jae-Gwan Park
Invited Speech *Korea Institute of Science and Technology*

S21-1487 **Polymer Modeling Using Mean Field Theory: Comparison between Gaussian Chain Model and Short Chain Model**
11:00-11:30 Jaeup Kim
Invited Speech *Ulsan National Institute of Science and Technology*

S21-3233 **Meso-scale Simulation of the Micromechanical Deformation and Failure Behaviors in Multi-phase Steels using the Microstructure based Crystal Plasticity FEM**
11:30-12:00 Shi-Hoon Choi, Eun-Young Kim, ChanUk Jeong
Invited Speech *Sunchon National University*

Organic Materials Modeling

Nov. 18, 2014 (Tue.)

S19 (Organic Materials Modeling)

Ballroom 4

Chairs: Sang Soo Han (Korea Institute of Science and Technology)
Denis Andrienko (Max Planck Institute for Polymer Research)

13:00-16:30

S19-0241 **Modeling Porous Organic Materials and Ionic Liquids for Carbon Capture**
13:00-13:30 De-en Jiang
Invited Speech *University of California, Riverside*

S19-0808 **Pressure-induced Semiconductor to Metal Transition in MoS2: Prediction to Reality**
13:30-14:00 Abhishek Kumar Singh, Swastibrata Bhatacharyya, Tribhuwan Pandey
Invited Speech *Materials Research Centre, Indian Institute of Science*

S19-1431 **Multi-scale Molecular Modeling of Organic Materials for Electronic and Photovoltaic Applications**
14:00-14:30 Yun Hee Jang
Invited Speech *Gwangju Institute of Science and Technology*

S19-2945 **Molecular Doping of Organic Semiconductors**
14:30-15:00 Eung-Gun Kim
Invited Speech *Dankook University*

S19-3305 **New Two Dimenstional Compounds: beyond Graphene**
15:00-15:30 Sebastien Lebegue
Invited Speech *Université de Lorraine*

S19-0761 **Rapid Dye Regeneration Mechanism of Dye-Sensitized Solar Cells**
15:30-16:00 Jiwon Jeon, Hyungjun Kim
Invited Speech *Korea Advanced Institute of Science and Technology*

S19-0180 **Combinatorial Study of Theory, Synthesis, and Electron Tomography for 3D Networked Binary Metal Nanoparticle -Triblock Terpolymer Superstructure Formation**
16:00-16:30 Kahyun Hur
Invited Speech *Korea Institute of Science and Technology*

Nanomaterials for Catalysis and Renewable Energy Conversion

Nov. 18, 2014 (Tue.)

S7 (Nanomaterials for Catalysis and Renewable Energy Conversion) Ara

Chairs: Jeong Young Park (Korea Advanced Institute of Science and Technology) 09:00-12:00
Sang Hoon Joo (Ulsan National Institute of Science and Technology)

S7-0695 **Morphology-dependent Nanocatalysis on Rod-shaped Metal Oxides**
09:00-09:30 Wenjie Shen
Invited Speech *Dalian Institute of Chemical Physics, Chinese Academy of Sciences*

S7-0216 **Nanostructured Carbon-based, Non-Precious Metal Electrocatalysts for the Oxygen Reduction Reaction**
09:30-10:00 Sang Hoon Joo, Jae Yeong Cheon, Young Jin Sa, Bora Seo
Invited Speech *Ulsan National Institute of Science and Technology*

S7-0231 **Highly Coke-Resistant Ni Catalysts for Dry Reforming of Methane**
10:00-10:30 Hyunjoo Lee[1], Jeong W. Han[2], Junsung Park[2]
Invited Speech *[1]Korea Advanced Institute of Science and Technology, [2]Yonsei University*

S7-0903 **Towards Realistic Models of Oxide-supported Metal Catalysts**
10:30-11:00 Martin Sterrer
Invited Speech *Fritz-Haber-Institut der Max-Planck-Gesellschaft*

S7-1451 **Design and Application of Functionalized Gold Plasmonic Photocatalysts**
11:00-11:30 Hiroshi Kominami[1], Atsuhiro Tanaka[2]
Invited Speech *[1]Kinki University, [2]Kyoto University*

S7-1703 **Effect of Hot Electron and Surface Plasmon on the Catalytic Activity of Metal-semiconductor Nanocatalysts**
11:30-12:00 Jeong Young Park, Sun Mi Kim
Invited Speech *Korea Advanced Institute of Science and Technology*

Functional Self-Assembly of Molecules and Materials

Nov. 18, 2014 (Tue.)

S6 (Functional Self-Assembly of Molecules and Materials) Ara

Chairs: Yoon Sung Nam (Korea Advanced Institute of Science and Technology) 13:00-16:30
Yong-beom Lim (Yonsei University)

S6-1598 **Supramolecular Assembly with Switching Motion**
13:00-13:30 Myongsoo Lee
Keynote Speech *Jilin University*

S6-0811 **Bioinspired and Adaptable Bionanomaterials based on Self-Assembling Biopolymers**
13:30-14:00 Yong-beom Lim
Invited Speech *Yonsei University*

S6-1655 **Engineering Ultrasmall Metal Nanomolecules for Biomedical Applications**
14:00-14:30 Jianping Xie
Invited Speech *National University of Singapore*

S6-0177 **Protein Scaffolds for Self-Assembly of Molecules and Nanomaterials**
14:30-15:00 Yoon Sung Nam
Invited Speech *Korea Advanced Institute of Science and Technology*

S6-0149 **Assembly at All-Aqueous Interfaces**
15:00-15:30 Anderson Ho Cheung Shum
Invited Speech *University of Hong Kong*

S6-0870 **Fabrication of Novel Colloidal Materials by Drop-based Microfluidics**
15:30-16:00 Jin Woong Kim
Invited Speech *Hanyang University*

S6-2774 **Cantilever-free Scanning Probe Nanoprinting**
16:00-16:30 Wooyoung Shim
Invited Speech *Yonsei University*

Nov. 18, 2014 (Tue.)

NA-2 (Carbon Nanomaterials & Other Nanoscale Materials 2)

Ora

Chairs: Sang Ouk Kim (Korea Advanced Institute of Science and Technology)
Byungha Shin (Korea Advanced Institute of Science and Technology)

09:00-11:00

NA-2-1175 09:00-09:15
Observation of Diamond Nanoparticles Generated in the Gas Phase under the Synthesis Condition of Diamond Films by Hot Wire Chemical Vapor Deposition
Jin-Woo Park, Kun-Su Kim, Nong-moon Hwang
Seoul National University

NA-2-0966 09:15-09:30
Generation of Charged Nanoparticles during Thermal Evaporation of Silver at Atmospheric Pressure
Daseul Kim[1], Serena Kim[1], Seungmin Yang[1], Woongkyu Youn[1], Chansoo Kim[2], Nongmoon Hwang[1]
[1]Seoul National University, [2]Korea Institute of Energy Research

NA-2-0930 09:30-09:45
Generation of Charged Nanoparticles and their Contribution to Growth of Silicon in the Thermal Chemical Vapor Deposition Process
Seung-Min Yang, Woong-kyu Youn, Da-Seul Kim, Nong-Moon Hwang
Seoul National University

NA-2-0778 09:45-10:00
Direct Graphene Growth on SiO2/Si Substrate by using Carbon Diffusion Barrier
Ki-Ju Kim, Seong-Yong Cho, Hyun-Mi Kim, Ki-Bum Kim
Seoul National University

NA-2-0438 10:00-10:15
Study on Mesoepitaxy: Graphene Growth on Liquid Cu
Seong-Yong Cho[1], Ki-Ju Kim[1], Hyun-Mi Kim[1], Do-Joong Lee[2], Min-Hyun Lee[3], Ki-Bum Kim[1]
[1]Seoul National University, [2]Brown University, [3]Samsung Advanced Institute of Technology

NA-2-0315 10:15-10:30
Optoelectronic Devices with Transition Metal Disulfide Interlayer
Ki Chang Kwon[1], Cheolmin Kim[1], Quyet Van Le[1], Jong-Myeong Jeon[2], Jaeho Choi[2], Kyoung Soon Choi[1], Ho Won Jang[2], Soo Young Kim[1]
[1]Chung-Ang University, [2]Seoul National University

NA-2-0257 10:30-10:45
Fracture Characteristics of Monolayer CVD-Graphene
Yun Hwangbo[1], Choong-Kwang Lee[2], Sang-Min Kim[3], Jae-Hyun Kim[1], Seung-Mo Lee[1]
[1]Korea Institute of Machinery & Materials, [2]Chonbuk National University, [3]Korea Advanced Institute of Science and Technology

NA-2-0252 10:45-11:00
Fracture- and Wear-Resistance Effects of Graphene on Ceramic Matrix
Jong-Young Kim[1], Hyo Jin Kim[2], Dae Ho Yoon[2], Changgu Lee[2], Young-Hwan Yang[1], Sung-Min Lee[1], Yoon-Suk Oh[1], Rodney S. Ruoff[3]
[1]Korea Institute of Ceramic Engineering and Technology, [2]Sungkyunkwan University, [3]The University of Texas at Austin

Nanoscale Devices & Characterization

Nov. 18, 2014 (Tue.)

ND (Nanoscale Devices & Characterization)

Ora

Chairs: Sang-Woo Kim (Sungkyunkwan University)
Sang Ouk Kim (Korea Advanced Institute of Science and Technology)

13:00-16:30

ND-2988 13:00-13:15
Nano-scale Fabrication and Observation of Nano-structured Materials by Ultra-thin Membrane Technology
Chi Won Ahn
National Nanofab Center

ND-2953 13:15-13:30
High-resolution 2-D Strain Analysis of SiGe/Si Epitaxial Layer Systems
Bumsu Park, Kyung Song, Sang Ho Oh
Pohang University of Science and Technology

ND-2917 13:30-13:45
Fabrication and Characterization of ZnO Nanorods on Multiple Substrates
Abu ul Hassan Sarwar Rana, Kyul Ko, Sejun Hong, Jun-Woo Heo, Hyun-Seok Kim
Dongguk University

ND-2686 13:45-14:00
Protein Translocation Analysis by using Solid-state Nanopore
Hongsik Chae[1], Dong-Kyu Kwak[2], Hyun-Mi Kim[1], Kyeong-Beom Park[1], Jung-Mo Yeo[1], Hyung-Jun Kim[1], Jae-Suk Yu[1], Ki-Dan Lee[1], Ki-Bum Kim[1], Seung-Wook Chi[2]
[1]Seoul National University, [2]Korea Research Institute of Bioscience and Biotechnology

ND-2620 14:00-14:15
Enhancing DNA Base Pair Resolution of Solid-State Nanopore by Modification of Device Structure
Kidan Lee, Hyun-Mi Kim, Ki-Bum Kim
Seoul National University

ND-2109 14:15-14:30
Suggestion of Composite EUVL Pellicle Materials
Jinho Ahn[1], Jung Hwan Kim[1], Seong Chul Hong[1], Jae Uk Lee[1], Seung Min Lee[1], Jung Sik Kim[1], Hyun Min Song[1], Deuk Yeon Lee[2], Seong In Kim[2]
[1]Hanyang University, [2]Cheorwon Plasma Research Institute

ND-1810 14:30-14:45
Novel Method to Extract the Defect Levels of Charge Traps at Top Gate Graphene FETs
Ukjin Jung, Yonghun Kim, Sangchul Lee, Byoung Hun Lee
Gwangju Institute of Science and Technology

ND-1702 14:45-15:00
Thickness-dependent Mechanical Behavior of Single-crystalline Au Thin-film Investigated by In-situ Nano-tensile Testing
Young-Cheon Kim, Ju-Young Kim
Ulsan National Institute of Science and Technology

ND-1424 15:00-15:15
CeO2 Nanocrystal-embedded Catalytic Cordierite Disc Filters for Selective Catalytic Reduction of NOx Gases
Young Keun Kim[1], Su Hyo Kim[1], Bum Chul Park[1], Yoo Sang Jeon[1], Min Chul Shin[2], Jin Sun Cha[2]
[1]Korea University, [2]Korea Testing Laboratory

ND-1362 **Noise Reduction Treated Boron Nitride Nanopore for High Signal to Noise Ratio**
15:15-15:30 Kyeong Beom Park, Hyungjun Kim, Jeong-Mo Yeo, Ashvani Kumar, Hyun-Mi Kim, Ki-Bum Kim
Seoul National University

ND-1338 **The Detection of SNP(Single Nucleotide Polymorphism) using Low-Noise Solid-state Nanopore**
15:30-15:45 Jae-Seok Yu[1], Min-Cheol Lim[2], Young-Rok Kim[2], Ki-Bum Kim[1]
[1]Seoul National University, [2]Kyung Hee University

ND-1219 **Light Induced Ionic Noise in Si and Quartz based Solid-state Nanopore Device**
15:45-16:00 Hyungjun Kim[1], Pitchford William[2], Kyeongbeom Park[1], Hyunmi Kim[1], Joshua B. Edel[2], Ki-Bum Kim[1]
[1]Seoul National University, [2]Imperial College London

ND-0943 **Thermal Spreading in Transparent Carbon Nanofilms**
16:00-16:15 Duckjong Kim, Da Bin Kim
Korea Institute of Machinery and Materials

ND-0392 **Room Temperature Precipitation of Flower-like Zn4SO4(OH)6·5H2O Nanostructures Composed of Ultrathin Nanosheets and their Calcination to S-doped ZnO**
16:15-16:30 Feng Yang
Southwest Jiaotong University

Mechanics in Nano Devices (organized by KIM)

Nov. 19, 2014 (Wed.)

S24-1 (Mechanics in Nano Devices 1)

Ballroom 2

Chair: Ju-Young Kim (Ulsan National Institute of Science and Technology) 13:00-15:00

S24-1-2673 **Structural Analysis of 3D Cellular Materials: Experiments and Simulations**
13:00-13:20 Heung Nam Han[1], Hoon-Hwe Cho[1], Yigil Cho[2], Keunho Lee[1], Ki Tae Nam[1]
Invited Speech *[1]Seoul National University, [2]University of Pennsylvania*

S24-1-2839 **3-Dimensional Hollow Ceramic Nano-Architectures: Fabrication and Deformation**
13:20-13:40 Dongchan Jang
Invited Speech *Korea Advanced Institute of Science and Technology*

S24-1-3152 **Ionic Skin**
13:40-14:00 Jeong-Yun Sun
Invited Speech *Seoul National University*

S24-1-2562 **Effect of Loading Mode in Graphene Strength Measurements**
14:00-14:20 Jihoon Han, Seunghwa Ryu
Invited Speech *Korea Advanced Institute of Science and Technology*

S24-1-2397 **Interfacial Adhesion and Reliability Issues in Printed Metal Interconnects**
14:20-14:40 Young-Bae Park
Invited Speech *Andong National University*

S24-1-2867 **Mechanical Reliability of Advanced Thin Films**
14:40-15:00 Taek-Soo Kim
Invited Speech *Korea Advanced Institute of Science and Technology*

Nov. 19, 2014 (Wed.)

S24-2 (Mechanics in Nano Devices 2)

Ballroom 2

Chairs: Sang Ho Oh (Pohang University of Science and Technology) 15:30-17:50
Dongchan Jang (Korea Advanced Institute of Science and Technology)

S24-2-2574 **Mechanical Reliability of Nanostuctured Metal Electrode for Flexible Devices**
15:30-15:50 Byoung-Joon Kim
Invited Speech *Korea Institute of Materials Science*

S24-2-2627 **Flexible and Stretchable Electrode for Energy Storage Devices**
15:50-16:10 Seungmin Hyun
Invited Speech *Korea Institute of Machinery and Materials*

S24-2-2504 **In-situ Lithiation Study of Si Nanostructures for Li Ion Battery towards Flexible Batteries**
16:10-16:30 In-Suk Choi
Invited Speech *Korea Institute of Science and Technology*

S24-2-2434 **Toughening in Nanotwinned Hierarchical Materials: a Lesson from Nature**
16:30-16:50 Sang Ho Oh
Invited Speech *Pohang University of Science and Technology*

S24-2-2425 **An in-situ Transmission Electron Microscopy Study of TiNi-(Hf) Alloys with Precipitates**
16:50-17:10 Seong-Woong Kim[1], Jong-Taek Yeom[1], Hyun-Gyu Kim[2]
Invited Speech *[1]Korea Institute of Materials Science, [2]Seoul National University of Science and Technology*

S24-2-2443 **Surface Treatment of Nanoporous Gold for Enhancing Mechanical Properties**
17:10-17:30 Young-Cheon Kim, Na-Ri Kang, Ju-Young Kim
Invited Speech *Ulsan National Institute of Science and Technology*

S24-2-2748 **Mechanical Properties of Metal Nanowires and Application in Flexible Transparent Electrode**
17:30-17:50 Seung Min Han, Byungil Hwang
Invited Speech *Korea Advanced Institute of Science and Technology*

Advances in Magnetic Nanomaterials (organized by KIM)

Nov. 19, 2014 (Wed.)

S22-1 (Advances in Magnetic Nanomaterials 1) Ballroom 3

Chair: Young Keun Kim (Korea University) 13:00-15:00

S22-1-3059 **Manipulation of Magnetic Anisotropy in Co-based Electrodeposited Nanowires**
13:00-13:30 Alexander Samardak[1], Alexey Ognev[1], Ekaterina Sukovatitsina[1], Liudmila Chebotkevich[1], Sergey Komogortsev[2], Majid Peighambari[3], Masoum Nadi[3], Farzad Nasirpouri[3]
Invited Speech *[1]Far Eastern Federal University, [2]L.V. Kirensky Institute of Physics, [3]Sahand University of Technology*

S22-1-3060 **Asymmetric Bilayer Nanomagnets with Stable Spin Configurations for Ternary Logic and Magnetoresistive Memory**
13:30-14:00 Maxim Stebliy, Alexander Kolesnikov, Ludmila Chebotkevich, Alexey Ognev, Alexander Samardak
Invited Speech *Far Eastern Federal University*

S22-1-2675 **Duffing Oscillation Induced Magnetic Vortex Core Reversal**
14:00-14:30 Chanyong Hwang
Invited Speech *Korea Research Institute of Standards and Science*

S22-1-0510 **Shape Induced Magnetism in 2 Dimensional Nanoplates**
14:30-15:00 Jung-Il Hong
Invited Speech *Daegu Gyeongbuk Institute of Science & Technology*

Nov. 19, 2014 (Wed.)

S22-2 (Advances in Magnetic Nanomaterials 2)

Ballroom 3

Chair: Jung-Il Hong (Daegu Gyungbuk Institute of Science and Technology) 15:30-18:00

S22-2-2854 15:30-16:00 Invited Speech
Biocompatibly-surfaced Magneto-photoluminescent Nanostructures: Facile Nanoemulsion Growth and Multifunctional Properties
JunHua Wu[1], HongLing Liu[2], Ji Hyun Min[3], Young Keun Kim[3]
[1]South University of Science and Technology of China, [2]Henan University, [3]Korea University

S22-2-2714 16:00-16:30 Invited Speech
Analysis of Photonic Activation Properties of Magnetic Nanoclusters in Cells
Yu Jin Kim, Bum Chul Park, Young Soo Choi, Young Keun Kim
Korea University

S22-2-1652 16:30-17:00 Invited Speech
Metallic Glasses: Overview for Structural and Functional Applications
Haein Yim
Sookmyung Women's University

S22-2-1679 17:00-17:30 Invited Speech
Flexible Magnetoelectronics
Ramulu Torati, CheolGi Kim
Daegu Gyungbuk Institute of Science and Technology

S22-2-1594 17:30-18:00 Invited Speech
Domain Wall Dynamics of the In-plane and Perpendicular Magnetic Anisotropy Nanowires with Perpendicular Magnetic Field Pulses
Chun-Yeol You[1], June-Seol Kim[2], Jungbum Yoon[1], Mathias Klaui[3]
[1]Inha University, [2]Eindhoven University of Technology, [3]Johannes Gutenberg-Universitat Mainz

Women in Materials Science

Nov. 19, 2014 (Wed.)

S26-1 (Women in Materials Science 1)

Chuja

Chairs: Haein Yim (Sookmyung Women's University)
Hyunjung Lee (Kookmin University) 13:00-15:00

S26-1-2464 13:00-13:30 Invited Speech
Metal Nanowires for Printed Electronics
Haekyoung Kim
Yenungnam University

S26-1-2057 13:30-14:00 Invited Speech
Foldable Inorganic Electrode Materials for Application in Flexible Electronics
Jin-Woo Park
Yonsei University

S26-1-3124 14:00-14:30 Invited Speech
Solution Processed Flexible Electronics
Mijung Lee
Kookmin University

S26-1-2500 **Free Standing Reduced Graphene Oxide Film Cathodes for Lithium Ion Batteries**
14:30-15:00 Sung Hoon Ha, Yo Sub Jeong, Yun Jung Lee
Invited Speech *Hanyang University*

Nov. 19, 2014 (Wed.)

S26-2 (Women in Materials Science 2) Chuja

Chairs: Haekyoung Kim (Yeungnam University) 15:30-18:00
Mijung Lee (Kookmin University)

S26-2-2563 **Thermoelectric Properties of Carbon Based Hybrid Composites**
15:30-16:00 Hyunjung Lee
Invited Speech *Kookmin University*

S26-2-2343 **Multi-scale-architectured Thin-film-based Solid Oxide Fuels Cells**
16:00-16:30 Ji-Won Son
Invited Speech *Korea Institute of Science and Technology*

S26-2-2638 **Atomic Scale Analysis of Interface of Oxide Heterostructure using Cs-corrected STEM**
16:30-17:00 Hye Jung Chang[1], Jong Kwon Choi[2]
Invited Speech *[1]Korea Institute of Science and Technology, [2]LG Display*

S26-2-2680 **Energy Harvesting Technology for Wearable and Implantable Applications**
17:00-17:30 Miso Kim
Invited Speech *Korea Research Institute of Standards and Science*

S26-2-1821 **Self-assembled Network Structures in Al/C60 Composites**
17:30-18:00 Hyunjoo Choi
Invited Speech *Kookmin University*

Plasma & Nano Technology Commercialization

Nov. 19, 2014 (Wed.)

S25-1 (Plasma & Nano Technology Commercialization 1) Ballroom 1

Chair: Seong In Kim (Cheorwon Plasma Research Institute) 13:00-15:00

S25-1-3182 **Functionalization Study of Nano-powder by Plasma Treatment and the Plasma System Development**
13:00-13:30 Yong-Hwan Kim[1], Seok-Kyun Song[2], Jung Chul Shin[2], Man Ki Jung[2], Deuk Yeon Lee[2], Seong In Kim[2]
Invited Speech *[1]INFOVION Inc., [2]Cheorwon Plasma Research Institute*

S25-1-3207 **Application of Nano Sized Composite Zero-valent Iron in Agriculture**
13:30-14:00 Mi-Ri Park[1], Joong Il Kim[1], Youn Su Lee[2], Charles Lee[3], Byung-Koo Son[1], Seong In Kim[1]
Invited Speech *[1]Cheorwon Plasma Research Institute, [2]Kangwon National University, [3]GL Materials Inc.*

S25-1-3210 **Magnetic and Magneto-transport Properties of Amorphous CoSiB/Pt Multilayers**
14:00-14:30 Taewan Kim[1], Yongduk Kim[2], Byungyeon Kim[2], Seong In Kim[2]
Invited Speech *[1]Sejong University, [2]Cheorwon Plasma Research Institute*

S25-1-3223 **Thermal Plasma System and Technology for Synthesis of Nano-particle**
14:30-15:00 Byungkoo Son, Byunghoon Kim, Moonwon Lee, Sanggeun Han, Kyungsuk An
Invited Speech *Cheorwon Plasma Research Institute*

Nov. 19, 2014 (Wed.)

S25-2 (Plasma & Nano Technology Commercialization 2)

Ballroom 1

Chair: Seong In Kim (Cheorwon Plasma Research Institute) 15:30-18:00

S25-2-3248 **Development of Electromagnetic Shielding Sheet using Nano-Thin Exfoliated Graphite**
15:30-16:00 Kyu-Hang Lee[1], Myoung-Sun Shin[1], Jung-Gil Kim[1], Yoon-Hyun Kim[2], Sung-Yong Park[2], Sun-Yong Choi[1], Seong-In Kim[1]
Invited Speech *[1]Cheorwon Plasma Research Institute, [2]Chang Sung Corporation*

S25-2-3238 **Low Power Wireless Control of Visual Information for Sports Event and Sports Information Management Applications**
16:00-16:30 Brian Lee[1], James Seol[1], Young-wook Ko[2], Seong-in Kim[2]
Invited Speech *[1]Senaya Co.LTD, [2]Cheorwon Plasma Research Institute*

S25-2-3239 **Synthesis of Novel Carbon-metal Nano Materials using Plasma Processing and Its Challenging Applications**
16:30-17:00 Yong Sul Song[1], Won Young Lee[2], Yong Ju Jung[2], Won Seok Choi[2]
Invited Speech *[1]Amogreentech Co., Ltd, [2]Cheorwon Plasma Research Institute*

S25-2-3244 **Structure Analysis of Nano-Metal/Exfoliated Graphite Hybrid Materials Synthesized by RF Thermal Plasma and its Applications**
17:00-17:30 Myoung-Sun Shin[1], Kyu-Hang Lee[1], Jung-Gil Kim[1], Yong-Nam Jo[2], Min-Sik Park[2], Sung-Yong Park[3], Yun-Hyun Kim[3], Sun-Yong Choi[4], Sung-Man Lee[5], Seong-In Kim[4]
Invited Speech *[1]Kwangwoon University, [2]Korea Electronics Technology Institute, [3]Chang Sung Corporation, [4]Cheorwon Plasma Research Institute, [5]Kangwon National University*

S25-2-3228 **Mussel-inspired EUV Pellicle Surface Functionalization**
17:30-18:00 Haeshin Lee
Invited Speech *Korea Advanced Institute of Science and Technology*

Progress in Carbon based Nanodevices

Nov. 19, 2014 (Wed.)

S9 (Progress in Carbon based Nanodevices) Biyang

Chairs: Min Park (Korea Institute of Science and Technology) 13:00-15:30
Dong Ick Son (Korea Institute of Science and Technology)

S9-1580 **Synthesis and Applications of ZnO-nanocarbons Hybrid Quantum Dots**
13:00-13:30 Won-Kook Choi
Keynote Speech *Korea Institute of Science and Technology*

S9-3323 **Transfer Process and Interface Engineering for High Performance Graphene Electronics**
13:30-14:00 Sung-Yool Choi
Invited Speech *Korea Advanced Institute of Science and Technology*

S9-3345 **Nanocarbon-based Flexible Electrode Technology for Flexible Devices**
14:00-14:30 Joong Tark Han
Invited Speech *Korea Electrotechnology Research Institute*

S9-0208 **Carbon Nanostructures as Novel Mode-locking Devices in Ultrafast Lasers**
14:30-15:00 Fabian Rotermund
Invited Speech *Ajou University*

S9-3355 **Flexible and Twistable All Organic Non-Volatile Memory Cell Array with One Diode-One Resistor Architecture**
15:00-15:30 Tae-Wook Kim
Invited Speech *Korea Institute of Science and Technology*

Thermoelectric Technology (organized by KIM)

Nov. 19, 2014 (Wed.)

S23-1 (Thermoelectric Technology 1) Ballroom 4

Chair: Kyu Hyoung Lee (Kangwon National University) 13:00-15:00

S23-1-3336 **Simulation of Topological Insulators with Impurities and Defects**
13:00-13:30 Hyoung Joon Choi
Invited Speech *Yonsei University*

S23-1-3331 **Thermoelectric Properties of GeTe/Bi2Te3 Mixed Layer Compounds**
13:30-14:00 Jae Nyeong Kim, Ji Hoon Shim
Invited Speech *Pohang University of Science and Technology*

S23-1-3293 **Understanding of Physical Properties of Bi2Te3-related Compounds and Thereby tuning Thermoelectric Properties**
14:00-14:30 Min-Wook Oh, J. H. Son, B. Ryu, J. E. Lee, S. J. Joo, B. S. Kim, B. K. Min, H. W. Lee, S. D. Park
Invited Speech *Korea Electrotechnology Research Institute*

S23-1-3290 **Nanostructuring for Bi2Te3-based Thermoelectric Materials: A Review**
14:30-15:00 Kyuhyoung Lee
Invited Speech *Kangwon National University*

Nov. 19, 2014 (Wed.)

S23-2 (Thermoelectric Technology 2) Ballroom 4

Chair: Su-Dong Park (Korea Electrotechnology Research Institute) 15:30-18:00

S23-2-3286 **Thermoelectric Applications of Chemically Synthesized Nanoparticles**
15:30-16:00 Jae Sung Son
Invited Speech *Ulsan National Institute of Science and Technology*

S23-2-3301 **Effects of Synthesis Conditions on Thermal and Thermoelectric Properties of Na-doped PbTe**
16:00-16:30 Woochul Kim
Invited Speech *Yonsei University*

S23-2-2684 **Doping Induced Microstructure Formation and Thermoelectric Property Control in Bi2Te3: DFT Investigations**
16:30-17:00 Ki-jeong Kong[1], Hyunju Chang[1], S. D. Park[2], J. K. Lee[2]
Invited Speech *[1]Korea Research Institute of Chemical Technology, [2]Korea Electrotechnology Research Institute*

S23-2-1543 **Micro Thermoelectric Generator for High-temperature Applications**
17:00-17:30 Seungwoo Han[1], Ye Ji Oh[2]
Invited Speech *[1]Korea Institute of Machinery and Materials, [2]Jungwon University*

S23-2-3298 **Development of a Heated and Cooled Cup Holder for a Vehicle using Thermoelectric Element**
17:30-18:00 Manju Oh, Jaewoong Kim, Jaewoo Park
Invited Speech *Hyundai Motor Company*

2014 Annual Materials Frontiers Forum

Nov. 19, 2014 (Wed.)

S27-1 (2014 Annual Materials Frontiers Forum 1) Ara

Chairs: Young-Chang Joo (Seoul National University) 13:00-15:00
Ki Tae Nam (Seoul National University)

S27-1-3143 **Synthesis, Thermoelectric Properties and Mechanism of Titania-Based Nanostructured Materials**
13:00-13:30 Lei Miao[1], Chengyan Liu[1], Rong Huang[2], Craig A. J Fisher[3], Sakae Tanemura[3]
Invited Speech *[1]Guangzhou Institute of Energy Conversion, Chinese Academy of Sciences, [2]East China Normal University, [3]Japan Fine Ceramics Center*

S27-1-3148 **Nanofabrication for Bio-Information Technology**
13:30-14:00 Ki-Bum Kim
Invited Speech *Seoul National University*

S27-1-3099 **Li-ion Transport in Rocksalts and Demonstration of High Capacity Cathode Materials with Substantial Cation Disorder**
14:00-14:30 Gerbrand Ceder, Jinhyuk Lee, Alex Urban
Invited Speech *Massachusetts Institute of Technology*

S27-1-3185 **Mesoscopic Order and Open-circuit Voltage in Organic Solar Cells**
14:30-15:00 Carl Poelking[1], Max Tietze[2], Chris Elschner[2], Selina Olthof[3], Dirk Hertel[3], Bjoern Baumeier[1], Frank Würthner[4], Klaus Meerholz[3], Karl Leo[2], Denis Andrienko[1]
Invited Speech *[1]Max Planck Institute for Polymer Research, [2]Institut für Angewandte Photophysik, [3]Universität zu Köin, [4]Universität Würzburg*

Nov. 19, 2014 (Wed.)

S27-2 (2014 Annual Materials Frontiers Forum 2)

Ara

Chairs: Seungwu Han (Seoul National University)
Kisuk Kang (Seoul National University)

15:30-18:00

S27-2-3184 **Luminescent Organic Semiconductors**
15:30-16:00 Soo Young Park
Invited Speech *Seoul National University*

S27-2-3193 **What is the Ultimate Efficiency of OLEDs?**
16:00-16:30 Jang-Joo Kim
Invited Speech *Seoul National University*

S27-2-3134 **Ferroelectricity in HfO2-based Thin Films**
16:30-17:00 Cheol Seong Hwang
Invited Speech *Seoul National University*

S27-2-3369 **Bioinspired Catalysts for CO2 Utilization and Solar Fuel**
17:00-17:30 Ki Dong Yang, Ki Tae Nam
Invited Speech *Seoul National University*

S27-2-3194 **Phase Stability and Electrical Properties of Amorphous Materials for Electronic Devices Investigated by Mechanical Stress Analysis**
17:30-18:00 Young-Chang Joo
Invited Speech *Seoul National University*

Atomic Two-Dimensional Materials and Physics

Nov. 19, 2014 (Wed.)

S28-1 (Atomic Two-Dimensional Materials and Physics 1)

Ora

Chair: Ho Won Jang (Seoul National University) 13:00-15:00

S28-1-3373 13:00-13:30 Invited Speech
Atomic Layer-by-Layer Thermoelectric Conversion in Topological Insulator Bismuth/Antimony Tellurides
Ji Ho Sung[1,2], Hoseok Heo[1,2], Inchan Hwang[1,2], Myungsoo Lim[2], Donghun Lee[1,2], Kibum Kang[1,2], Hee Cheul Choi[1,2], Jae-Hoon Park[2], Seung-Hoon Jhi[2], Moon-Ho Jo[1,2]
[1]Institute for Basic Science, [2]Pohang University of Science and Technology

S28-1-3351 13:30-14:00 Invited Speech
Ultrafast Terahertz Dynamics of Exciton and Dirac Fermion: Transition Metal Dichalcogenides and Topological Insulators
Hyunyong Choi
Yonsei University

S28-1-3337 14:00-14:30 Invited Speech
Van der Waals Heterostructures of Semiconducting Transition Metal Dichalcogenide Monolayers
Chul-Ho Lee
Korea University

S28-1-3359 14:30-15:00 Invited Speech
Triboelectric/Piezoelectric Properties in 2D Materials
Sang-Woo Kim
Sungkyunkwan University

Nov. 19, 2014 (Wed.)

S28-2 (Atomic Two-Dimensional Materials and Physics 2)

Ora

Chair: Chul-Ho Lee (Korea University) 15:30-17:30

S28-2-3348 15:30-16:00 Invited Speech
Synthesis and Transfer of Atomically Thin Transition Metal Disulfides on Silicon for High Performance Water Splitting Photocathodes
Seokhoon Choi[1], Ki Chang Kwon[1], Taemin Kim[1], Soo Young Kim[2], Ho Won Jang[1]
[1]Seoul National University, [2]Chung-Ang University

S28-2-3360 16:00-16:30 Invited Speech
Growth of Single-layer Graphene on H-terminated Germanium Surface
Dongmok Whang
Sungkyunkwan University

S28-2-3357 16:30-17:00 Invited Speech
Breakdown of the Interlayer Coherence and its Consequence on Quantum Hall Effects in Twisted Bilayer Graphene
Jun Sung Kim
Pohang University of Science and Technology

S28-2-3340 **Direct Observation and Manipulation of Edge-states of Atomic Scale Topological Insulators**

17:00-17:30 Han Woong Yeom

Invited Speech *Institute for Basic Science*

Poster Presentation

Materials and Processes for Logic and Memory Devices

Nov. 17, 2014 (Mon.)

MAP (Materials and Processes for Logic and Memory Devices) Ramada Ballroom Lobby

Chair: Jungwoo Oh (Yonsei University) 08:00-09:00 & 17:45-19:00

MAP-0353 **Low-power Switching of Phase Change Memory Ring Arrays formed by using Self-assembled Block Copolymer Nanostructures**
Woon Ik Park[1,2], Jong Min Kim[1], Jae Won Jeong[1], Jaesuk Choi[1], Kwang Ho Kim[2], Yeon Sik Jung[1]
[1]Korea Advanced Institute of Science and Technology, [2]Global Frontier Project Team

MAP-0723 **Polarization Fatigue in Ferroelectric PZT-SBN Ceramics**
Orapim Namsar[1], Anucha Watcharapasorn[1], Soodkhet Pojprapai[2], Sukanda Jiansirisomboon[1]
[1]Chiang Mai University, [2]Suranaree University of Technology

MAP-0909 **Analysis of Electronic Structure & Internal Photoemission at Interfaces in Metal-Insulator-Metal and Metal-Oxide-Semiconductor**
Sang Yeon Lee, Jin Seo Kim, Hyung Tak Seo
Ajou University

MAP-1350 **Fabrication of MnO Resistive Switching Random Access Memory (ReRAM) using Layer-by-layer (LbL) Process**
Chiyoung Lee[1], Myeonggi Kim[1], Jaegab Lee[1], Jinhan Cho[2]
[1]Kookmin University, [2]Korea University

MAP-1390 **Dielectric Properties of Strontium Carbonate doped Barium Iron Tantalum Ceramics**
Lalita Tawee, Gobwute Rujijanagul
Chiangmai University

MAP-1400 **Preparation and Dielectric Properties of (Sr1-xBax)Fe0.5Nb0.5O3 ; (x=0.0, 0.1 and 0.2) Ceramics**
Thanatep Phatungthane, Gobwute Rujijanagul
Chiangmai University

MAP-1883 **Charge Trap Memory Devices using Atomic Layer Depositions of Silicon Oxide and Silicon Nitride**
Yong-Ho Noh, Jae-Min Park, Byeol Han, Jong-Wan Jung, Won-Jun Lee
Sejong University

MAP-2033 **The Effect of Bi-doping on the Phase Change Properties of In3SbTe2**
Minho Choi[1], Yong Tae Kim[2], Jinho Ahn[1]
[1]Hanyang University, [2]Korea Institute of Science and Technology

MAP-2068 **Wide Voltage Operation for Resistive Switching in Metal/HfO2/Metal Resistors**
Yong Chan Jung, Sejong Seong, Taehoon Lee, In-Sung Park, Jinho Ahn
Hanyang University

MAP-2244 **Two-step Growth of High-quality InP Epitaxial Layers on GaAs (001) by Metal Organic Chemical Vapor Deposition**
Young Dae Cho[1,2], In-Geun Lee[1,2], In-Hye Choi[2], Chan-Soo Shin[2], Kyung-Ho Park[2], Won-Kyu Park[2], Hyuk-Min Kwon[3], Dae-Hyun Kim[3], Dae-Hong Ko[1]
[1]Yonsei University, [2]Korea Advanced Nano Fab Center, [3]SEMATECH

MAP-2465 **Effects of Magnetic Domain Walls on the Anisotropic Magnetoresistance in Permalloy Nanowires**
Chunhgee Nam
Hannam University

MAP-2654 **Carrier Transport Mechanism of Metal Contact on Amorphous Hafnium Indium Zinc Oxides**
Seongjun Kim, Youngun Gil, Hyunsoo Kim
Chonbuk National University

MAP-2706 **The Effects of High Pressure Annealing on the Tunneling Field Effect Transistor (TFET)**
Donghwan Lim[1], Woosuk Jung[1], Sung Kwan Lim[2], Yong Hun Kim[2], Uk Jin Jung[2], Byoung Hun Lee[2], Changhwan Choi[1]
[1]Hanyang University, [2]Gwangju Institute of Science and Technology

MAP-2788 **Engineering of Magnetic Properties of MgO/ CoFeB/ Nonmagnetic Layers for Magnetic Tunnel Junctions**
Hee-Gyum Park, Chul-Hyun Moon, Byoung-Chul Min, Kyung-Ho Shin
Korea Institute of Science and Technology

MAP-3053 **Electrochemical Deposition of Graphene Oxide/Metal Hybrid Film for Memristor Applications**
Mi-Seok Park, HyukSang Kwon
Korea Advanced Institute of Science and Technology

Materials and Process for BEOL and 3D Integration

Nov. 17, 2014 (Mon.)

MBP-1 (Materials and Process for BEOL and 3D Integration 1) Ramada Ballroom Lobby

Chair: Changhwan Choi (Hanyang University) 08:00-09:00 & 17:45-19:00

MBP-1-0294 **Growth Mechanism of Intermetallic Compounds in Au stud/Sn/Cu Pillar Bump under Electric Current Stressing**
Byeong-Rok Lee[1], Jun-Beom Kim[2], Sung-Hyuk Kim[3], Jong-Myeong Park[3], Young-Bae Park[1]
[1]Andong National University, [2]Hanamicron, [3]Nepes Corporation

MBP-1-0305 **Via Interface Modification of Embedded Chip Resistor Packages and its Effect on Drop Shock Reliability**
Young-ho Km[1], Jong Chul Park[2], Se-Hoon Park[2]
[1]Hanyang University, [2]Korea Electronics Technology Institute

MBP-1-0380 **Fabrication of Sn-3.5Ag Eutectic Alloy Powder by Annealing Sub-micrometer Sn@Ag Powder prepared by Citric Acid-assisted Ag Immersion-plating**
Eun Byeol Choi, Sang-Soo Chee, Jong-Hyun Lee
Seoul National University of Science and Technology

MBP-1-0523 **Prevention of TSV Cu Protrusion using Flexible Polymer Barrier Deposited by Self-assembled Layer-by-Layer Multilayers**
Daekyun Jeong, Chiyoung Lee, Heechul Yang, Pil-Ryung Cha, Jaegab Lee
Kookmin University

MBP-1-0687 **Miniaturized Front-End Module by Embedding an Active ICs and Capacitors**
Jong-In Ryu, Se-Hoon Park, Jong Chul Park
Korea Electronics Technology Institute

MBP-1-1011 **Effects of Annealing and Current Stressing on the Intermetallic Compounds Growth Kinetics of Cu/Sn-Ag Micro-bump**
Gyu-Tae Park[1], Seung-Hyun Kim[1], Jong-Jin Park[1], June-Bum Kim[1], Ho-Young Son[2], Tac-Keun Oh[2], Jong-Hoon Kim[2], Min-Suk Suh[2], Nam-Seog Kim[2], Young-Bae Park[1]
[1]Andong National University, [2]SK Hynix Inc.

MBP-1-1069 **The Role of Buffer Layers for Optimizing the Interface Roughness between the Bottom Pt Electrode and BaTiO3 Films Employing Aerosol Deposition**
Hong-Ki Kim, Seung-Hwan Lee, Cong Wang, Ye Sol Yun, Esther Baek, Jeong-Hyun Lee, Young-Hie Lee
Kwangwoon University

MBP-1-1165 **Effect on Post-Annealing (Ca0.7Sr0.3)(Zr0.8Ti0.2)O3 Films on Pt and Cu Substrates Fabricated by Aerosol Deposition**
Ye-Sol Yun, Seung-Hwan Lee, Hong-Ki Kim, Esther Baek, Jeong Hyun Lee, Young-Hie Lee
KwangWoon University

MBP-1-1437 **Carbon Nanotube-Silver Composite Metallization and its Chip Bonding Process for Wearable Electronics with Stretchability**
Jung-Yeol Choi, Dae-Woong Park, Tae Sung Oh
Hongik University

MBP-1-1648 **Warpage Characteristics of a Thin Package-on-Package Evaluated at Each Process Step of its Fabrication**
Dong-Hyeon Park[1], Dong-Myung Jung[1], Fabiano Colling[2], Carlos Moraes[2], Eduardo Rhod[2], William Hasenkamp[2], Tae Sung Oh[1]
[1]Hongik University, [2]Unisinos University

MBP-1-2405 **The Failure Analysis of the Salt-induced Corrosion of the Nickel Layer on an Electronic Connector**

Na-Ri Lee, Hyoung-Seuk Choi
Korea Institute of Ceramic Engineering and Technology

MBP-1-3206 **Preparation Ferroelectric KNN-LN based Borate Glass System**

Wilaiwan Leenakul[1], Pratthana Intawin[2], Chatchai Kruea-In[3]
[1]Rajamangala University of Technology PhraNakhon, [2]Chiang Mai University, [3]Chiang Mai Rajabhat University

Computational Design and Analysis of Electronic Materials

Nov. 17, 2014 (Mon.)

MCP (Computational Design and Analysis of Electronic Materials) Ramada Ballroom Lobby

Chair: Jungwoo Oh (Yonsei University) 08:00-09:00 & 17:45-19:00

MCP-0367 **Intermetallic Formation at Interface of Al/Cu Clad Fabricated by Hydrostatic Extrusion and its Properties**

Jongbeom Lee, Haguk Jeong
Korea Institute of Industrial Technology

MCP-1873 **Adsorption Energies Study of Aminosilane Precursors on Silicon Nitride Surface**

Luchana L. Yusup[1], Jae-Min Park[1], Sora Park[2], Young-Kyun Kwon[2], Won-Jun Lee[1]
[1]Sejong University, [2]Kyung Hee University

Materials and Process for Neuromorphic / Multivalued Logic Devices

Nov. 17, 2014 (Mon.)

MFP (Materials and Process for Neuromorphic / Multivalued Logic Devices) Ramada Ballroom Lobby

Chair: Jungwoo Oh (Yonsei University) 08:00-09:00 & 17:45-19:00

MFP-1253 **Design of an Artificial Retina Circuit Based on Memristor-CMOS Technology**

Sung Wan Cho[1], Kyoungrok Cho[1], Eshraghian Kamran[2]
[1]Chungbuk National University, [2]iDataMap Corporation

Soft Nanomaterials and Nanobiomaterials

Nov. 17, 2014 (Mon.)

NBP (Soft Nanomaterials and Nanobiomaterials) Ramada Ballroom Lobby

Chair: Yoon Sung Nam (Korea Advanced Institute of Science and Technology) 08:00-09:00 & 17:45-19:00

NBP-0829 **Simultaneous Drug and Gene Delivery from the Biodegradable Poly(ε-caprolactone) Nanofibers for the Treatment of Liver Cancer and Metastasis**
Hui-Lian Che[1], Mitsuhiro Ebara[2], Takao Aoyagi[2], Won Jong Kim[3], In-Kyu Park[1]
[1]Chonnam National University, [2]National Institute for Materials Science, [3]Pohang University of Science and Technology

NBP-0919 **Incorporation of MWCNTs into coating on Al Alloy processed by Plasma Electrolytic Oxidation**
Kang Min Lee[1], Yeon Sung Kim[1], Ki Ryong Shin[1], Young Gun Ko[2], Dong Hyuk Shin[1]
[1]Hanyang University, [2]Yeungnam University

NBP-0939 **Self-assembled Semi-solid Interface Generated from Amphiphilic Block Copolymers to Stabilize Nano-sized Emulsions**
Hwiseok Jun, Trang Huyen Le Kim, Jee Seon Kim, Yoon Sung Nam
Korea Advanced Institute of Science and Technology

NBP-1258 **Inorganic-Polymer Hybrid Functional Materials Prepared using Highly Open Porous Polymer Microspheres**
Ho Yeon Son[1], Dong Jae Lee[1], Jun Bae Lee[2], Chun Ho Park[2], Yoon Sung Nam[1]
[1]Korea Advanced Institute of Science and Technology, [2]COSMAX Research & Innovation Center

NBP-1773 **Synthesis and Characterization of SERS-active Gold Nanoflowers Encapsulated with Poly(N-isopropylacrylamide-co-acrylic acid) Hydrogels**
Saet Byeol Bae, Ji Hye Yoo, Sang Wha Lee
Gachon University

NBP-1942 **Self-assembly of Polymeric Nanospheres for the Applications of Superhydrophobic Surfaces**
Young-Sang Cho
Korea Polytechnic University

NBP-2449 **Silver Nanoparticle-Decorated Silica Spheres Exhibiting Antibacterial Effect on Air Filtration**
Young-Seon Ko[1], Yun Haeng Joe[2], Jungho Hwang[2], Kyoungja Woo[1]
[1]Korea Institute of Science and Technology, [2]Yonsei University

NBP-2457 **Optimized Fabrication of Magnetic Silica Microspheres Decorated with Silver Nanoparticles**
The Son Le, Young-Seon Ko, Kyoungja Woo
Korean Institute of Science and Technology

NBP-2863 **Identification of Natural Dyes on Ag Nanoparticles by Surface-Enhanced Raman Scattering**
Jihye Lee[1], Min Jung Kim[1], Philippe Walter[2], Yeonhee Lee[1]
[1]Korea Institute of Science and Technology, [2]Université Pierre et Marie Curie

NBP-2958 **Direct Observation of Plastic Deformation of Single Crystal Aragonite and Calcite**
Sungmin Moon, Yoon Ah Shin, Jiwon Jeong, Subin Lee, Sang Ho Oh
Pohang University of Science and Technology

Top Down & Bottom Up Nanopatterning & Nanofabrication

Nov. 17, 2014 (Mon.)

NCP (Top Down & Bottom Up Nanopatterning & Nanofabrication) Ramada Ballroom Lobby

Chair: Martin Pumera (Nanyang Technological University) 08:00-09:00 & 17:45-19:00

NCP-0693 **Easy Conversion of ZnO Nanorods Array to Nanosheets Array with Enhanced Photovoltaics Performance**
Feng Yang
Southwest Jiaotong University

NCP-0857 **Graphene-based Hybrid Nanostructures for Counter Electrodes in Dye-sensitized Solar Cells**
Jaeseok Gong, Yeongjin Lim, Hyonkwang Choi, Minhyon Jeon
Inje University

NCP-1151 **Metal Enhanced Photoluminescence in Nano- and Macroporous Plasmonic Metal Photonic Crystals**
Myung-Jin Lee[1], Kyu-Dong Lee[1], Kisun Kim[2], Seokwoo Jeon[2], Weon-Sik Chae[1]
[1]Korea Basic Science Institute, [2]Korea Advanced Institute of Science and Technology

NCP-1180 **Formation of Metal Nanoparticles via Dewetting of Immiscible Ni-Au Thin Film**
Jong Geun Park, Seung Sik Jang, Hye Jung Lee, Min Gyu Kim, Yong-Jun Oh
Hanbat National University

NCP-1342 **Characterization of Metal Thin Films Deposited by Laser Chemical Vapor Deposition (LCVD) at Atmospheric Pressure and its Applications**
Kyunghoon Jeong[1], Injae Byun[2], Do-Soon Jung[2], Jaegab Lee[1]
[1]Kookmin University, [2]Charm Engineering Co.

NCP-1397 **Atomic Force Microscopy-Assisted Normally-off AlGaN/GaN HEMTs**
Min-Seok Kang, Jung-Ho Lee, Susanna Yu, Sang-Mo Koo
KwangWoon University

NCP-1962 **Electrochemical Analysis of Carbon-based Counter Electrodes for Dye Sensitized Solar Cells**
Yeongjin Lim, Jaeseok Gong, Minjeong Park, Hyonkwang Choi, Minhyon Jeon
Inje University

NCP-2073 **Synthesis of Si or F-containing Block Copolymers and their Application for Nanolithography**
Yoon Hyung Hur, Jong Min Kim, Yeon Sik Jung
Korea Advanced Institute of Science and Technology

NCP-2214 **Fabrication and Analysis of Core/Shell Nano-composites using Atomic Layer Deposition**
Sejong Seong, Yong Chan Jung, Taehoon Lee, In-Sung Park, Jinho Ahn
Hanyang University

NCP-2245 **Fabrication of Step-structured Molybdenum Disulfide by Block Copolymer Assisted Nanoscale Etching**
Soonmin Yim, Dong Min Sim, Yeon Sik Jung
Korea Advanced Institute of Science and Technology

NCP-2253 **Selectively Growth of ZnO Nanorod Arrays by Modulating the Surface Roughness of GaN using KrF Laser**
Buem Joon Kim, Jong-Lam Lee, Hyung Won Cho, Jae Yong Park
Pohang University of Science and Technology

NCP-2502 **Hetero-Nanostructures Formation on the Surface of Carbon-based Material by Plasma Treatment**
Tae-Jun Ko[1], Kyu Hwan Oh[1], Myoung-Woon Moon[2]
[1]Seoul National University, [2]Korea Institute of Science and Technology

NCP-2557 **Rapid Micro-foaming of Polyimide Film with UV Pulsed Laser and Chemical Blowing Agent**
Yong Won Ma, Bo Sung Shin, Myung Yung Jeong, Jae Yong Oh, Chan Park, Moon Suk Kang, Myung Ju Kim, Sung Moo Hong
Pusan National University

NCP-2603 **Uniform AgNi Nanomesh Film for Use as a Highly Robust and Flexible Transparent Conducting Electrode**
Han-Jung Kim, Su-Han Lee, Jihye Lee, Eung-Sug Lee, Jun-Hyuk Choi, Jun-Ho Jeong, Joo-Yun Jung, Dae-Geun Choi
Korea Institute of Machinery & Materials

NCP-2624 **Nanopore Perforation in Various Membrane Material by Focused Electron Beam in Transmission Electron Microscope**
Hyun-Mi Kim, Seong-Yong Cho, Ki-Bum Kim
Seoul National University

NCP-2833 **Surface Treatment of Air Gap Membrane Distillation (AGMD) Condensation Plates: Techniques and Influences on Module Performance**
Rachel Ananda Harianto, Rio Aryapratama, Wonjin Jo, Seockheon Lee, Heon Ju Lee
Korea Institute of Science and Technology

NCP-2860 **Super-hydrophobic and Oleophobic Glass prepared by Plasma Etching and Thermal Deformation**
Taeho Son[1], Eunjin Yang[1], EuSun Yu[2], Myoung-Woon Moon[2], Ho-Young Kim[1]
[1]Seoul National University, [2]Korea Institute of Science and Technology

NCP-3079 **Nanodomain Swelling Block Copolymer Lithography for Morphology Tunable Metal Nanopatterning**
Jeong Ho Mun, Seung Keun Cha, Jeong Eun Baek, Sang Ouk Kim
Korea Advanced Institute of Science and Technology

NCP-3086 **Device-oriented Complex Nanostructures by Block Copolymer Lithography**
Seung Keun Cha[1], Dong Ok Shin[2], Jeong Ho Mun[1], Sang Ouk Kim[1]
[1]Korea Advanced Institute of Science and Technology, [2]Electronics and Telecommunications Research Institute

LED Materials and Devices

Nov. 17, 2014 (Mon.)

DBP-1 (LED Materials and Devices 1)

Ramada Ballroom Lobby

Chair: Cheolmin Park (Yonsei University)

08:00-09:00 & 17:45-19:00

DBP-1-0310 **Epitaxially-grown Europium-doped Barium Titanate Films on Various Substrates for Red Emission**
Young-Sun Jeon[1], Sung-Dai Kim[1], Young-Hwan Lee[2], Seung Hwangbo[3], Jin-Tae Kim[4], Kyu-Seog Hwang[1]
[1]Nambu University, [2]Chunnam Techno University, [3]Honam University, [4]Chosun University

DBP-1-0568 **Controllable White Upconversion Luminescence of Ho3+/Tm3+/Yb3+ Codoped NaLa(WO4)2 Phosphors**
Jung-Il Lee, Ji Young Lee, Tae Wan Kim, Ji Young Shin, Bo Seul Lee, Jeong Ho Ryu
Korea National University of Transportation

DBP-1-0793 **Fabrication and Property Analysis of Light-Emitting Diode Package Substrate by using Flexible Printed Circuit Board**
Jung-Kab Park, Jin-Ha Shin, Young-Lae Cho, Jung-Woo Lee, Hwa-sun Park, Su-Jung Suh
Sungkyunkwan University

DBP-1-0816 **Study of Thermal Properties of Anorthite-based Glass-ceramics of Varying Surface Treatment Conditions for LED Packaging Materials**
Seunggu Kang, Yuna Lee
Kyonggi University

DBP-1-1279 **The Growth Evolution of K-doped ZnO Nanorods by Hydrothermal Growth Method on Semipolar (11-22) GaN Films**
Soohwan Jang[1], Pyunghee Son[2], Sung-Nam Lee[3], Kwang Baik[2]
[1]Dankook University, [2]Hongik University, [3]Korea Polytechnic University

DBP-1-1346 **Effect of ZrO2/SiO2 Ratio on the Thermal Properties of ZrO2-CaO-MgO-SiO2 Glass-ceramics for LED Packaging**
Da Young Lee, Seung Gu Kang
Kyonggi University

DBP-1-1373 **Effect of ZnO Single Crystal Addition on Anorthite Glass-ceramic for High Thermal Conduction Application**
Soobin Park, Seung Gu Kang
Kyonggi University

DBP-1-1388 **Effect of MgAl2O4 Spinel Addition on Phase Generation and Thermal Properties of MgO-Al2O3-SiO2 Glass-ceramics for LED Packages**
Seunggu Kang, Jihwan Won
Kyonggi University

DBP-1-1445 **Lateral Overgrowth of a-plane Epitaxial ZnO using Hydrothermal Method**
Pyunghee Son[1], Kwang Hyeon Baik[1], Soohwan Jang[2]
[1]Hongik University, [2]Dankook University

DBP-1-1518 **Effect of ZnO Filler Type on Li2O-ZrO2-SiO2 Glass-ceramics for LED Packaging**
Jimin Kang, Seunggu Kang
Kyonggi University

DBP-1-2403 **The Reliability Evaluation of the Single Crystal by Conoscopy**
Eunhye Jang, Hyoungseuk Choi
Korea Institute of Ceramic Engineering & Technology

DBP-1-2555 **Improvement of Al0.6Ga0.4N Layer for Deep Ultraviolet Light Emitting Diodes Grown on c-plane Sapphire by using a Step-graded AlGaN Layer**
Jaedo Pyeon, Jinwan Kim, Kyungjae Lee, Daeyong Eom, Minhwan Jeon, Cheon Heo, Okhyun Nam
Korea Polytechnic University

DBP-1-2671 **Highly Reflective Nonalloyed Ag-based Contacts to p-GaN for High-efficiency Light-emitting Diode**
Munsik Oh, Hyunsoo Kim
Chonbuk National University

DBP-1-2771 **Spatial Investigation between Structural Properties and Exciton Dynamics in Semipolar (11-22) GaN Grown on M-sapphire using Thick-SiO2 Mask**
Kyuseung Lee[1], Joocheol Jeong[1], Jongjin Jang[1], Gyeungho Kim[2], Yong-Hoon Cho[3], Okhyun Nam[1]
[1]Korea Polytechnic University, [2]Korea Institute of Science and Technology, [3]Korea Advanced Institute Science and Technology

DBP-1-2847 **Leakage Current of GaN-based Light-Emitting Diodes Analyzed by Parastic Diode Model**
Eunjin Jung, Seonghoon Jeong, Youngun Gil, Youngran Choi, Kyurin Kim, Hyunsoo Kim
Chonbuk National University

DBP-1-3020 **Electrostatic Discharge Characteristics of InGaN/GaN Light-emitting Diodes with Si-doped Graded Superlattice**
Kwanjae Lee[1], Jin Soo Kim[1], Cheul-Ro Lee[1], Jin Hong Lee[2], Jae-Young Leem[3]
[1]Chonbuk National University, [2]Korea Photonics Technology Institute, [3]Inje National University

DBP-1-3071 **Eutectic Bonding Utilizing Radio Frequency Induction Heating for Fabricating Vertical Light-emitting Diodes**
Eunmi Choi[1], Su Jin Chae[1], Min Seok Oh[1], Yong Won Cha[2], Sung Gyu Pyo[1]
[1]Chung-Ang University, [2]Ltrin Co.

OLED Materials and Devices

Nov. 17, 2014 (Mon.)

DCP (OLED Materials and Devices) Ramada Ballroom Lobby

Chair: Cheolmin Park (Yonsei University) 08:00-09:00 & 17:45-19:00

DCP-0182 **Synthesis and Electroluminescent Properties of 9,10-diphenylanthracene end-capped 5*H*-pyrido[3,2-*b*]indole Groups for Blue Organic Light-Emitting Diodes**
Seul Bee Lee[1], Soo Na Park[1], Chan Woo Kim[1], Ho Won Lee[2], Young Kwan Kim[2], Seung Soo Yoon[1]
[1]Sungkyunkwan University, [2]Hongik University

DCP-0183 **An Efficient Blue OLED using N2,N2,N11,N11,5,6,8-heptaphenyltriphenylene-2,11-diamine as Emitting Material**
Soo Na Park[1], Chanwoo Kim[1], Seul Bee Lee[1], Ho Won Lee[2], Young Kwan Kim[2], Seung Soo Yoon[1]
[1]Sungkyunkwan University, [2]Hongik University

DCP-0696 **Effect of Semitransparent Conductor for Integration on Active Matrix Organic Light-Emitting Diodes**
Ho Won Lee[1], Jaehoon Park[2], Song Eun Lee[1], Jae Woo Lee[1], Yong Sun[1], Han Kyu Yoo[1], Sungkyu Lee[1], Kyo Min Hwang[1], Eou Sik Cho[3], Young Kwan Kim[1]
[1]Hongik University, [2]Hallym University, [3]Gachon University

DCP-0841 **Efficient TADF Emitters based on Carbazole/Triazine Hybrids**
Geon Hyeong Lee, Dong Yuel Kwon, Young Sik Kim
Hongik University

DCP-0845 **Phenylindolocarbazole/Oxadiazole Hybrids for Blue TADF Emitter**
Dong Yuel Kwon, Geon Hyeong Lee, Young Sik Kim
Hongik University

DCP-1013 **Chemical Analysis of Patterned Mask Cleaning in Organic Light Emitting Diode Fabrication with Raman Spectroscopy**
Yinhua Cui, Soon Hyeong Kwon, Eunmi Choi, Areum Kim, Seon Jea Lee, Keun Won Kang, Soyun Park, Sung Gyu Pyo
Chung-Ang University

DCP-1245 **The Analysis of Glass Bending Strength according to the Array Separation of Pillars for Maintaining Vacuum Gap of Vacuum Glass**
Jaekyung Kim, Euysik Jeon
Kongju National University

DCP-1479 **Fabrication of ZnO/AgNW/ZnO/AgNW/ZnO Multilayer Transparent Conductive Thin Films for Optoelectronic Applications**
Sslimsearom You, Yu Sup Jung, Hyung Wook Choi, Kyung Hwan Kim
Gachon University

DCP-2156 **Mechanism of Peel-off of Metal Thin Film for Flexible OLED Substrate : Effect of Surface Pre-treatment**
Sungjoo Kim, Seungo Gim, Jong-Lam Lee
Pohang University of Science and Technology

DCP-2287 **Research on Synthesis and Characterization of Poly(fluorene-co-benzothiadiaziole) for Polymer Light-emitting Diodes (PLEDs)**
Han-Sol Namkung, Ja-Min Lee, Dong-Kyu Park, Chung-Gi Kim
Kyungsung University

DCP-2325 **Enhancement of the Efficiency in Top Emission Organic Light-emitting Devices Utilizing an 1,4,5,8,9,11-hexaazatriphenylene Hexacarbonitrile Silver Top Electrode**
Young Pyo Jeon, Yong Hoon Choi, Ki Hyun Kim, Tae Whan Kim
Hanyang University

DCP-2585 **Electrical and Adhesion Properties of Sputter Deposited Cr Thin Films by Glancing Angle Deposition**
Kwang-Jin Bae, Eun-Wook Jeong, Kwun Nam Hui, Ho-Hwan Chun, Young-Rae Cho
Pusan National University

DCP-2700 **Characterization and Electroluminescence Properties of a New Green Light-Emitting Material Containing Phenothiazine and Oxadiazole**
Mansu Kim, Jaeik Han, Kwang-Hyun Ahn, Young Chul Kim
Kyung Hee University

DCP-2707 **White Organic Light-Emitting Diodes based on the Solid State Solvation Effect of a Donor-Acceptor Type Molecule**
Soyeong Ahn, Jae Neung Kim, Young Chul Kim
Kyung Hee University

Advanced Li-ion Battery Materials

Nov. 17, 2014 (Mon.)

EAP (Advanced Li-ion Battery Materials) Ramada Ballroom Lobby

Chair: Kisuk Kang (Seoul National University) 08:00-09:00 & 17:45-19:00

EAP-0268 **Synthesis and Electrochemical Performance of Various Transition-metal doped Li3V2(PO4)3/graphene Cathode Materials for Li-ion Batteries**
Man-Soo Choi[1], Hyun-Soo Kim[1], Young-Moo Lee[2], Bong-Soo Jin[1]
[1]Korea Electrotechnology Research Institute, [2]Hanyang University

EAP-0389 **Electrochemical Performance of Recovery Silicon from Waste Silicon Sludge as Lithium Ion Battery**
Yun-Ho Jin, Kyung-Soo Park, Hang-Chul Jung
Institute for Advanced Engineering

EAP-0406 **Electrochemical Performances of the Y-doped Li3V2-XYX(PO4)3/C Cathode Material for Lithium Secondary Battery**
Minchan Jeong[1], Hyun-Soo Kim[1], Dong-Sik Bae[2], Bong-Soo Jin[1]
[1]Korea Electrotechnology Research Institute, [2]Changwon National University

EAP-0414 **Effects of the Fluorine-Substitution and Acid Treatment on the Electrochemical Performances of 0.3Li2MnO3•0.7LiMn0.60Ni0.25Co0.15O2 Cathode Material for Li-Ion Battery**
Seon-Min Kim, Bong-Soo Jin, Sang-Min Lee, Hyun-Soo Kim
Korea Electrotechnology Research Institute

EAP-0417 **Polymer Nanocomposite Electrode Consisting of Polyaniline and Modified Multi-walled Carbon Nonotube for Rechargeable Battery**
Jung Sun Ha, Hye Ri Lee, Nam Ju Jo
Pusan National University

EAP-0422 **Disulfide-containing Crosslinked Polyaniline Cathode for Rechargeable Battery**
Ye-Ji Jung, A-Ran Lee, Nam-Ju Jo
Pusan National University

EAP-0536 **Microstructural and Electrochemical Properties of LiCoO2 Thin Film prepared by Metal Induced Crystallization (MIC) Method**
Taehoon Kwon[1], Hyunwoo Ju[1], Hyunsuk Lee[1], Hyonkwang Choi[2], Gyubong Cho[1], Taehyun Nam[1], Jungpil Noh[1]
[1]Gyeongsang National University, [2]Inje University

EAP-0611 **Tailoring Oxygen Content on Silicon Oxide (SiOx) using ab-initio Study**
Janghyuk Moon[1], Kyeongjae Cho[2], Maenghyo Cho[1]
[1]Seoul National University, [2]The University of Texas at Dallas

EAP-1030 **Enhancement of Anode Performance by Nanocomposite Formation between Graphene and Tin-oxide**
Jae Kwang Kim, Eunmi Choi, Daeun Kim, Ilbok Lee, Keun Won Kang, Soyun Park, Areum Kim, Sung Gyu Pyo, Songhun Yoon
Chung-Ang University

EAP-1240 **Characterization of Li7La3Zr2012 Solid Electrolyte prepared by Sol-gel Synthesis and Hot-pressing Process for Lithium Conductor**
Ae Ri Yoo, Hee Chul Lee
Korea Polytechnic University

EAP-1289 **Smart Wrapping Strategy for SnO_2 with Porosity-Tuned Graphene for High Rate Lithium-Anodic Performance**
Seunghoon Nam, Sangheon Lee, Jaewon Kim, Joonhyeon Kang, Byungwoo Park
Seoul National University

EAP-1405 **Power Enhancement Effect of Lithium Ion Battery by Graphene Interfacial Layer**
Young Il Song[1], Tae Yoo Kim[1], Jahwa Ahn[2], Jung Woo Lee[1], Su Jeung Suh[1], Sung-Soo Kim[2]
[1]Sungkyunkwan University, [2]Chungnam National University

EAP-1410 **Capacity Design of Si-Fe-Al Alloy Anode Material for Li Rechargeable Battery**
Jong Su Kim[1,2], Jahwa Ahn[1], Nurppeisova Arailym[1], Jaewook Sung[1], Sung-Soo Kim[1]
[1]Chungnam National University, [2]Soulbrain Co. Ltd.

EAP-1603 **Electrochemical Performance of Olivine-type Lithium Metal Phosphate as Negative Electrode Materials in Lithium-ion Batteries**
Sehyeok Park, Eunkyoung Hwang, Ji Heon Ryu
Korea Polytechnic University

EAP-1848 **Carbon-coated NaNi0.5Mn0.5O2 Cathode Materials for Sodium Ion Batteries**
Yongho Lee[1], Jieun Lee[1], Dong-Won Kim[2], Joong Kee Lee[1], Wonchang Choi[1]
[1]Korea Institute of Science and Technology, [2]Hanyang University

EAP-1855 **Preparation and Electrochemical Characterizations of α-MnO2 Nanowire/Sulfur Composite Cathode for Lithium-Sulfur Batteries**
Jeongyeon Lee, Taejin Hwang, Joong Kee Lee, Wonchang Choi
Korea Institute of Science and Technology

EAP-1858 **Synthesis of Graphite Carbon Coated Iron Oxide (Fe2O3@C) Nanocomposites as Anode Materials for Improved Li-ion Batteries**
Thuy An Nguyen, Gun Woo Kim, Sangwha Lee
Gachon University

EAP-2157 **Influence of Surface-modified Cu Current Collector on Cycleability of Sn/TiN Thin Film Anode for Li-ion Battery**
Pan-jin Noh, Gyu-bong Cho, Min-jae Lee, Ki-won Kim
Gyeongsang National University

EAP-2168 **Synthesis of Exfoliated Graphite and Nano Si Composite for Lithium Ion Battery Cathode Material by RF Thermal Plasma**
Jung-gil Kim[1,2], Myoungsun Shin[1,2], Kyu-Hang Lee[1,2], Sunyong Choi[1], Guangsup Cho[2], Seong-In Kim[1]
[1]Cheorwon Plasma Research Institute, [2]Kwangwoon University

EAP-2376 **Synthesis of Carbon-coated Iron Oxides as Anode Materials using Functional Polymers (PAA and PLL) for Improved Li-ion Batteries**
Sangwha Lee
Gachon University

EAP-2568 **Electrochemical Properties of All-Solid-State LiNi0.5Mn1.5O4/LiPON/SiNx Thin Film Batteries**
Haena Yim[1], Hyunseok Lee[1], Yung-Eun Sung[2], Ji-Won Choi[1]
[1]Korea Institute of Science and Technology, [2]Seoul National University

EAP-2633 **Structural Changes and Thermal Stability of 0.5Li2MnO3 – 0.5LiNi0.33Co0.33Mn0.33O2 Cathode Material for Lithium Ion Batteries Investigated by Synchrotron based in Situ X-ray Diffraction**
Shoaib Muhammad, Hyunchul Kim, Wontae Lee, Taewhan Kim, Donghwi Kim, Mihee Jeong, Donghyuk Jang, Won-Sub Yoon
Sungkyunkwan University

EAP-2750 **Fabrication of Transparent Thin Film Batteries using Wide Band Gap Active Materials**
HyunSeok Lee[1], Kiyoon Kim[1], Haena Yim[1], Kwang-Bum Kim[2], Ji-Won Choi[1]
[1]Korea Institute of Science and Technology, [2]Yonsei University

EAP-2761 **Fabrication and Electrochemical Properties of 3D Structure Lithium Ion Batteries using Li(Ni0.9-xMnxCo0.1¬)O2 Cathode Material**
Kiyoon Kim[1], HyunSeok Lee[1], Haena Yim[1], Bae-Yeon Kim[2], Ji-Won Choi[1]
[1]Korea Institute of Science and Technology, [2]Incheon National University

EAP-2866 **Electrochemical Response of Rechargeable Battery Anode based on Fast growing TiO2 Nanotube Arrays with Variable Aspect Ratio**
Syed Atif Pervez[1], Doohun Kim[2], Umer Farooq[1], Jeong-hee Choi[2], You-jin Lee[2], Chil-hoon Doh[1,2]
[1]Korea University of Science and Technology KERI Campus, [2]Korea Electrotechnology Research Institute

EAP-2878 **The Influence of Proton Radiation on LiCoO2 Thin Films**
You Na Lee[1], In Yea Kim[1], Seung Hyun Jee[1], Kang Soo Lee[2], Sung Pil Woo[2], Young Soo Yoon[1]
[1]Gachon University, [2]Yonsei University

EAP-2882 **All-solid-state Lithium Ion Battery using Li-B-W-O Solid Electrolyte Fabricated by Liquid Phase Sintering**
In Yea Kim[1], Seung Hyun Jee[1], Kang Soo Lee[2], Sung Pil Woo[2], You Na Lee[1], Young Soo Yoon[1]
[1]Gachon University, [2]Yonsei University

EAP-2901 **Comparative Studies on LiFePO4/graphite Pouch Cell during Electrochemical Cycling using in Situ X-ray Diffraction at Different Temperature**
Dong Hyun Kim[1], Ki Chun Kong[2], Kyung Yoon Chung[1]
[1]Korea Institute of Science and Technology, [2]CM Partner Inc.

EAP-3027 **Enhanced Thermal Stability of LiNi0.6Co0.2Mn0.2O2 Positive Electrode by the Addition of another Element during the Heat Treatment**
Ye-ji Lee[1], Jae In Myoung[1], Taeeun Yim[2], Jun Ho Song[2], Ji-Sang Yu[2], Ji Heon Ryu[1]
[1]Korea Polytechnic University, [2]Korea Electronics Technology Institute

EAP-3274 **Li Storage of Calcium Niobates for Lihtium Ion Batteries**
Haena Yim[1], Seung-Ho Yu[2], Yung-Eun Sung[2], Ji-Won Choi[1]
[1]Korea Institute of Science and Technology, [2]Seoul National University

EAP-3310 **Synthesis and Electrochemical Properties of 0.7Li2MnO3·0.3Li4Mn5O12 Nanocomposite Cathode Materials by Mechanochemical Process**
Jae-Kyo Noh[1,2], Dongjin Byun[1], Byung-Won Cho[2]
[1]Korea University, [2]Korea Institute of Science and Technology

EAP-3314 **Layered Lithium-manganese Rich NMC Cathode for Lithium Ion Batteries**
Juhyeon Ahn[1,2], Jong Hak Kim[1], Byung Won Cho[2]
[1]Yonsei University, [2]Korea Institute of Science and Technology

Photovoltaic Materials and Engineering

Nov. 17, 2014 (Mon.)

EEP-1 (Photovoltaic Materials and Engineering 1)

Ramada Ballroom Lobby

Chairs: Kisuk Kang (Seoul National University)
Christian Falconi (University of Rome Tor Vergata)

08:00-09:00 & 17:45-19:00

EEP-1-0123 **E-Beam Enhanced Low Temperature Crystallization of CuInSe2**
MaengJun Kim[1], Sung-Youp Lee[2], Hyeong-Rag Lee[2], Sung Ho Lee[3], SangHo Sohn[2]
[1]Korea Atomic Energy Research Institute, [2]Kyungpook National University, [3]Nano Convergence Practical Application Center

EEP-1-0194 **Fabrication of High-Purity Copper (4N) from Spent Photovoltaic Ribbon using Zone-melting Method**
Jei Pil Wang
Pukyong National University

EEP-1-0605 **Characterization of Nickel Silicide Formation by Selective Electroless Plating Process for Crystalline Silicon Solar Cells**
Atteq ur Rehman, Eun Gu Shin, Sang Hee Lee, Soo Hong Lee
Sejong University

EEP-1-0645 **The Construction of Tandem Dye-Sensitized Solar Cells from Chemically-Derived Nanoporous Photoelectrodes**
Hongsik Choi, Taehyun Hwang, Sangheon Lee, Seunghoon Nam, Joonhyeon Kang, Byungho Lee, Byungwoo Park
Seoul National University

EEP-1-0652 **Tunability of Optical Band Gap in Cobalt and Iron doped Bismuth Titanate with Two Stage Doping**
Chung Wung Bark, Myoung Geun Song
Gachon University

EEP-1-0691 **Structure-Related Optical Properties of Fe doped Bi3.25La0.75Ti2O12 Thin Films Grown on Various Substrate**
Jun Young Han, Chung Wung Bark
Gachon University

EEP-1-0705 **Highly Conductive MoO3/Au/MoO3-PEDOT:PSS Composite Electrodes for ITO-free bulk-heterojunction Organic Solar Cells**
Md Maniruzzaman, Md. Abdul Kuddus Sheikh, Kyunghoon Jeong, Jaegab Lee
Kookmin University

EEP-1-0711 **The InZnTaO Passivation on Ag Nanowire Network Electrode by using Linear Facing Target Sputtering for FOSCs**
Ki-Won Seo, Da-Young Cho, Hye-Min Lee, Hyo-Joong Kim, Eun-Hye Ko, Ha-Neul Park, Han-Ki Kim
Kyung Hee University

EEP-1-0727 **MoO3-Intergraded InZnO Films for Use as a Transparent Anode in Organic Solar Cell**
Hyo-Joong Kim, Da-Young Cho, Hye-Min Lee, Ki-Won Seo, Eun-Hye Ko, Ha-Neul Park, Han-Ki Kim
Kyung Hee University

EEP-1-0738 **Effect of Stepwise Pre-annealing Treatment on the Solution-processed Cu2ZnSnSn4 Thin Films**
Si-Nae Park, Shi-Joon Sung, Dae-Ho Son, Dae-Hwan Kim, Jin-Kyu Kang
Daegu Gyeongbuk Institute of Science & Technology

EEP-1-0771 **Electrical, Optical, and Mechanical Properties of Slot-die Coated PEDOT:PSS Films for Organic Solar Cells**
Eun-Hye Ko, Hyo-Joong Kim, Ki-Won Seo, Da-Young Cho, Hye-Min Lee, Ha-Neul Park, Han-Ki Kim
Kyung Hee University

EEP-1-0789 **Fabrication of Morphologically Different Titanium Dioxide Nanoparticles (TiO2 NP) through Sol Gel Methodology and their Photocatalytic Applications**
Yadevalli Suneel Kumar[1], I Pugazhenthi[1], Eethamukkala Ubba[1], Mohammed Ghouse Shaik[1], C Dasaradhan[1], F. Nawaz Khan[1], Eun Hyuk Chung[2], Euh Duck Jeong[2]
[1]VIT University, [2]Korea Basic Science Institute

EEP-1-0795 **Growth and Characterization of Cuprous Oxide for p-Cu2O/n-ZnO Heterojunctions by Electro-chemical Deposition**
Hyunghoon Kim, Ho Seong Lee
Kyungpook National University

EEP-1-0800 **Fabrication of Perovskite-sensitized Solar Cells based on Electrospun TiO2 Nanofiber Electrode**
Kang-Pil Kim, Dae-Kue Hwang, Shi-Joon Sung
Daegu Gyeongbuk Institute of Science & Technology

EEP-1-0842 **Effect of Reaction Temperature of One-step Soaking Reaction on Nanostructured TiO2 Semiconductor for Photovoltaic Application**
Mi Sun Park, Shi-Joon Sung, Dae-Hwan Kim
Daegu Gyeongbuk Institute of Science & Technology

EEP-1-0874 **Recovery of Ag from End-of-life c-Si Solar Cell by Electrochemical Process in Methanesulfonic Acid Solvent**
Jin-Seok Lee, Jun-Kyu Lee, Bo-Yun Jang, Joon-Soo Kim, Young-Soo Ahn, Ki-Hwan Kang
Korea Institute of Energy Research

EEP-1-0882 **A Study of CdS Quantum Dots on TiO2 Photoanodes using Advanced Successive Ionic Layer Adsorption and Reaction for Quantum Dot Sensitized Solar Cell**
Jaeho Kim, Geonyang Kim, Hye Jin Ha, Sangho Sohn
Kyungpook National University

EEP-1-0890 **Materials, Interfaces, and Photon Confinement in Bi-functional Mesoporous TiO2 Disks for Dye-Sensitized Solar Cells**
Dae-Kue Hwang, Jeong-Hwa Kim, Kang-Pil Kim, Shi-Joon Sung
Daegu-Gyeongbuk Institute of Science and Technology

EEP-1-0914 **Utilization of New Low Temperature Processable Conducting Polymer Film for Improved Performance in Photovoltaic Cells**
Sai-Anand Gopalan, Anantha-Iyengar Gopalan, Kwang-Pill Lee, Kwang-Don Lee, Byoung Ho Kang, Jae-Sung Lee, Sang-Won Lee, Hyung-Min Jeong, Shin-Won Kang
Kyungpook National University

EEP-1-0926 **Improving Air Stability of PbS and PbSe Quantum Dots by Perfect Surface Passivation**
Jae-Hyeon Ko[1], Hyekyoung Choi[2], Ju Young Woo[2], Sohee Jeong[2], Yong-Hyun Kim[1]
[1]Korea Advanced Institute of Science and Technology, [2]Korea Institute of Machinery and Materials

EEP-1-0952 **Electrospun TiO2 Nanofibers as a Photoelectrode in Dye-sensitized Solar Cells**
Jeong-Hwa Kim, Shi-Joon Sung, Dae-Kue Hwang
Daegu Gyeongbuk Institute of Science & Technology

EEP-1-0962 **Nickel Electroless Plating: Contact Resistance and Adhesion Analysis for Mono-Type Crystalline Silicon Solar Cells**

Eun Gu Shin, Atteq ur Rehman, Sang Hee Lee, Soo Hong Lee

Sejong University

EEP-1-1067 **Effect of Sn Doping on the Properties of Nano-structured ZnO Thin Films Deposited by Co-sputtering Technique**

M Aminul Islam[1], Kazi Sajedur Rahman[1], Faiazul Haque[1], Naveed A Khan[1], Md Akhtaruzzaman[1], Mohammad M Alam[2], Kamaruzzaman Sopian[1], Nowshad Amin[1]

[1]The National University of Malaysia, [2]King Saud University

EEP-1-1079 **A Comprehensive Study on Undoped and In-doped ZnS Thin Films Grown by Co-sputtering Technique**

Faiazul Haque[1], Kazi S Rahman[1], Naveed A Khan[1], Mohammad A Islam[1], Md J Rashid[1], Mohammad Salim[1], Md Akhtaruzzaman[1], M M Alam[2], Nowshad Amin[1]

[1]The National University of Malaysia, [2]King Saud University

EEP-1-1111 **Properties of Cu Incorporated CdTe Thin Films for Photovoltaic Application**

Kazi S Rahman[1], Faiazul Haque[1], Naveed A Khan[1], Mohammad A Islam[1], Mohammad M Alam[2], Md Akhtaruzzaman[1], Kamaruzzaman Sopian[1], Nowshad Amin[1]

[1]The National University of Malaysia, [2]King Saud University

EEP-1-1135 **Acid Treatement on Hole Transport-layer for High Power Conversion Efficient Organic Photovolatic Solar Cells**

Ki-Hwang Hwang, Jung Hoon Yu, So Hyoun Jeon, Jin Su Lee, Hyeon Jin Seo, Sang Hun Nam, Jin-Hyo Boo

Sungkyunkwan University

EEP-1-1158 **Characterization of in-situ Annealed Sub-micron Thick CIGS Thin Films**

Byoung-Soo Ko, Shi-Joon Sung, Dae-Kue Hwang

Daegu Gyeongbuk Institute of Science & Technology

EEP-1-1176 **The Conductivity and Adhesion Enhancement of Hole Transper Layer(PEDOT:PSS) with Various Surfactant**

Ki-Hwan Hwang, Jung Hoon Yu, Sang Hun Nam, Dong Woo Ju, Hyeon Jin Seo, Jin Su Lee, So Hyoun Jeon, Jin-Hyo Boo

Sungkyunkwan University

EEP-1-1190 **In Situ Investigation of Structure Variations in Thin Films with Poly(3-hexylthiophene) and [6,6]-Phenyl-C61-Butyric Acid Methyl Ester by Synchrotron Grazing Incidence Wide Angle X-ray Scattering**

Sung-Youp Lee[1], Jehan Kim[2], Tae-Joo Shin[2], Byong-Wook Shin[1], Hyeong-Rag Lee[1]

[1]Kyungpook National University, [2]Pohang Accelerator Laboratory

EEP-1-1564 **High Quality CdS Thin Film Growth by Avoiding Anomalies in Chemical Bath Deposition for Large Area Thin Film Solar Cell Application**
Yulisa Yusoff[1], Puvaneswaran Chelvanathan[1], Qamar Huda[1], Mohammad Salim[1], Mohammad M Alam[2], Zeid A Alothman[2], Nowshad Amin[1]
[1]The National University of Malaysia, [2]King Saud University

EEP-1-2007 **Fabrication and Characterization of Absorption Layer using Spray Method for Flexible CIGS Solar Cells**
Juntae Park, Hyonkwang Choi, Kwangyoon Kim, Minhyon Jeon
Inje University

EEP-1-2308 **Prospects of Hetero-Junction WS2 based Thin Film Solar Cells from Numerical Modeling**
Haroon Rashid[1], Kazi S Rahman[1], Mohammad Istiaque Hossain[2], Fahhad H Alharbi[2], Nouar Tabet[2], Nowshad Amin[1]
[1]The National University of Malaysia, [2]Qatar Environment and Energy Research Institute

EEP-1-2596 **Effect of Titanium Chloride Surface Treatment and Spraying Distance on Charge Collection Efficiency in Electrosprayed SnO2 DSSCs Photoanodes**
Shoyebmohamad Shaikh, Oh-Shim Joo
Korea Institute of Science and Technology

EEP-1-2776 **Synthesis and Crystallization of CuIn1-xGaxSe2 Compounds formed by Co-sputtering Equipped with Se Evaporation**
Jae-Hyung Wi, Young-Hee Joo, Chang-Il Kim
Chung-Ang University

EEP-1-2792 **Detection of Matrix Elements and Trace Impurities in Cu(In,Ga)Se2 Photovoltaic Absorbers using Surface Analytical Techniques**
Min Jung Kim[1], Jihye Lee[2], Seon Hee Kim[2], Haidong Kim[1], Kang-Bong Lee[2], Yeonhee Lee[2]
[1]Kyung Hee University, [2]Korea Institute of Science and Technology

EEP-1-2822 **Designing High Efficiency Photonic Crystal Solar Cells**
Abhijit Jadhav, Sovann Khan, Seung Yong Lee, Jong Ku Park, So Hye Cho
Korea Institute of Science and Technology

EEP-1-2898 **The Performance Improvement of Organic Solar Cell by using Double Cathode Buffer Layers**
Yeong-Her Wang[1], Jhong-Ciao Ke[1], Kan-Lin Chen[2], Kuan-Wei Lee[3], Chien-Jung Huang[4]
[1]National Cheng-Kung University, [2]Fortune Institute of Technology, [3]I-Shou University, [4]National University of Kaohsiung

EEP-1-2903 **Degradation with Inserting Pentacene Layer of Small Molecule Organic Solar Cells**
Pao-Hsun Huang[1], Kan-Lin Chen[2], Neng-Lang Shih[1], Chern-Hwa Chen[1], Chien-Jung Huang[1]
[1]National University of Kaohsiung, [2]Fortune Institute of Technology

EEP-1-3078 **The Reflectance Effect of Si-based Solar Cell on the Pyramids Texturing Structures through the SF6/O2 Plasma**

Jong-Chang Woo[1], Chang-Han Je[1], Joo-Yeon Kim[1], Yoon-Soo Chun[2], Chang-Auck Choi[1], Seoung-Q Lee[1]
[1]Electronics and Telecommunications Research Institute, [2]Korea University

EEP-1-3094 **Selectively Enhanced Electron- or Hole- Transport in Bulk-Heterojunction Organic Photovoltaics with Heteroatom doped Carbon Nanotubes**

Soo Ah Nam[1], Ju Min Lee[1], Hyung Il Park[1], Ji Sun Park[2], Sang Ouk Kim[1]
[1]Korea Advanced Institute of Science and Technology, IBS, [2]Korea Electronics Technology Institute

EEP-1-3220 **Improving Performance of Organic Solar Cells using B4PyMPM Self-assembled Nanostructures as Electron Transport Layer on Cathodes**

Il Soo Oh, Chan Hyuk Ji, Ae Na Lee, Se Young Oh
Sogang University

EEP-1-3231 **Ni-W-P/Cu for Silicon Solar Cells by Electroless Deposition Method**

Eun Ju Kim[1], Youngsup Song[1], Joo Yul Lee[1], Dong Chan Lim[1], Duk Haeng Lee[2], Woon Suk Jung[2], Kwang-Ho Kim[3], Kyu-Hwan Lee[1], Jae-Hong Lim[1]
[1]Korea Institute of Materials Science, [2]Hojin Platech Co. Ltd., [3]Pusan National University

Material Discovery by High-throughput Screening

Nov. 17, 2014 (Mon.)

CAP (Material Discovery by High-throughput Screening) Ramada Ballroom Lobby

Chair: Michelle Jeanette Sapountzis Spencer (RMIT University) 08:00-09:00 & 17:45-19:00

CAP-0895 **Screening New High-κ Materials by High-throughput First-principles Calculation**

Kanghoon Yim, Yong Youn, Joohee Lee, Kyuhyun Lee, Seungwu Han
Seoul National University

CAP-1335 **Automatic First-principles Calculation Scheme for Oxygen Vacancies in Various Oxide Materials**

Joohee Lee, Kanghoon Yim, Seungwu Han
Seoul National University

Catalyst for Energy and Environmental Applications

Nov. 17, 2014 (Mon.)

CCP (Catalyst for Energy and Environmental Applications) Ramada Ballroom Lobby

Chair: Michelle Jeanette Sapountzis Spencer (RMIT University) 08:00-09:00 & 17:45-19:00

CCP-0372 **Phosphoric Acid-Tolerant Alloy Catalysts for High Temperature Proton Exchange Membrane Fuel Cells**
Ji-Eun Lim[1], Uk Jae Lee[1], Sang Hyun Ahn[2], Eunae Cho[2], Hyoung-Juhn Kim[2], Jong Hyun Jang[2], Hyungbin Son[1], Soo-Kil Kim[1]
[1]Chung-Ang University, [2]Korea Institute of Science and Technology

CCP-0578 **Ab Initio Thermodynamics of Pt Nanoskins on TiN(100) for Fuel Cell Application**
Youngjoo Tak, Woosun Jang, Norina A. Richter, Aloysius Soon
Yonsei University

CCP-0714 **Unraveling CO2 Adsorption Mechanism in Diamine-grafted Metal-organic Frameworks by First-principles Calculations**
Li-Ming Yang, Sang Soo Han
Korea Institute of Science and Technology

CCP-0820 **A First-principles Study on IrAu and RhAg Nanoparticles**
K.P.S.S. Hembram, Kwang-Ryeol Lee, Sang Soo Han
Korea Institute of Science and Technology

CCP-1116 **A First-principles Description of Surface Stress Responses in Nano-electrocatalysts**
Ji-Hwan Lee, Su-Hyun Yoo, Aloysius Soon
Yonsei University

CCP-1827 **Tuning Surface Chemistry to Enhance the Enantiospecificity on Chiral Cu (531)S Surface**
Ho Seong Song, Jeong Woo Han
University of Seoul

CCP-1833 **Thermal Stability of Arc Plasma deposited Pt Nano-particles on CeO2-Al2O3: Quantum Chemical Calculations, XPS and XANES Study**
Young Eun Jeong[1], Anil Kumar Pullur[1], Heon Phil Ha[1], Hee Lack Choi[2], Kwan-Young Lee[3]
[1]Korea Institute of Science and Technology, [2]Pukyoung National University, [3]Korea University

CCP-1845 **Universality of Mixing Rule for Small Adsorbates (H, O, S, CO and OH) Adsorption on Binary Transition Metal Alloys**
Jeonghyun Ko, Jeong Woo Han
University of Seoul

CCP-1863 **Density Functional Theory Study of Cation Segregation on LaBO3(001) (B = Mn, Co, and Fe) Surfaces for Designing High Performance SOFC Cathodes**
Hyunguk Kwon, Jeong Woo Han
University of Seoul

CCP-1872 **Density Functional Theory Study for the Evaluation of M-doped TiO2(101) (M = Cr, Mn, Fe, Co and Ni) over CO Oxidation**
Kyeounghak Kim, Jeongwoo Han
University of Seoul

CCP-2696 **Structural and Charge Effects on Oxygen Reduction Reaction**
Keunsu Choi, Hiroshi Mizuseki
Korea Institute of Science and Technology

CCP-2797 **Effect of S adsorption on NiCu Alloy Nanoparticle Morphologies using Density Functional Theory and Gibbs- Wulff Theorem**
Ji-Su Kim[1], Byung-Kook Kim[2], Yeong-Cheol Kim[1]
[1]Korea University of Technology and Education, [2]Korea Institute of Science and Technology

Organic Materials Modeling

Nov. 17, 2014 (Mon.)

CFP (Organic Materials Modeling) Ramada Ballroom Lobby

Chair: Michelle Jeanette Sapountzis Spencer (RMIT University) 08:00-09:00 & 17:45-19:00

CFP-0804 **Simulation for Disordered Morphologies in Organic Semiconductors**
Kye Yeop Kim, Dong Sun Yu, Seungwu Han
Seoul National University

Materials and Process for BEOL and 3D Integration

Nov. 18, 2014 (Tue.)

MBP-2 (Materials and Process for BEOL and 3D Integration 2) Ramada Ballroom Lobby

Chair: Moon-Ho Ham (Gwangju Institute of Science and Technology) 08:00-09:00 & 16:00-18:00

MBP-2-1224 **Effect of Pd(P) Layer on Reflow Reaction of Submicron Au/Pd(P)/Ni(P) Surface Finish with Sn-Ag-(Cu) Solders**
Yu Ri Chae, Joo Youl Huh
Korea University

MBP-2-1620 **Effects of Leveler Concentration in High Aspect Ratio via Filling in 3D SiP**
Se-Hyun Jang, Jae-Ho Lee
Hongik University

MBP-2-1967 **Development of Chip-on-flex Bonding using Sn-based Bumps and Non-conductive Adhesive**
Sun-Chul Kim, Kyoung-Moo Harr, Young-Min Kim, Myung-Hwan Hong, Ji-Hyun Lee, Young-Ho Kim
Hanyang University

MBP-2-2598 **Failure Mechanism of Power Semiconductor under Intermittent Operating Condition**
SungSoon Choi, WooYoung Lee, KwanHun Lee
Korea Electronics Technology Institute

MBP-2-2631 **Effects of Alternative Voltage on the Electrochemical Migration and Corrosion Behaviors of Sn and Sn-Cu Intermetallic Compound**
JongSoo Kim, MiSeok Park, HyukSang Kwon
Korea Advanced Institute of Science and Technology

MBP-2-2872 **Packaging-Completed Flexible Electronic Device using Flip-Chip Bonding Technology**
Do Hyun Kim, Keon Jae Lee
Korea Advanced Institute of Science and Technology

Sensors and Oxide Semiconductor

Nov. 18, 2014 (Tue.)

MDP (Sensors and Oxide Semiconductor) Ramada Ballroom Lobby

Chairs: Changhwan Choi (Hanyang University) 08:00-09:00 & 16:00-18:00
Byoung Hun Lee (Gwangju Institute of Science and Technology)

MDP-0141 **Room Temperature Oxygen Sensing Properties of Multiple Networked Nb2O5 Nanorod Sensors Functionalized with Au Nanoparticle**
Sunghoon Park, Soohyun Kim, Sangbo Park, Chongmu Lee
Inha University

MDP-0273 **Large Electric Field-Induced Strain and Piezoelectric Responses of Lead-Free Bi0.5(Na0.80K0.20)0.5TiO3-Ba(Ti0.90Sn0.10)O3 Ceramics near Morphotropic Phase Boundary**

Pharatree Jaita[1], Anucha Watcharapasorn[1], David P. Cann[2], Sukanda Jiansirisomboon[1]
[1]Chiang Mai University, [2]Oregon State University

MDP-0304 **Room Temperature Acetone Sensing Properties of WO3 Nanorod Sensors Decorated with Pt-Au Bimetallic Nanoparticles**

Sunghoon Park, Soohyun Kim, Sangbo Park, Chongmu Lee
Inha University

MDP-0357 **Photo-thermally Induced Current Switching in Vanadium-dioxide-based Devices using CO_2 Laser Pumping**

Jihoon Kim, Yong Wook Lee
Pukyong National University

MDP-0769 **Effects of Electrode in Oxide Semiconductor Gas Sensors**

Sung Pil Lee
Kyungnam University

MDP-0792 **Synthesis, Characterization and for Optoelectronic Application of Green Precursor based Lead Sulfide (PbS) Colloidal Quantum Dots**

M.V. Bharathi[1], Kaustab Ghosh[1], Y. Suneel Kumar[1], F. Nawaz Khan[2], Eun Hyuk Chung[2], Euh Duck Jeong[2]
[1]VIT University, [2]Korea Basic Science Institute

MDP-0801 **Influence of Annealing Temperature on the Microstructural and Electrical Characteristics of Sol-gel processed Ni-Co-O Films**

Ho Seong Lee, Sang Woo Bae, Hyunghoon Kim
Kyungpook National University

MDP-1025 **Improvement of Gas Sensing Charcateristics by Adding Nanoparticles on ZnO-based SnO2 Nanowires**

Han Gil Na, Yong Jung Kwon, Hong Yeon Cho, Hyoun Woo Kim
Hanyang University

MDP-1091 **Drastic Enhancement of Gas Sensing Behavior of Metal-decoratd Carbon Nanotube Layers**

Hong Yeon Cho, Han Gil Na, Yong Jung Kwon, Hyoun Woo Kim
Hanyang University

MDP-1182 **Effects of Electrode Patterns on the Gas Sensing Properties of Nano-structures Grown by Dry Method**

Su Yeon Lee[1], Ho Nyun Lee[2], Hyun Jong Kim[2], Hee Chul Lee[1]
[1]Korea Polytechnic University, [2]Korea Institute of Industrial Technology

MDP-1292 **Flexible Tactile Sensor with High Sensitivity for Biomedical Grasper**
Junwoo Lee[1], Cheon Jung Kim[1], Jinseok Kim[2], Jeong Hoon Lee[1]
[1]Kwangwoon University, [2]Korea Institute of Science and Technology

MDP-1320 **The Influence of Film Thickness on the Electrical and Optical Properties of Al-doped ZnO Thin Films Deposited by RF Magnetron Sputtering**
Joongwon Kim, Abhishek Sharma, Sang-Im Yoo
Seoul National University

MDP-1321 **Effect of Dopants (Al/Si) on Zn–Sn–O based TFT Characteristics**
Abhishek Kumar Sharma, Joongwon Kim, Sang-Im Yoo
Seoul National University

MDP-1559 **Fabrication of Solution-processed Tin Oxide Semiconductor Thin Films and Photodetectors at a Low Temperature by UV Light Irradiation**
Chien-Yie Tsay[1], Shan-Chien Liang[1], Jyh-Ming Wu[2]
[1]Feng Chia University, [2]National Tsing Hua University

MDP-1667 **Effect of Electron-beam Irradiation on Gas Sensing Behavior in Reduced Graphene Oxides**
Gun-Joo Sun[1], Jae-Hun Kim[1], Hyoun Woo Kim[2], Sang Sub Kim[1]
[1]Inha University, [2]Hanyang University

MDP-1682 **Hollow-mesh-structured Zinc Oxide Nanowire Forest as Hydrogen Sensor**
Na-Ri Kang[1], Jinsung Chun[1], Jeong Min Baik[1], Seong Keun Kim[2], Ju-Young Kim[1]
[1]Ulsan National Institute of Science and Technology, [2]Korea Institute of Science and Technology

MDP-1889 **Effect of Additives on the Anisotropic Etching of Silicon by using a TMAH based Solution**
Ki Hwa Jun, Jung Sik Kim
University of Seoul

MDP-1979 **Fabrication and Characterization of Graphene-based Electrochemical Sensors for Glucose Measurement**
Minjeong Park, Hyonkwang Choi, Jaeseok Gong, Yeongjin Lim, Yunjae Park, Minhyon Jeon
Inje University

MDP-2018 **Fabrication and Piezoelectric Properties of ZnO Nanowires using High Vacuum Die Casting Technique**
Ho Chang[1], Chin-Guo Kuo[2], Jian-Hao Wang[1]
[1]National Taipei University of Technology, [2]National Taiwan Normal University

MDP-2115 **Effect of Zn Thickness on Optical and Electrical Properties of SnO2/Zn/SnO2 Thin Films prepared by RF Sputtering**
SungJae Kim[1], KeunYoung Park[1], YeongSeung Jeong[1], HangJoo Ko[2], TaeKwon Song[1], BonHeun Koo[1]
[1]Changwon National University, [2]Korea Photonics Technology Institute

MDP-2149 **Design and Fabrication of Si Strain Gauges based on Thin SOI Membrane for the Ultra-high Pressure Mesurement**
Bum-Joon Kim[1], Si-Dong Kim[2], Woo-Seok Choi[2], Byung-Woo Kim[3], Jung-Sik Kim[1]
[1]University of Seoul, [2]Auto Industrial Company, [3]University of Ulsan

MDP-2154 **Effect of the Deposition of Metal on Photoluminescence of Nanopatterned ZnO Film**
Su-Han Lee, Ju-Yun Jung, JunHo Jeong, Jihye Lee
Korea Institute of Machinery and Materials

MDP-2172 **Optoelectronic Properties of (Mn, Ga, Al) Doped ZnO Thin Film Deposited by Magnetron Sputtering**
Deok-In Kim, Chan-Wook Jeon
Yeungnam University

MDP-2249 **Computational Analysis of 3D Novel Colorimetric Plasmon Sensor Structure based on Aluminum Anodized Oxide Structure**
Hyung Won Cho, Jong-Lam Lee
Pohang University of Science and Technology

MDP-2452 **Early Diagnosis System of Alzheimer's Disease using Highly Sensitive Microelectrodes-based Impedance Sensor**
Yong Kyoung Yoo[1], Myung-Sic Chae[2], Hye Jin Kim[2], Jinsik Kim[2], Gangeun Kim[2], Jeong Hoon Lee[1], Kyo Seon Hwang[2]
[1]Kwangwoon University, [2]Korea Institute of Science and Technology

MDP-2711 **Effect of Radio-activation on Properties of Pb(Mg1/3Nb2/3)O3-PbTiO3**
Yong-Il Kim[1], Namkyoung Choi[2], Yun-Hee Lee[1], Ki-Bok Kim[1]
[1]Korea Research Institute of Standards and Science, [2]University of Science and Technology

MDP-2764 **Rectifying Characteristics of Transparent Diode using a-IGZO/SiNx Coupling**
Myung-Jea Choi, Myeong-Ho Kim, Duck-Kyun Choi
Hanyang University

MDP-2765 **Evaluation of Mobile Charge Carrier in Oxide Semiconductor by a Confocal Scanning Optical Microscopy**
Bonghoon Kang[1], Dong-Soo Choi[2]
[1]Far East University, [2]Sungkyunkwan University

MDP-2857 **A Study on the Optimization of Aluminum-doped Zinc Oxide Films Deposited by RF Sputtering on PES Substrates**
Beom-Seok Lee, Young-Hee Joo, Chang-Il Kim
Chung-Ang University

MDP-2865 **Zinc Diffusion Process for Infra-red Avalanche Photodiode using Metal Organic Chemical Vapor Deposition**
Dong-Hwan Jun[1], Hae Yong Jeong[1], Chan-Soo Shin[1], Kyungho Park[1], Won-Kyu Park[1], Yong-Su Kim[2], Sang-Wook Han[2], Sung Moon[2], InJoon Lee[2], Sangin Kim[3]
[1]Korea Advanced Nano-Fab Center, [2]Korea Institute of Science and Technology, [3]Ajou University

MDP-2963 **Characteristics of Transparent ZTO/Ag/ZTO Multilayer Electrode Grown on Flexible Substrate**
Sang-Min Lee, Chang-Il Kim
Chung-Ang University

MDP-2968 **Synthesis of Lanthanide Metal-doped Zinc Oxide Nanorod and its Characterization**
Siti Nooraya Mohd Tawil[1], Nurulnadia Sarip[2], Norhidayah Che Ani[2], Sharul Ashikin Kamaruddin[2], Nurul Fadzilah Ab Rasid[1], Farhanahani Mahmud[2], Azizi Miskon[1], Mohd Zainizan Sahdan[2]
[1]National Defence University of Malaysia, [2]Universiti Tun Hussein Onn Malaysia

MDP-3056 **Characterization of Anodic Aluminum Oxide Membrane with Variation of Crystallizing Temperature for pH Sensor**
Jin-Ho Yeo, Sung-Gap Lee, Hye-Rin Jung, Ye-Won Jo, Dong-Jin Lee
Gyeongsang National University

MDP-3058 **Structural and Electrical Properties of NixMn3-xO4 Ceramics for IR Sensor**
Hye-Rin Jung[1], Sung-Gap Lee[1], Jin-Ho Yeo[1], Min-Ho Kim[1], Young-Gon Kim[2]
[1]Gyeongsang National University, [2]Chosun College of Science & Technology

MDP-3173 **Development of Solution-processed Molybdenum doped Indium Oxide with High Carrier Mobility and Near Infrared Transparency**
Jae-Chan Lee, Na-Rae Kim, Han-Wool Yeon, Dae-Hyun Nam, Ho-Young Kang, Young-Chang Joo
Seoul National University

MDP-3270 **The Surface and Optical Properties of Al-doped ZnO Large Scale Thin Films using 1500 mm Dual Cylindrical Cathodes**
JinJu Lee, Haena Yim, Dong-Hee Park, Won-Kook Choi, Ji-Won Choi
Korea Institute of Science and Technology

Carbon Nanomaterials & Other Nanoscale Materials

Nov. 18, 2014 (Tue.)

NAP (Carbon Nanomaterials & Other Nanoscale Materials) Ramada Ballroom Lobby

Chairs: Martin Sterrer (Fritz-Haber-Institut der Max-Planck-Gesellschaft) 08:00-09:00 & 16:00-18:00
Wenjie Shen (Chinese Academy of Science)

NAP-0191 **Glucose Sensors Fabricated by Graphene Oxide Hydrogel Crosslinked with Various Diamines**
Seung Hyun Hur, Le Thuy Hoa, Van Hoang Luan
University of Ulsan

NAP-0227 **Functionalized reduced Graphene Oxide based ABS (Acrylonitrile Butadiene Styrene) Nanocomposites by Solution Blending**
Miae Oh, Thi Diem Tuyet Vu, Jin Suk Chung
University of Ulsan

NAP-0348 **Elemental Doping to Control the Growth Direction of 1-D Nanostructures**
Junghyeok Kwak, Gyeong Bae Park, Yuho Min, Heeseung Yang, Unyong Jeong
Yonsei University

NAP-0441 **The Newly Synthesis Method and Gas Sensing Properties of Tin Dioxide Nanoparticles by Plasma Electrolytic Oxidation Process (PEO)**
Tae Hyung Kim, Yomin Choi, Bongyoung Yoo, Yong Ho Choa
Hanyang University

NAP-0750 **Pressurized Polyol Synthesis of Al-doped ZnO Nanocluster**
Ji Hea Jung, Hana Lim, Ho-Nyun Lee, Hyun-Jong Kim
Korea Institute of Industrial Technology

NAP-0756 **Synthesis of Silica Nanoparticles with Various Surface Structures and Anti-reflective (AR) Films using the Silica Nanoparticles**
Yeoung Ah Noh, Ki Chul Kim
Mokwon University

NAP-0774 **Influence of CaO Addition on Nanostructures of Grained AZ31 Magnesium Alloy Processed by Equal-Channel Angular Pressing**
Seong-hwan Bae[1], Ki-ho Jung[1], Young-chul Shin[1], Duk-jae Yoon[1], Megumi Kawasaki[2]
[1]Korea Institute of Industrial Technology, [2]Hanyang University

NAP-0830 **Growth of Pure SnO Nano-platelets on Various Substrates by Thermal Evaporation**
Mee-Ri Kim[1], Sang-Jun Park[2], Keun-Soo Kim[2], Ki-Chul Kim[1]
[1]Mokwon University, [2]Sejong University

NAP-0850 **Photoluminescence Properties and Photocatalytic Performance of Different Size ZnO Nanoparties Decorated Graphene Oxide**
Doan Van Thuan, Nguyen Tri Khoa, Soon Wook Kim, Dae-Hwang Yoo, Eui Jung Kim, Sung Hong Hahn
University of Ulsan

NAP-0878 **Synthesizing Various Diameter TiO2 Nanotubes by Anodic Oxidation of Ti Thin Films for Photocatalytic Activities**
Soon Wook Kim, Hong Ki Kim, Dae-Hwang Yoo, Eui Jung Kim, Sung Hong Hahn
University of Ulsan

NAP-0887 **Cu-doped TiO2/reduced Graphene Oxide Thin Film Photocatalysts: Effect of Cu Contents on Methylene Blue Removal in Water**
Thanh Truc Pham[1], Hyun Jun Lee[1], Chinh Nguyen-Huy[1], Thuy-Duong Nguyen-Phan[2], Ik-keun Yoo[1], Eun Woo Shin[1]
[1]University of Ulsan, [2]Brookhaven National Laboratory

NAP-0920 **Sulfur Delta-doped Graphene Layers by Near Infrared Chemical Vapor Deposition**
Ki Hong Im[1], Yunjae Park[2], Hyonkwang Choi[2]
[1]Samsung Electronics Co., Ltd., [2]Inje University

NAP-0948 **Evaluation of Formability on Nanostructure of ECAPed Mg-3wt%Al-1wt%Zn-0.5wt%CaO Alloy**
Duk-jae Yoon, Seong-hwan Bae, Young-chul Shin, Seong-joo Lim, Eung-zu Kim
Korea Institute of Industrial Technology

NAP-0975 **Synthesis and Electrochemical Analysis of Manganese Oxides for Super-capacitor**
Hyein Hwang, Taewoo Kim, Jaeyong Jang, Inyeong Park, Hyuck Jang, Sung-Hyeon Baeck
Inha University

NAP-0977 **Performance Evaluation of Activated Carbon Nano Fiber (ACNF) as a Carbon Support for Li-Air Battery**
Inyeong Park, Mincheol Choi, Won Jun Jo, Hyun-A Choi, Heeyun Kim, Sang Eun Shim, Sung-Hyeon Baeck
Inha University

NAP-0980 **Synthesis of Ferrite/GO Hybrid for Electromagnetic Absorbing Film**
Byung Mun Jung
Korea Institute of Materials Science

NAP-0987 **Preparation and Characterization of Nano-structured Manganese Oxide for Super Capacitor**
Jaeyong Jang, Hyun-A Choi, Hyein Hwang, Taewoo Kim, Inyeong Park, Dongwook Lim, Won Jun Jo, Sung-Hyeon Baeck
Inha University

NAP-1040 **Substrate-site Self Assembly of Aligned Carbon Nanotubes using Atomic Force Microscopy**
Eunmi Choi, Areum Kim, Sung Gyu Pyo
Chung-Ang University

NAP-1057 **Improved Sensing Behaviors in Reduced Graphene Oxide Functionalized with Metal Nanoparticles**
Han Gil Na, Yong Jung Kwon, Hong Yeon Cho, Hyoun Woo Kim
Hanyang University

NAP-1074 **Development of Microstructure with Nano-phases in a Calcium Oxide-doped Mg-3Zn-1Al Alloy**
Ha-Guk Jeong[1], Jong-Bum Lee[1], Shae K. Kim[1], Kaichi Saito[2]
[1]Korea Institute of Industrial Technology, [2]Akita University

NAP-1200 **Titanium Nano Tube (sheet)/reduced Graphene Oxide for Photodegradation of Water Pollutants: Morphological Effect on Photocatalysis**
Thanh Truc Pham[1], Thuy-Duong Nguyen-Phan[2], Eun Woo Shin[1]
[1]University of Ulsan, [2]Brookhaven National Laboratory

NAP-1229 **Growth of High Quality High-k Dielectric Layer on Graphene using Hexagonal Boron Nitride Buffer Layer**
Sang A Han, Kang Hyuck Lee, Tae-Ho Kim, Sang-Woo Kim
Sungkyunkwan University

NAP-1275 **The Study on Enhancement of Thermal Conductivity of Cu-Graphene Composite**
Sang-Woo Kim[1,2], Dohyung Lee[2], Dong-Woo Joh[1], Myung-sk Choi[1], Hyo-Soo Lee[1]
[1]Korea Institute of Industrial Technology, [2]Hanyang University

NAP-1313 **Ultra-Stable PbSe Nanocrystal Quantum Dots via In-Situ Formation of Atomically Thin Halide Adlayers on PbSe(100)**
Ju Young Woo[1], Jae-Hyeon Ko[2], Jung Hoon Song[1], Kyungnam Kim[1], Yong-Hyun Kim[2], Doh C. Lee[2], Sohee Jeong[1]
[1]Korea Institute of Machinery and Materials, [2]Korea Advanced Institute of Science and Technology

NAP-1391 **Synthesis of Highly Luminescent InP/ZnS Nanocrystals with Non-pyrophoric Phosphorous Precursors and their Surface Modification**
Eunjin Lee[1], Gyu-Chae Choi[1], Jong-woo Moon[1], Youn-Kyoung Baek[1], Youngkuk Kim[1], Yang-Do Kim[2]
[1]Korea Institute of Materials Science, [2]Pusan National University

NAP-1422 **Synthesis, Characterization, and Photocatalytic Properties of Meso-macroporous Silica-titania**
Jong Woo Moon, Young-Kuk Kim
Korea Institute of Materials Science

NAP-1423 **Analysis for Temperature Field in a High Current-passing Carbon Nanosphere using Nontraditional Thermal Transport Model**
B. C. Chen[1], C. Y. Ho[2], Y. H. Tsai[2], M. Y. Wen[3]
[1]Buddhist Dalin Tzu Chi General Hospital, [2]Hwa Hsia Institute of Technology, [3]Cheng Siu University

NAP-1436 **Preparation of Silver Halides for Selective Oxidation of Organic Compounds under Visible Light Irradiation**
Yuri Nishino, Atsuhiro Tanaka, Keiji Hashimoto, Hiroshi Kominami
Kinki University

NAP-1491 **Synthesis of Single Crystal SiC Nanowires using RF Sputtering and Thermal Annealing**
Ji-Eun Lee[1], Byeong Geun Kim[2], Heon-Jin Choi[1], Won-Seon Seo[2], Seong-Min Jeong[2]
[1]Yonsei University, [2]Korea Institute of Ceramic Engineering and Technology

NAP-1525 **Temperature Dependent Capacitance-voltage Characteristics of Carbon Nanotube Embedded 4H-SiC MOS Capacitors**
Taeseop Lee, Min-Seok Kang, Tae-Jun Ha, Sang-Mo Koo
Kwangwoon University

NAP-1530 **Fabrication of Nanomeshes Arrays using Anodized Aluminum Oxide as Plasmonic Color Filter**
Jungyoon Kim, Seong-Il Kim
Korea Institute of Science and Technology

NAP-1720 **A Direct Patterning of Graphene Transferred on ITO Glass by using Nd:YVO4 Laser**
Jeongmin Lee, Hong-Seok Kim, Jae-Hee Han, Seongjae Cho, Sang Jik Kwon, Eou-Sik Cho
Gachon University

NAP-1734 **Layer-by-layer Growth of Bi2Te3-Sb2Te3 on h-BN via Van Der Waals Heteroepitaxy**
Hoseok Heo, Moon-Ho Jo
Pohang University of Science and Technology

NAP-1894 **Formation of Anatase TiO2 Nanoparticles with Highly Exposed {001} Facets by F- Ion Doping in Hydrothermal Process**
Seung Muk Lee, Jun Hyuk Choi, Geun Chul Park, Jun Hyung Lim, Jinho Joo
Sungkyunkwan University

NAP-2036 **Anomalous Growth of Multi-phased and Multi-dimensional Manganese Oxide-Metal (Fe, Co and Ni) Oxide Nanostructures**
Kishore Sridharan, Tae Joo Park
Hanyang University

NAP-2086 **Decoration of reduced Graphene Oxide with Size-controlled Copper Nanoparticles**
Haneul Jang[1], Hyejung Chang[2], Hyunjoo Choi[1]
[1]Kookmin University, [2]Korea Institute of Science and Technology

NAP-2139 **A Study on the Properties of Carbon Black Mortar using GBFS and Polymer**
Hongseok Jang, Seungyoung So
Chonbuk National University

NAP-2179 **Solution Processable MoS2 Thin Film Photodetectors with Polymers**
Dhinesh Babu Velusamy, Cheolmin Park
Yonsei University

NAP-2283 **The Characteristics of NIZO/Ag/NIZO Multilayers Film for Polymer Dispersion Liquid Crystal-based Smart Windows**
Eun-Mi Kim[1], Jeong-Pyo Oh[2], In-Seok Choi[3], Gi-Seok Heo[1]
[1]Korea Institute of Industrial Technology, [2]Chonnam National University, [3]DongShin University

NAP-2286 **The Study on NIZO/Ag/NIZO Multi-structure Transparent Electrodes Deposited by RF Magnetron Sputtering System**
Eun-Mi Kim[1], Jeong-Pyo Oh[2], In-Seok Choi[3], Gi-Seok Heo[1]
[1]Korea Institute of Industrial Technology, [2]Chonnam National University, [3]DongShin University

NAP-2313 **Microstructure and Mechanical Properties of CNT/Al Composites Fabricated by Differential Speed Rolling**
Jongbeom Lee, Haguk Jeong
Korea Institute of Industrial Technology

NAP-2375 **Preparation and Characterization of Silica-gold Nanoshells with Different Surface Coverage of Gold Clusters**
Sangwha Lee
Gachon University

NAP-2439 **Nanostructured Superhydrophobic Silk fabricated with Ion Beam Method**
Ji Hyun Oh[1], Tae-Jun Ko[2], Myoung-Woon Moon[2], Chung Hee Park[1]
[1]Seoul National University, [2]Korea Institute of Science and Technology

NAP-2474 **Effect of Ionic Strength to Graphene Oxide (GO) in Biosensor Applications**
Jinsik Kim[1], Myung-sic Chae[1], Yong Kyung Yoo[1], Hyejin Kim[1], Gangeun Kim[1], Jeong Hoon Lee[2], Kyo Seon Hwang[1]
[1]Korea Institute of Science and Technology, [2]Kwangwoon University

NAP-2506 **Nanocomposites of Porous Hydrocarbon and TiO2 for Oil Absorption and Desorption by UV Responsive Switchable Wettability**
Do Hyun Kim[1], So-Hye Cho[2], Sang Hoon Kim[2], Kyu Hwan Oh[1], Myoung-Woon Moon[2]
[1]Seoul National University, [2]Korea Institute of Science and Technology

NAP-2646 **Gradual Transformation from CdTe Nanoparticles into Nanowires**
Hyun Jung Choi, Ki Sun Lee, Jeong Won Kang, Ki-Sub Kim
Korea National University of Transportation

NAP-2648 **Synthesis and Characterization of Silicon Nanopowder Prepared by Plasma arc Discharge**
Sehoon Jang[1], Bhavesh Sinha[2], Kookchae Chung[1]
[1]Korea Institute of Materials Science, [2]Mumbai University

NAP-2699 **Synthesis and Characterization of N-doped Graphene on SiC Substrate by Pulsed Laser Annealing**
Junghwan Park, Insung Choi, Sung-Yool Choi, Keon Jae Lee
Korea Advanced Institute of Science and Technology

NAP-2743 **A USANS-SANS Study on the Correlation between the Shape of Gamma Alumina and Catalytic Activity**
Man-Ho Kim, Sang Hoon Kim, Sugyeong Han, Heonphil Ha, Ji Young Byun
Korea Institute of Science and Technology

NAP-2817 **Wavelength Tuning of Monolayer Molybdenum Disulfide by Oxygen Plasma**
Min Su Kim[1], Giwoong Nam[2], Seki Park[1], Jubok Lee[1], Yongjun Lee[1], Jae-Young Leem[2], Jeongyong Kim[1]
[1]Sungkyunkwan University, [2]Inje University

NAP-2826 **Optoelectronic Study of ZnO/TSDB Hybrid Structure**
Guru Prakash Neupane[1], Krishna Prasad Dhakal[1], Min Su Kim[1], Eun Hei Cho[2], Jinsang Kim[3], Jinsoo Joo[2], Jeongyong Kim[1]
[1]Sungkyunkwan University, [2]Korea University, [3]University of Michigan

NAP-2844 **Development of Stretchable Electrode using a Carbon Nanotube Thin Film Embedded onto Polymer-CNT composite**
So-Young Lee[1], Hyung Cheoul Shim[2], Seungmin Hyun[2], Hoo-Jeong Lee[1]
[1]SungKyunKwan University, [2]Korea Institute of Machinery & Materials

NAP-2921 **A Study on Optimal Conditions for Image Analysis of Chemically Manufactured Graphene by Optical Microscopy**
Wonoh Lee, Young Seok Oh, Jea Uk Lee
Korea Institute of Materials Science

NAP-3019 **Transparent Conductive Electrodes based on Graphene/Metal Composite for Thin Film CIGS Solar Cell**
Junmo Kim, Chang-il Kim, Young-hee Joo
Chung-Ang University

NAP-3085 **Interfacial Fast Self-assembly of Large-area Pristine Graphene Film**
Taeyeong Yun, Sangouk Kim
Korea Advanced Institute of Science and Technology

NAP-3091 **Selective and Reversible CO2 Capture Functionality of Carbon Nitride Functionalized Graphene Aerogel**
Youngtak Oh, Uday Narayan Maiti, Sang Ouk Kim
Korea Advanced Institute of Science and Technology

NAP-3138 **Unzipped Nanotube Sheet Films converted from Spun Multi-walled Carbon Nanotubes by O2 Plasma**
Hoon Sik Jang[1], Sang Koo Jeon[2], Dae Seob Shim[3], Seung Hoon Nahm[2]
[1]DADA KOREA Co., Ltd., [2]Korea Research Institute of Standards and Science, [3]Cheil industries INC.

NAP-3215 **Effect on the Addition of Carbon Nanotubes (CNTs) in the Electrolyte in Plasma Electrolytic Oxidation (PEO) Process on Magnesium Alloy**
Muchang Sung[1,2], Seokhyun Nam[1], Minho Park[1], Taeseung Song[1]
[1]KC Chemical, [2]Hanyang University

NAP-3266 **Thickness Effects of TiC Interlayer on Tribological Properties of DLC prepared by UBM Sputtering Method**

Yong Seob Park[1], Chulmin Park[2], Jaehyeong Lee[3]
[1]Chosun College of Science and Technology, [2]Korea Railroad Research Institute, [3]Sungkyunkwan University

NAP-3329 **Characteristics of N Doped DLC Films prepared by Unbalanced Magnetron Sputtering Method for Electronic Devices**

Jaehyeong Lee[1], Dong Uk Kim[1], Chulmin Park[2], Byung Hui Choi[3], Jung-Hyun Yun[3], Yong Seob Park[3]
[1]Sungkyunkwan University, [2]Korea Railroad Research Institute, [3]Chosun College of Science and Technology

Flexible, Stretchable Displays and Printed Electronics (DA)

Nov. 18, 2014 (Tue.)

DAP (Flexible, Stretchable Displays and Printed Electronics) Ramada Ballroom Lobby

Chair: Tae-Woo Lee (Pohang University of Science and Technology) 08:00-09:00 & 16:00-18:00

DAP-0172 **The Influence of SPS Additives on the Elongation and Surface Properties of Copper Thin Films**

Tae-Gyu Woo, Chang-Bem Kim, Sang-Woo Lee, Il-Song Park, Kyeong-Won Seol
Chonbuk National University

DAP-0189 **A Study on the Adhesion Properties of Reactive Sputtered Molybdenum Thin Films with Nitrogen Gas on Polyimide Substrate as a Cu Barrier Layer**

Hongsik Kim, HeeHwan Choe, Jae-Hong Jeon, Jong Hyun Seo
Korea Aerospace University

DAP-0324 **Metal-grid-embedded Flexible Transparent Conducting Films prepared by Electrohydrodynamic Jet Printing**

Youngwoo Lee, Jiyeon Yang, Bissannagari Murali, Byung-Kyu Yu, Jihoon Kim
Kongju National University

DAP-0335 **Developing Flexible Acoustic Devices using Piezoelectric Materials Coated with Carbon Nanotubes for Improving SPL**

Keehong Um
Hansei University

DAP-0529 **PEDOT:PTS coated Textile Fiber S/D OTFTs**

Rahim Abdur, Jaegab Lee
Kookmin University

DAP-0701 **Wavy Structure and Stretchable Characteristics of Bi-layer Substrates Formed by Surface Treatment**
Sang Chul Lim[1], Jae Bon Koo[2], Chan Woo Park[2], Ji Young Oh[2], Soon-Won Jung[2], Bock Soon Na[2], Sang Seok Lee[2], Hye Yong Chu[2], Myung Chan An[1], Dong Ic Lee[1], Se Hyuk Yeom[1], Chang Taek Seo[1]
[1]Gumi Electronics and Information Technology Research Institute, [2]Electronics and Telecommunications Research Institute

DAP-0935 **Transparent Conductive Films Composite with Copper Nanoparticle/Graphene Fabricated by Spray Coating Method**
Kyongmin Kim, Jinwoon Kim, Junghyun Sok
University of Seoul

DAP-1010 **Preparation of Novel Pyridine-based Aromatic Polyimides and Effect of Fluorine Functionality**
Hohyoun Jang, Md. Awlad Hossain, Lei Jin, Jaeseung Pyo, Fei Tan, Sungkwun Lee, Whangi Kim
Konkuk University

DAP-1170 **Fabrication of Light Guide Plates with Micro-patterned Organic Films including Hollow Silica Powder by using Nano-imprint Lithography**
Se Yong Park, Hee Chul Lee
Korea Polytechnic University

DAP-1173 **Solution-processed Titanium Oxide Dielectric Films for Low-voltage Organic Thin-film Transistor Application**
Sujin Sung, Sungjun Park, Wonjune Lee, Jongho Son, Myung-Han Yoon
Gwangju Institute of Science and Technology

DAP-1446 **Highly Conductive Electrode Pattern on Flexible Film using Metal Ink via Thermal Sintering and Transfer Printing Process**
Ji-Sub Park, Gyeong-Tae Park, Jae-Hyun Kim, Imtiaz Muhmud, Joon-Chan Choi, Jeong Min Bae, Jin-Tae Kim, Jin-Hyuk Bae, Hak-Rin Kim
Kyungpook National University

DAP-1900 **Stretchable Organic Thin-Film Transistors Fabricated on Elastomer Substrates using Stiff-Islands Structures**
Soon-Won Jung, Jeong-Seon Choi, Jae Bon Koo, Chan Woo Park, Bock Soon Na, Ji-Young Oh, Sang Chul Lim, Sang Seok Lee, Hye Yong Chu
Electronics and Telecommunications Research Institute

DAP-1953 **Development of Functional Smart Film Manufacturing Technologies**
Jihun Park[1], S.H. Lim[1], Eui-Joong Kim[1], Haoxie Song[1], Bup Ju Jeon[2], Joong Kee Lee[3]
[1]IM Co., Ltd, [2]Shinhan University, [3]Korea Institute of Science and Technology

DAP-2165 **Non-volatile Ferroelectric Polymer Transistor Memory with Sub-millimetre Bending Radius and its Mechanical Property Analysis**
Richard Hahnkee Kim, Sun Kak Hwang, Cheolmin Park
Yonsei University

DAP-2292 **A Study of the Multi-Color Manipulation of Polymer and Phosphors Composite Films using the Mechanoluminescence Phenomenon**
Jeungpyo Oh[1], Eun Mi Kim[2], In Seok Choi[3], GI-Seok Heo[2]
[1]Chonnam National University, [2]Korea Institute of Industrial Technology, [3]DongShin University

DAP-2294 **Characteristics of Mechanically Driven Luminescence Film using the Mechanoluminescence Phenomenon**
Inseok Choi[1], Eunmi Kim[2], Jeungpyo Oh[3], Gi-Seok Heo[2]
[1]DongShin University, [2]Korea Institute of Industrial Technology, [3]Chonnam National University

DAP-2437 **Low Cost and Single Process Transparent Electrode with ZnO and Silver Nanowire Composite**
Kisun Park[1], Doo-hyun Ko[1], Il Ki Han[1], Dongjin Byun[2], Hyungduk Ko[1]
[1]Korea Institute of Science & Technology, [2]Korea University

DAP-2810 **Investigation of Aluminum Oxide Barrier Layer Deposited on Various Plastic Substrates by PEALD Process for Flexible Display Applications**
Jong Geol Lee, Hyun Gi Kim, Sung Soo Kim
Kyung Hee University

DAP-2883 **Optimization of UV-irradiation Conditions for Liquid Crystal Alignment on Photo-alignment Layers with Different Photo-reaction Mechanism**
Jang-Ju Lee, Deoksu Jo, Sang-Hyon Paek
Kyung Hee University

DAP-2937 **Improving Switching Time of Electrochromic Device based on PEDOT:PSS with ITO Electrode**
Chanbin Lee, Hansol Jang, Hong Seung Kim
Korea Maritime University

LED Materials and Devices

Nov. 18, 2014 (Tue.)

DBP-2 (LED Materials and Devices 2) Ramada Ballroom Lobby

Chair: Jong Kyu Kim (Pohang University of Science and Technology) 08:00-09:00 & 16:00-18:00

DBP-2-1694 **Effective Internal Quantum Efficiency and Thermal Resistance in High-Power Ceramic Package LED**
Byungjin Ma, Jemin Kim, Sungsoon Choi, Kwanhoon Lee
Korea Electronics Technology Institute

DBP-2-1986 **The Study of Optical Properties as Glass Composition of ZnO-Bi2O3-P2O5 Glass/ Phosphor Composite for White LED**
Il Gu Kim, Bong Ki Ryu, Jong Hwan Kim, Jae Yeop Jung, Su Yeon Choi, Hyun Jun Park
Pusan National University

DBP-2-2055 **Implementation of Photonic Crystals Structure by Laser Interference Lithography: Enhancement of Light Extraction Efficiency in GaN based LEDs**
Chul Jong Yoo, Jae Yong Park, Jong-lam Lee
Pohang University of Science and Technology

DBP-2-2460 **Synthesis of Quantum Dot-silica Composite and LED Application**
Hyein Yoo[1], Kwangyeol Lee[2], Kyoungja Woo[1]
[1]Korea Institute of Science and Technology, [2]Korea University

DBP-2-2488 **Effects of Fluorine Doping on Structural and Optical Properties of Hydrothermally Grown ZnO Nanorods**
Giwoong Nam[1], Youngbin Park[1], Iksoo Ji[1], Min Su Kim[2], Jong Su Kim[3], Jin Soo Kim[4], Jae-Young Leem[1]
[1]Inje University, [2]Institute for Basic Science, [3]Yeungnam University, [4]Chonbuk National University

DBP-2-2490 **Annealing Effects on Structural and Optical Properties of Nanocrystalline ZnO Thin Films Deposited by Thermal Oxidation of Metallic Zn**
Jiyun Moon[1], Ikhyun Kim[1], Min Su Kim[2], Jong Su Kim[3], Jin Soo Kim[4], Jae-Young Leem[1]
[1]Inje University, [2]Institute for Basic Science, [3]Yeungnam University, [4]Chonbuk National University

DBP-2-2493 **Characteristics of Sol-gel-derived ZnO Thin Films with Different Precursor Concentrations on Mica Substrates**
Younggyu Kim[1], Seonhee Park[1], Jiyun Moon[1], Min Su Kim[2], Jong Su Kim[3], Jin Soo Kim[4], Jae-Young Leem[1]
[1]Inje University, [2]Institute for Basic Science, [3]Yeungnam University, [4]Chonbuk National University

DBP-2-2494 **Annealing Temperature Dependence of Metallic Au Seed Layers on Electrodeposited-ZnO Nanorods**
Youngbin Park[1], Giwoong Nam[1], Younggyu Kim[1], Min Su Kim[2], Jong Su Kim[3], Jin Soo Kim[4], Jae-Young Leem[1]
[1]Inje University, [2]Institute for Basic Science, [3]Yeungnam University, [4]Chonbuk National University

DBP-2-2499 **Oxidation Temperature-dependent Structural and Optical Properties of ZnO Thin Films Grown on Quartz Substrates by Thermal Oxidation of Zn Metal**
Seonhee Park[1], Dongwan Kim[1], Wookbin Lee[1], Min Su Kim[2], Jong Su Kim[3], Jin Soo Kim[4], Jae-Young Leem[1]
[1]Inje University, [2]Institute for Basic Science, [3]Yeungnam University, [4]Chonbuk National University

DBP-2-2513 **Hybrid White Light Emitting Diodes by Encapsulating InGaN with Thermal Curable Polysiloxane/Phosphor Composites**
Chi-Jung Chang, Chun-Feng Lai, Wei-Yung Chiou, P. Madhusudhana Reddy
Feng Chia University

DBP-2-2531 **Etch Characteristics of Palladium by using Inductively Coupled Ar-based Plasma using Photoresist as an Etch-mask**
Yong Yeon Kim, Jae-Kwan Kim, Ji-Myon Lee
Sunchon National University

DBP-2-2546 **High Quality Al-polar AlN Growth on (0001) Sapphire using Polarity-selective Thermal Etching**
Minhwan Jeon, Jinwan Kim, Kyungjae Lee, Daeyong Eom, Jaedo Pyeon, Cheon Heo, Okhyun Nam
Korea Polytechnic University

New Energy Storage Systems and Materials beyond LIB

Nov. 18, 2014 (Tue.)

EBP (New Energy Storage Systems and Materials beyond LIB) Ramada Ballroom Lobby

Chair: Jihun Oh (Korea Advanced Institute of Science and Technology) 08:00-09:00 & 16:00-18:00

EBP-0427 **Fe2O3 Nanoparticles Embedded in Nitrogen-doped Graphene Layers as Electrode Materials for Supercapacitors**
Lisong Xiao, Sebastian Kluge, Christof Schulz, Hartmut Wiggers
University of Duisburg-Essen

EBP-0471 **Organic Electrolyte Composition for Use in Asymmetric Hybrid Capacitor with Wide Operating Temperature Range**
Byunggwan Lee, Jungrag Yoon
Samwha Capacitor

EBP-0475 **Preparation of Spent Coffee Grounds Derived Activated Carbon by KOH Activation**
Ho Jun Lee[1], Dea-Joong Woo[2], Sang Jin Han[2], Dong-Yeol Lee[2], Sun-Min Park[1], Kwang Chul Roh[1]
[1]Korea Institute of Ceramic Engineering and Technology, [2]Vinatech

EBP-0478 **Electrochemical Performance of Hybrid Supercapacitor Fabricated using Multistructured Activated Carbon**
Min-Young Cho[1,2], Mok-Hwa Kim[1,2], Hyun-Kyung Kim[1], Kwang-Bum Kim[1], Jung Rag Yoon[3], Sun-Min Park[2], Kwang Chul Roh[2]
[1]Yonsei University, [2]Korea Institute of Ceramic Engineering & Technology, [3]Samwha Capacitor Co.

EBP-0532 **Activated Multi-walled CNTs prepared by KOH for Supercapacitor**
Joah Han[1], Sun-Min Park[1], Woong Kim[2], Kwang Chul Roh[1]
[1]Korea Institute of Ceramic Engineering & Technology, [2]Korea University

EBP-0589 **Nitrogen doped Activated Carbon by Urea for Supercapacitors**
Won-Seop Kang[1], Mok-Hwa Kim[1], Woong Kim[2], Sun-Min Park[1], Kwang-Chul Roh[1]
[1]Korea Institute of Ceramic Engineering and Technology, [2]Korea University

EBP-0741 **Effects of Atomic Layer Deposition on the Electrochemical Properties of Carbon Nanofiber as Anode Materials in Li-ion Batteries**
Jung Soo Park, Yiseul Park, Seong-Ho Baek, MinSun Kim, Soonhyun Kim, Jae Hyun Kim
Daegu Gyeongbuk Institute of Science & Technology

EBP-0764 **Fabrication of Morphologically Different Magnesium Metal Surface by Chemical Oxidation and their Adhesion of PPS Resin**
Eun Hyuk Chung, Tae Eun Hong, Jon Pil Kim, Jong Sung Jin, Jong-Seong Bae, F. Nawaz Khan, Euh Duck Jeong
Korea Basic Science Institute

EBP-0872 **Optimized Solvent-in-Salt Electrolytes for High-energy Rechargeable Metallic Lithium Batteries**
Zheng Fang[1], Liumin Suo[2], Yong-sheng Hu[1], Hong Li[1], Liquan Chen[1]
[1]Institute of Physics, Chinese Academy of Sciences, [2]University of Maryland

EBP-1270 **Fabrication and Characteristics of High Capacitance Al Thin Films Capacitor using a Polymer Inhibitor Bath in Electroless Plating Process**
Young Lae Cho[1], Chang Hyoung Lee[1], Jung Kab Park[1], Hyung-seon Choi[2], Sung Su Kim[2], Su Jeong Suh[1]
[1]Sungkyunkwan University, [2]Samyoung Electronics Co.

EBP-1647 **Electrochemical Properties of Fluorinated Activated Carbon for Supercapacitors**
Mok-Hwa Kim[1], Sun-Min Park[1], Kwang-Bum Kim[2], Kwang Chul Roh[1]
[1]Korea Institute of Ceramic Engineering & Technology, [2]Yonsei University

EBP-1776 **Enhanced Energy Density of Lithium Ion Capacitors based on Tin Oxide@carbon/ Activated Carbon Electrodes via Optimizing Mass Ratio of Negative/Positive Electrodes**
A-Young Kim[1], Dongjin Byun[2], Joongkee Lee[1]
[1]Korea Institute of Science and Technology, [2]Korea University

EBP-2106 **SnCu Thin Film Electrodes formed on Surface-modified Current Collectors for Na Ion Battery**
Min-jae Lee, Gyu-bong Cho, Pan-jin Noh, Ki-won Kim
Gyeongsang National University

EBP-2211 **Effects of Carbon Coating on Li4Ti5O12 Anode Material for Hybrid Capacitor**
Jongkyu Lee, Byunggwan Lee, Jungrag Yoon
Samwha Capacitor

EBP-2301 **Surface Modification of NiO/Ni Electrode by Atmospheric Pressure Corona Discharge for Redox Supercapacitor Application**
Manop Panapoy, Tanapol Chalermkiti, Bussarin Ksapabutr
Silpakorn University

EBP-2738 **High Capacity Iron based Composite Material as a Cathode for Sodium-ion Batteries**
Ghulam Ali, Chung Kyung Yoon
Korea Institute of Science and Technology

EBP-2907 **In Situ X-ray Diffraction Study on NaFe1-xMxO2 during Electrochemical Cycling**
Dieky Susanto[1,2], Kyung Yoon Chung[1]
[1]Korea Institute of Science and Technology, [2]Korea University of Science and Technology

EBP-3076 **Solvated Graphene based Two Dimensional Gel Sheet for Fast Operative Supercapacitor**
Sang Ouk Kim[1,2], Uday Narayan Maiti[1,2], Tae Woo Jeon[2], Joonwon Lim[2]
[1]Institute of Basic Science, [2]Korea Advanced Institute of Science and Technology

Water Splitting and Solar Fuel

Nov. 18, 2014 (Tue.)

EDP (Water Splitting and Solar Fuel) Ramada Ballroom Lobby

Chair: Jihun Oh (Korea Advanced Institute of Science and Technology) 08:00-09:00 & 16:00-18:00

EDP-0236 **Crystal Structure and Photocatalytic Activity of Al-doped TiO2 for Methylene Blue Dye Degradation**
Deuk Yong Lee[1], Hun Cho[1], Daejun Kang[1], Yonghyeon Yun[1], Seung Joon Song[1], Myung-Hyun Lee[2], Nam-Ihn Cho[3]
[1]Daelim University, [2]Korea Institute of Ceramic Energy & Technology, [3]Sun Moon University

EDP-0985 **Fabrication and Characterization of Amorphous Cobalt-doped Molybdenum Sulfide for Enhanced Eletrocatalysis**
Dongwook Lim, Hyein Hwang, Mincheol Choi, Taewoo Kim, Sung-Hyeon Baeck
Inha University

EDP-0991 **Water Splitting System of 2D SnS2 and TiO2 Nanotube based SnS2 using Atomic Layer Deposition**
Il-Han Yoo, Shankara Kalanur, Sun A Park, Hyungtak Seo
Ajou University

EDP-1512 **Three-dimensional RuO2 Branched Au-TiO2 Nanowire Heterostructures as Photostable and Efficient Photoelectrodes in Water Splitting**
Jae Won Lee[1], Joonmo Park[1], Sang Hoon Joo[1], Hyun Woong Park[2], Heon Lee[3], Hu Young Jeong[1], Myung Hwa Kim[4], Jeong Min Baik[1]
[1]Ulsan National Institute of Science and Technology, [2]Kyungpook National University, [3]Korea University, [4]Ewha Womans University

EDP-1617 **Comparison of Corrosion Properties of Zn, Al, Mg Alloy as a Sacrifical Anode to Protect Offshore Steel Structure**
Jinho Rhee, Jae-Ho Lee
Hongik University

EDP-1932 **Synthesis and Catalytic Properties of Pt/Silica Hybrid Nanocatalysts Encapsulated with Ultrathin Oxide**
Song Yi Moon, Brundabana Naik, Chan Ho Jung, Jeong Young Park
IBS, Korea Advanced Institute of Science and Technology

EDP-2000 **Study of Thermal Stability and Reactivity of Hybrid Nanocatalysts using in-situ Fourier Transform Infrared (FTIR) Spectroscopy**
Sunyoung Oh, Song Yi Moon, Brundabana Naik, Jeong Young Park
IBS and EEWS, Korea Advanced Institute of Science and Technology

EDP-2250 **Highly Efficient Visible Light Photocatalysis of Mesoporous Activated Carbon-TiO2 Composite prepared by Sol-gel and Microwave Processing**
Bussarin Ksapabutr, Ing-Orn Sittirug, Manop Panapoy
Silpakorn University

EDP-2887 **Three-Dimensional In2O3:Sn Nanowire-CdS Core-Shell Nano-structure Photoelectrode for Photoelectrochemical Water Splitting**
Ju Seong Kim, Hyun Soo Han, Shin Sun, Seong Sik Shin, Jun Hong Noh, Kug Sun Hong, Kisuk Kang
Seoul National University

Photovoltaic Materials and Engineering

Nov. 18, 2014 (Tue.)

EEP-2 (Photovoltaic Materials and Engineering 2) Ramada Ballroom Lobby

Chairs: Byungwoo Park (Seoul National University) 08:00-09:00 & 16:00-18:00
Byungha Shin (Korea Advanced Institute of Science and Technology)

EEP-2-1248 **Effect of Forming Gas Annealing on Microstructure of Ag Contact on Crystalline Si Solar Cell**
Min Je Hwang, Sung Bin Cho, Joo Youl Huh
Korea University

EEP-2-1281 **Temperature-dependent Photoresponse Characteristics of 4H-SiC Lateral MOSFETs in the 200-1000 nm Spectral Range**
Susanna Yu, Min-Seok Kang, Sang-Mo Koo
KwangWoon University

EEP-2-1334 **Ag Front Contact Formation of Crystalline Si Solar Cells using Single-step Inkjet Printing with Liquid-type Additive**
Hee Soo Kim, Sung Bin Cho, Joo Youl Huh
Korea University

EEP-2-1369 **Pre-Annealing Dependence of Solution-Processed CZTS Thin Solar Cells**
Soomin Song, SeongYeon Kim, JunHo Kim
Incheon National University

EEP-2-1434 **Substrate Temperature Effect of In-based Buffer Layer on CIGS Solar Cells**
SeongYeon Kim[1], JunHo Kim[1], Jihye Gwak[2], Jae Ho Yun[2], Kyung-Hoon Yoon[2]
[1]Incheon National University, [2]Korea Institute of Energy Research

EEP-2-1467 **Indium Tin Oxide Free Semitransparent Organic Photovoltaic Cells using Dielectric/Metal/Dielectric as Transparent Electrodes**

Ae Na Lee, Il Soo Oh, Ji Hun Park, Se Young Oh

Sogang University

EEP-2-1554 **Influence of ZnO Nanorods with Different Aspect Ratios as an Electron Transport Layer on Inverted Organic Solar Cells**

Gyu Chae Choi[1,2], Eun Jin Lee[1,2], Yang Do Kim[2], Young Kuk Kim[1]

[1]Korea Institute of Materials Science, [2]Pusan National University

EEP-2-1557 **Formation of MoOx Nanobelts from Cost Effective Annealing of DC-Sputtered Bi-Layer Molybdenum Thin Films**

Puvaneswaran Chelvanathan, Yulisa Yusoff, Samia A Nadi, Towhid H Chowdhury, Mohammad J Rashid, Md Akhtaruzzaman, Nowshad Amin

The National University of Malaysia

EEP-2-1574 **Properties of a-SiGe Thin Films on Glass by Co-Sputtering for Photovoltaic Absorber Application**

Sayyed A. Shahahmadi[1], B. Yeganeh[1], Nilofar Asim[1], M. M. Alam[2], Z. A. Alothman[2], Kamaruzzaman Sopian[1], Nowshad Amin[1,2]

[1]The National University of Malaysia, [2]King Saud University

EEP-2-1584 **Structural Changes of Poly(3-hexylthiophene) and [6,6]-Phenyl-C61-butyric Acid Methyl Ester Blend Thin Film during Residual Solvent Evaporation using Synchrotron Grazing Incidence Wide Angle X-ray Scattering**

Jehan Kim[1], Taejoo Shin[1], Sung-Youp Lee[2], Byong-Wook Shin[2], Hyeong-Rag Lee[2]

[1]Pohang Accelerator Laboratory, [2]Kyungpook National University

EEP-2-1624 **Prospects of i-ZnO/ZnS Bi-Layer Buffer in Thin Film Solar Cells**

Puvaneswaran Chelvanathan[1], Yulisa Yusoff[1], Ameen M Ali[1], Iskandar Yahya[1], Norhana Arshad[1], Mohammad M Alam[2], Nowshad Amin[1], Zeid A Alothman[2]

[1]The National University of Malaysia, [2]King Saud University

EEP-2-1722 **Effects of Pulsed-DC Sputtering Powers on Laser Ablation of AZO Films**

Jaeseok Heo, Seongjae Cho, Sang Jik Kwon, Eou Sik Cho

Gachon University

EEP-2-1741 **Structural and Optical Property Evolution of RF-Sputtered ZnS Thin Film**

Puvaneswaran Chelvanathan[1], Yulisa Yusoff[1], Mohammad Istiaque Hossain[2], Md Akhtaruzzaman[1], M Mezbaul Alam[3], Zeid A Alothman[3], Kamaruzzaman Sopian[1], Nowshad Amin[1]

[1]The National University of Malaysia, [2]Qatar Environment and Energy Research Institute, [3]King Saud University

EEP-2-1917 **Light Trapping in Thin Film Silicon Solar Cells with Periodic Structure on Glass Substrate**
Sungjae Bong, Shihyun Ahn, Le Huy Tuan Anh, Sunbo Kim, Hyeongsik Park, Chonghoon Shin, Junsin Yi
Sungkyunkwan University

EEP-2-1921 **Study of Honeyomb Structure for Light Trapping using ICP-RIE Dry Etching for High Efficiency Thin-Film Silicon Solar Cells**
Sangho Kim, Chonghoon Shin, Anh Huy Tuan Le, JunSin Yi, Ai Dao Vinh
Sungkyunkwan University

EEP-2-1925 **Advanced Light Trapping of Periodically Textured Glass using by Inductively Coupled Plasma - Reactive Ion Etching for Thin-Film Solar Cells**
Shihyun Ahn[1], Anh Huy Tuan Le[1], Sunbo Kim[1], Sungjae Bong[1], Hyeongsik Park[1], Chonghoon Shin[1], Youn-Jung Lee[1], Jaehyeong Lee[1], Chaehwan Jeong[2], Vinh Ai Dao[1], Junsin Yi[1]
[1]Sungkyunkwan University, [2]Korea Institute of Industrial Technology

EEP-2-1929 **Interface Modification of Electrostatically Assembled Bilayer for Improved Photovoltaic Characteristics**
Sai-Anand Gopalan, Gopalan Anantha-Iyengar, Kwang-Don Lee, Sang-Won Lee, Kwang-Pill Lee, Shin-Won Kang
Kyungpook National University

EEP-2-1960 **Gate-tunable Wide Bandwidth Photodetector using Graphene/Silicon Schottky Contact**
Kyoung Eun Chang, Ukjin Jung, Tae Jin Yoo, Jinwoo Noh, Byoung Hun Lee
Gwangju Institute of Science and Technology

EEP-2-2002 **Amplification of Hot Electron Flow by Surface Plasmon Effect using Metal-insulator-metal Nanodiodes**
Changhwan Lee[1,2], Young Keun Lee[1,2], Changui Ahn[2] Hyosun Lee[1,2], Ievgen Nedrygailov[1], Seokwoo Jeon[2], Jeong Young Park[1,2]
[1]IBS, [2]Korea Advanced Institute of Science and Technology

EEP-2-2014 **Zero Bias Operation of CVD Graphene Photodetector using Asymmetric Metal Contacts**
Han Na Choi[1], Sang Kyung Lee[1], Tae Jin Yoo[1], Chang Goo Kang[2], Byoung Hun Lee[1]
[1]Gwangju Institute of Science and Technology, [2]Cambridge University

EEP-2-2027 **Electrical and Optical Characteristics of ZnTe/ZnO Heterojunction Diodes with N-doped ZnTe Buffer Layer Grown on p-type Si**
Kyoung Su Lee, Dong Uk Lee, Eun Kyu Kim
Hanyang University

EEP-2-2047 **Effectual Strategies for Photo-current Enhancement in PbS Quantum-dot Solar Cells fabricated by SILAR Process**
Muhammad Abdul Basit, Muhammad Awais Abbas, Jin Ho Bang, Tae Joo Park
Hanyang University

EEP-2-2176 **MoN Thin Film as Se Diffusion Barrier for Mo Back Contact in Thin Film Solar Cell**
Min-Su Kwon, Hangil Kim, Soo-Hyun Kim, Chan-Wook Jeon
Yeungnam University

EEP-2-2195 **Phase Transformation of Se/CIG/Mo/glass Thin Films during Annealing : A Real-Time Synchrotron X-ray Scattering Study**
Yeon Su Son[1], Tae Sik Cho[1], Yong Bae Kim[2]
[1]Kyungpook National University, [2]Gumi Electronics and Information Technology Research Institute

EEP-2-2209 **Enhanced Electron Life Time and Long-Term Stability in Dye-sensitized Solar Cells Fabricated with Organic Dye Containing Tri-Anchoring Groups in a Chromophore**
ChiHwan Lee[1], YoungRock Kim[1], YongHee Lee[1], YoonSoo Han[2], JaeHong Kim[1]
[1]Yeungnam University, [2]Catholic University of Daegu

EEP-2-2216 **Novel Organic Dye based on Phenothiazine and Carbazole Chromophore for Dye-sensitized Solar Cells**
ChiHwan Lee[1], YoungRock Kim[1], Quoc Bao Le[1], JungMin Cho[1], DoKyung Lee[2], JaeHong Kim[1]
[1]Yeungnam University, [2]Catholic University of Daegu

EEP-2-2221 **Evaluating Performance of Micron-scale Ag Grids as a Transparent Electrode**
Jinho Ahn, Kilbock Lee
Hanyang University

EEP-2-2226 **Carbazole-Chromophore based Photosensitizer for p-type Dye-Sensitized Solar Cells**
JiYoung Park, BoYoun Jang, Thi Hai Nguyen, HeeJin Ahn, JaeHong Kim
Yeungnam University

EEP-2-2241 **Enhanced Dye Sensitized Solar Cells of Quasi-Solid-State for Förster Resonance Energy Transfer**
JiYoung Park, BoYoun Jang, HyeongJin Yun, JaeHong Kim
Yeungnam University

EEP-2-2260 **Dye-sensitized Solar Cells Composed of Nanorod ZnO Electrode prepared by the Chemical Bath Deposition**
Young Rock Kim, Chi Hwan Lee, Jun Min Kim, Kwang Soon Ahn, Jae Hong Kim
Yeungnam University

EEP-2-2264 **Polymer/Metal/Dielectric (P/M/D) Transparent Electrode for Organic Solar Cell**
Juyoung Ham, Jong-Lam Lee
Pohang University of Science and Technology

EEP-2-2265 **Enhanced Efficiency of Dye Co-sensitized Solar Cells prepared from the One-bath Mixed Dye Solution Process**
Young Rock Kim, Chi Hwan Lee, Bo Youn Jang, Kwang-soon Ahn, Jae Hong Kim
Yeungnam University

EEP-2-2267 **Organic Dye based on Triphenylamine with Cobalt and Iodine Liquid Electrolytes in Dye-sensitized Solar Cells**

Bo Youn Jang[1], Ji Young Park[1], Jun Min Kim[1], Yoon Soo Han[2], Jae Hong Kim[1]
[1]Yeungnam University, [2]Catholic University of Daegu

EEP-2-2273 **Blended Polymer Gel Electrolytes based on PVDF-HFP and PMMA for Highly Efficient Photovoltaic Performance**

Bo Youn Jang[1], Ji Young Park[1], Do Kyoung Lee[1], Do Kyung Lee[2], Jae Hong Kim[1]
[1]Yeungnam University, [2]Catholic University of Daegu

EEP-2-2509 **Effects of Sodium Dodecyl Sulfonate as a Co-adsorbate on the Performance of Dye-Sensitized Solar Cells**

Ju Hee Oh[1], Yoon Soo Han[2]
[1]Kyungpook National University, [2]Catholic University of Daegu

EEP-2-2512 **Enhanced Power Conversion Efficiency of Dye-Sensitized Solar Cells with Li2SiO3-modified Photoelectrode**

Jong Tae Kim[1], Sang-Ju Lee[1], Dae-Hwan Kim[1], Shi-Joon Sung[1], Yoon Soo Han[2]
[1]Daegu Gyeongbuk Institute of Science and Technology, [2]Catholic University of Daegu

Simulation of Organic Materials

Nov. 18, 2014 (Tue.)

CBP (Simulation of Organic Materials) Ramada Ballroom Lobby

Chair: Abhishek Kumar Singh (Indian Institute of Science) 08:00-09:00 & 16:00-18:00

CBP-3281 **First-principles Study on the α-β Phase Transition of Ferroelectric Poly(Vinylidene Difluoride): Observation of Multiple Transition Pathways**

Won June Kim[1], Myung Hoon Han[1], Young-Han Shin[2], Eok Kyun Lee[1]
[1]Korea Advanced Institute of Science and Technology, [2]University of Ulsan

Simulation of Electronic and Magnetic Devices

Nov. 18, 2014 (Tue.)

CDP (Simulation of Electronic and Magnetic Devices) Ramada Ballroom Lobby

Chair: Abhishek Kumar Singh (Indian Institute of Science) 08:00-09:00 & 16:00-18:00

CDP-0129 **Simulation of Bucky Shuttle Memory Device using Graphene Nanoribbon**

Sun-Young Kim, Sanghoon Cho, Ki-Sub Kim, Jeong Won Kang, Chung-Sang Won
Korea National University of Transportation

CDP-0153 **Roles of Oxygen Frenkel Pairs in Photoluminescence of Bismuth Doped yttria: ab Initio Thermodynamics Modeling and Experimental Verifications**
Heechae Choi, So-Hye Cho, Sovann Khan, Kwang-Ryeol Lee, Seungchul Kim
Korea Institute of Science and Technology

CDP-0339 **Development of Dual-mode Wireless Power Transmitters by Analyzing the Protocol for WPC and PMA**
Keehong Um[1], Soo-Yeub Yoo[2]
[1]Hansei University, [2]Amotech Co., Ltd

CDP-0514 **An Efficient FDTD Algorithm to Simulate Absorbed Energy of each Non-flat Layers or Particles of Thin Film Solar Cells**
Seok Yong Byun[1], Seok-Joo Byun[1], Taek Sung Lee[2], Won Mok Kim[2], Dongwoo Sheen[3]
[1]Insideoptics, Inc., [2]Korea Institute of Science and Technology, [3]Seoul National University

CDP-0530 **Analysis of Optical Reflectance from c-Si Surface with Submicron Pyramid Patterns by using FDTD Simulation Technique**
Seok-Joo Byun[1], Seok Yong Byun[1], Taek-Sung Lee[2], Won Mok Kim[2]
[1]INSIDEOPTICS, [2]Korea Institute of Science and Technology

CDP-0583 **Atomistic Observation on Lithiation Behaviors of Silicon Nanowires: Reactive Molecular Dynamics Simulation**
Hyun Jung, Sang Soo Han
Korea Institute of Science and Technology

CDP-0744 **Magnetic Permeability and Magnetic-resonance Transmission of Metal/insulator/metal based Nanodot Arrays**
Son (Thanh) Vo, Jong-Ryul Jeong
Chungnam National University

CDP-0749 **Tuning the Schottky Barrier Height at Silicide/Silicon Interfaces: An ab-initio Study**
Pooja Srivastava[1], Mincheol Shin[2], Kwang-Ryeol Lee[1], Seungchul Kim[1]
[1]Korea Institute of Science and Technology, [2]Korea Advanced Institute of Science and Technology

CDP-0755 **Investigation of the Silicon Oxynitrides Formation on Si(001) via Reactive Molecular Dynamics**
Haining Cao, Seungchul Kim, Kwang-Ryeol Lee
Korea Institute of Science and Technology

CDP-0898 **Modeling and Analysis on Window-unified Capacitive Type of Touch Sensor**
Chan-Hwa Hong[1,2], Jae-Heon Shin[1], Kyung-Hyun Kim[1], Nae-Man Park[1], Woo-Hyung Seo[1], Chang-Woo Song[1], Ji-Woong Yang[3], Byeong-Kwon Ju[2], Woo-Seok Cheong[1]
[1]Electronics and Telecommunication Research Institute, [2]Korea University, [3]Chung-Ang University

CDP-0965 **Origin of Intrinsic Hole-carrier Formations in Heterojunctions of Methylammonium Lead Iodide Perovskite on Titanium Oxide: First-principles Study**
Yongseok Choi[1,2], Heechae Choi[2], Jaechul Lee[1], Kahyun Hur[2]
[1]Korea University, [2]Korea Institute of Science and Technology

CDP-1370 **First-principles Study on Electronic Structures of Amorphous InGaZnO-SiO2 Interfaces**
Hochul Song, Youngho Kang, Ho-Hyun Nahm, Seungwu Han
Seoul National University

CDP-1898 **Electronic and Optical Properties of Ultrathin Silicon Nanomembranes: A First-principles Investigation**
Woo-Sun Jang, Su-Hyun Yoo, Aloysius Soon
Yonsei University

CDP-2642 **Atomistic Characterizations on Bandgap Variations of Low-Dimensional Structures of Nanomaterials**
Lan-Hee Yang[1,2], Sangil Hyun[1], Eunhae Koo[1]
[1]Korea Institute of Ceramic Energy & Technology, [2]Korea University

Methods for Material Simulation

Nov. 18, 2014 (Tue.)

CEP (Methods for Material Simulation) Ramada Ballroom Lobby

Chair: Hyunwook (Shaun) Kwak (Schrodinger, Inc.) 08:00-09:00 & 16:00-18:00

CEP-0534 **Development of Apparatus for CO2 Injection & Utilization in Coke Oven using TRIZ**
Jong Hag Jeon
POSCO

CEP-0537 **A Study of Variational Formulation on Electro-Mechanical Macromodel of Dissipative Materials**
Deok-Kee Choi
Dankook University

CEP-0832 **An Efficient Modeling Scheme to Generate Amorphous Structures**
Yong Youn, Youngho Kang, Seungwu Han
Seoul National University

CEP-1028 **Contact Hole Shrink of Directed Self-Assembly and its Application based on Simulation Approach**
Sang-kon Kim
Hanyang University

CEP-1049 **Atomic Resolution Scanning Seebeck Microscope Simulation for Pristine and Defective Graphene**
Eui-Sup Lee[1], Sanghee Cho[2], Ho-Ki Lyeo[2], Yong-Hyun Kim[1]
[1]Korea Advanced Institute of Science and Technology, [2]Korea Research Institute of Standards and Science

CEP-1379 **Atomistic and Electronic Structure of Grain Boundaries in Multicrystalline Silicon: Atomistic Simulations**
Hiroshi Mizuseki[1], Yoshiyuki Kawazoe[2]
[1]Korea Institute of Science and Technology, [2]Tohoku University

CEP-1417 **Quasiparticle Electronic Structures of TiO2 and SrTiO3**
Gijae Kang, Youngho Kang, Seungwu Han
Seoul National University

CEP-1919 **Temperature Distribution in Non-magnetic and Ferromagnetic Material Layer ordering Thin Film Structure**
Kyung-Min Lee
Chungnam National University

CEP-2344 **Nonlinear Viscoelastic Material Modeling and Variational Formulation Method of Electroactive Polymers**
Deok-Kee Choi
Dankook University

CEP-2529 **New Analysis of Gas Adsorption / Separation of Metal Organic Framework by using computational Tool**
Byungchul Yeo, Sangsoo Han
Korea Institute of Science and Technology

CEP-2616 **Use of Artificial Neural Network for the Simulation of Radon Emission Concentration of Granulated Blast Furnace Slag Mortar**
Hongseok Jang, Malrey Lee, Boram Lee, Xing Shuli
Chonbuk National University

CEP-2637 **Morphology-dependent Adhesions of Complex Interfaces in Hybrid Nanofilms**
Ji-Eun Choi, Youngho Park, Sangil Hyun, Eunhae Koo
Korea Institute of Ceramic Energy & Technology

CEP-3279 **On the Nature of Dispersion Interaction of Alkali Metals**
Minho Kim, Hyungjun Kim
Korea Advanced Institute of Science and Technology

Magnetism and Magnetic Materials

Nov. 19, 2014 (Wed.)

MEP (Magnetism and Magnetic Materials) Ramada Ballroom Lobby

Chair: Haein Yim (Sookmyung Women's University) 08:00-10:00

MEP-0276 **Synthesis of High Moment and Monodisperse Mn-Zn Ferrite Nanoparticles by Polyol and Sonochemical Methods**
Mohamed Abbas[1], B. Parvatheeswara Rao[2], CheolGi Kim[1]
[1]Daegu Gyeongbuk Institute of Science and Technology, [2]Andhra University

MEP-0466 **Exchange-biased Ferromagnetic Electrode and its Application for Complementary Spin Transistor**
Youn Ho Park[1], Jun Woo Choi[1], Joonyeon Chang[1], Heon-Jin Choi[2], Hyun Cheol Koo[1]
[1]Korea Institute of Science and Technology, [2]Yonsei University

MEP-0477 **Synthesis of Co-rich Nanowires as a Barcode Segment for Multiplexing Bio-applications**
Sri Ramulu Torati[1], Xing Hao Hu[1], Venu Reddy[1], Seok Soo Yoon[2], CheolGi Kim[1]
[1]Daegu Gyeongbuk Institute of Science & Technology, [2]Andong National University

MEP-0518 **Densification and Magnet Properties of Fe Powder with Heat-treatment Conditions**
Hyeon-Taek Son, Yong-Ho Kim, Jung-Won Choi
Korea Institute of Industrial Technology

MEP-0561 **Nanostructure Analysis of L10-FePtCu Magnetic Nanoparticles**
Jung-Il Lee, Joon Hwang, Chang-Woo Hong, Jeong Ho Ryu
Korea National University of Transportation

MEP-1062 **Influence of Barium Hexaferrite on Magnetic Properties of Hydroxyapatite Ceramics**
Narumon Lertcumfu[1], Gobwute Rujijanagul[1], Parkpoom Jarupoom[2]
[1]Chiang Mai University, [2]Rajamangala University of Technology Lanna

MEP-1299 **The Effect of Growth Temperature on GdBa2Cu3O7-δ Coated Conductors Fabricated by the RCE-DR Process**
Soon-Mi Choi[1], Jung-Woo Lee[1], Won-Jae Oh[1], Tae-Hyun Seok[1], Jae-Hun Lee[2], Seung-Hyun Moon[2], Sang-Im Yoo[1]
[1]Seoul National University, [2]Superconductor, Nano & Advanced Materials Corporation Ltd

MEP-1306 **Synthesis and Magnetic Properties of SrFe(2-x)ZnxFe16O27 (0.0≤x≤2.0)**
Jae-Hyoung You, Sungjoon Choi, Sang-Im Yoo
Seoul National University

MEP-1366 **Conductance Change Induced by the Rashba Effect in the $LaAlO_3/SrTiO_3$ Interface**
Taeyueb Kim[1], Shin-Ik Kim[1], Seung-Hyub Baek[1], Jinki Hong[2], Hyun Cheol Koo[1]
[1]Korea Institute of Science and Technology, [2]Korea University

MEP-1601 **Magnetic and Microwave Properties of Al3+ and In3+ Substituted Mg-Mn Ferrites**
Chien-Yie Tsay[1], Shan-Chien Liang[1], Chien-Ming Lei[2], Chung-Chieh Chang[3]
[1]Feng Chia University, [2]Chinese Culture University, [3]Academia Sinica

MEP-1905 **The Effect of the Morphology of Carbonyl Iron Powder (CIP) on Electromagnetic Wave Absorption Ability**
Soobin Woo[1], Hwijun Kim[2], Hyunjoo Choi[1]
[1]Kookmin University, [2]Korea Institute of Industrial Technology

MEP-2098 **Effect of Secondary Phase on Magnetic and Magnetocaloric Properties of La0.7Ca0.3MnO3/Mn1-xZnxFe2O4 Composites**
Yeong Seung Jeong, Sung Jae Kim, Keun Young Park, Bon Heun Koo, Mohammad Shafique Anwar
Changwon National University

MEP-2126 **Enhancement of the Remanence Value of Bulk Strontium Ferrite by the Addition of AlNiCo**
Kwang-Won Jeon, Ki Woong Moon, Min Kang, Min Kyu Kang, Gyu-Tae Lee, Jongryoul Kim
Hanyang University

MEP-2132 **Annealing Effect on the Microstructure and Magnetic Properties of YIG Nano Powders prepared by a Sol-gel Method**
Rambabu Kuchi
Chungnam National University

MEP-2147 **Study of Zn On Magnetocaloric Effect in (0.97)La0.70.7Sr0.3MnO3/(0.03)Mn(1-x) ZnXFe2O4 Composites**
Keun Young Park, Yeong Seung Jung, Sung Jae Kim, Seung Rok Lee, Mohammad Shafique Anwar, Bon Heun Koo
Changwon National University

MEP-2162 **Synthesis and Magnetic Properties Core/Shell Structured α"-Fe16N2/Al2O3 Magnetic Powders**
Min Kyu Kang, Ki Woong Moon, Kwang-Won Jeon, Min Kang, Gyu-Tae Lee, Jongryoul Kim
Hanyang University

MEP-2200 **High Characteristic Sr-Ferrite Magnetic Powders Made by New Direct-Spray Roasting**
Tae Sik Cho
Kyungpook National University

MEP-2204 **Effect of Multi-stage Deformation on the Microstructure and Magnetic Properties of Dy-free Nd-Fe-B Magnets prepared by Hot Deformation Process**
Hee-Ryoung Cha[1], Shu Liu[1], Ji-Hun Yu[1], Hae-Woong Kwon[2], Yang-Do Kim[3], Jung-Goo Lee[1]
[1]Korea Institute of Materials Science, [2]Pukyong National University, [3]Pusan National University

MEP-2262 **Synthesis and Microstructural Analysis of Magnetic CaFe0.5Co0.5O3-δ using reitveld Method**
Bon Heun Koo, Zeeshan ur Rehman, Sung Jae Kim, Keun Young Park
Changwon National University

MEP-2272 **Characteristics of Semiconducting Indium Tungsten Oxide Thin Films prepared using Solution Coating Method**
Ji Hye Jung[1], Sung Ho Lee[2], Do Kyung Lee[1]
[1]Catholic University of Daegu, [2]Nano Convergence Practical Application Center

MEP-2470 **Domain Wall Movement in a Rhombic Co Thin Film Structure**
Chunghee Nam
Hannam University

MEP-2521 **Effects of Film Stress and Geometry on Texture Evolution before and after the Martensitic Transformation in a Nanocrystalline Co Thin Film**
Sung Bo Lee[1], Dong-Ik Kim[2], Yanghoo Kim[1], Seung Jo Yoo[3], Ji Young Byun[2], Heung Nam Han[1], Dong Nyung Lee[1]
[1]Seoul National University, [2]Korea Institute of Science and Technology, [3]Korea Basic Science Institute

MEP-2597 **Synthesis, Morphology Control and Electromagnetic Wave Absorption Properties of Electrospun FeCo Alloy Nanofibers**
Young-In Lee[1], Dae-Hwan Jang[2], Yong-Ho Choa[2]
[1]Seoul National University of Science and Technology, [2]Hanyang University

MEP-2710 **Synthesis and Magnetic Properties of τ-MnAl Magnets**
Ki Woong Moon, Kwang-won Jeon, Gyu-Tae Lee, Jongryoul Kim
Hanyang University

MEP-2715 **Coercivity Enhancement of HDDR Treated Nd-Fe-B Magnet Powders using Nd-Cu Diffusion**
Kwang-Won Jeon, Ki Woong Moon, Min Kang, Min Kyu Kang, Gyu-Tae Lee, Jongryoul Kim
Hanyang University

MEP-2725 **Magnetic Permeability and Power Loss Behaviors of FeCo Micro Hollow Fiber Composites**
Moosung Choi, Don Chul Choi, Jongryoul Kim
Hanyang University

MEP-2848 **Perpendicular Magnetic Anisotropy in CoSiB/Pd/CoSiB Trilayer Thin Film with Various Pd Thicknessess**
Sol Jung[1], Haein Yim[1], Taewan Kim[2]
[1]Sookmyung Women's University, [2]Sejong University

Nanoscale Devices & Characterization

Nov. 19, 2014 (Wed.)

NDP (Nanoscale Devices & Characterization)

Ramada Ballroom Lobby

Chairs: Sang Ouk Kim (Korea Advanced Institute of Science and Technology)
WooChul Jung (Korea Advanced Institute of Science and Technology)

08:00-10:00

NDP-0126 **Molecular Dynamics Study on Mechanical Response of Crossroad-Type Graphene Resonator**
Sun-Young Kim, Sanghoon Cho, Ki-Sub Kim, Jeong Won Kang, Chung-Sang Won
Korea National University of Transportation

NDP-0134 **Gate-voltage Tuning of the Tunneling Characteristics in Graphene/BN/Au Vertical Devices**
Muhammad Zahir Iqbal, Muhammad Farooq Khan, Muhammad Waqas Iqbal, Jonghwa Eom
Sejong University

NDP-0138 **Modification of the Structural and Electrical Properties of Graphene Layers by Pt Adsorbates**
Muhammad Waqas Iqbal, Muhammad Zahir Iqbal, Muhammad Farooq Khan, Jonghwa Eom
Sejong University

NDP-0139 **Tailoring of the Electrical Characteristics of Graphene by Potassium Nitrate Chemical Doping**
Muhammad Farooq Khan, Muhammad Zahir Iqbal, Muhammad Waqas Iqbal, Jonghwa Eom
Sejong University

NDP-0525 **Characterization of a DRAM Capacitor with a Supporter using a Tendency of Failed Cell Address**
Sungho Lee[1,2], Jonghyuk Kang[1,2], Yongho Yoo[2], Jin Choi[2], Jongseo Hong[2], Cheol-Woong Yang[1]
[1]Sungkyunkwan University, [2]Samsung Electronics Co

NDP-0658 **Characterisation of LAO Thin Films Grown on Substrate by Off-axis RF Sputtering**
Chung Wung Bark, Do Hyun Kim
Gachon University

NDP-0766 **High Sensitivity Au-Polypyrrole Nanorod Sensor for the Detection of Volatile Organic Compound Gas at Room Temperature**
Jae-Sung Lee, Na-Rae Yoon, Byoung-Ho Kang, Sang-Won Lee, Sai-Anand Gopalan, Hyun-Min Jeong, Sae-Wan Kim, Shin-Won Kang
Kyungpook National University

NDP-0815 **Variability of Contact Properties in MoS2 Thin-Film Transistors**
Seong Yeoul Kim, Seon Young Park, Woong Choi
Kookmin University

NDP-0957 **Epitaxial Growth of Silicon Films by the Non-classical Growth Mechanism during Hot Wire Chemical Vapor Deposition**
Jaesoo Jung, Daseul Kim, Nongmoon Hwang
Seoul National University

NDP-0973 **Optical and Electrical Performance of Ga-doped ZnO nanorods/p-GaN Film Heterojunction Light Emitting Diodes prepared using Hydrothermal Method**
Geun Chul Park, Jun Hyuk Choi, Seung Muk Lee, Jun Hyung Lim, Jinho Joo
Sungkyunkwan University

NDP-1020 **Hydrophobic Sponge Structure-based Triboelectric Nanogenerator**
Jinsung Chun[1], Keun Young Lee[2], Kyeong Nam Kim[1], Na-Ri Kang[1], Ju-Young Kim[1], Sang-Woo Kim[2], Jeong Min Baik[1]
[1]Ulsan National Institute of Science and Technology, [2]Sungkyunkwan University

NDP-1043 **Silk based Time-Controllable, Biocompatible and Transparent Piezoelectric Composite Nanogenerator using Lead-free Ferroelectric Nanoparticles**
Kyeong Nam Kim[1], Jinsung Chun[1], Song A Chae[2], Chang Won Ahn[2], Ill Won Kim[2], Sang Woo Kim[3], Jeong Min Baik[1]
[1]Ulsan National institute of Science and Technology, [2]University of Ulsan, [3]Sungkyunkwan University

NDP-1146 **Synthesis of Silver Telluride Nanofibers by Electrospining and Electrodeposition Method**
Kee-Ryung Park[1], Seil Kim[1], Yo-Min Choi[1], Nosang V. Myung[2], Yong-Ho Choa[1]
[1]Hanyang University, [2]University of California Riverside

NDP-1185 **Modified Electrolysis Method for Synthesis of Copper Nanoparticle based on Bulk Copper in Aqueous Solution**
Hyeong-Sik Kim, Young-Tae Kwon, Yo-Min Choi, Seil Kim, Yong-Ho Choa
Hanyang University

NDP-1297 **Dielectric Properties of CaCu3Ti4O12 Ceramics with the Nanocoating of BaTiO3**
Hui Eun Kim[1], Youn-Woo Hong[2], Sang-Im Yoo[1]
[1]Seoul National University, [2]Korea Institute of Ceramic Energy & Technology

NDP-1340 **Gate Potential Controlling Ionic Concentration Polarization in a Nanofluidic Preconcentrator**
Sung Il Han[1], Yong Kyoung Yoo[1], Rhokyun Kwak[2], Kyo Seon Hwang[2], Jeong Hoon Lee[1]
[1]Kwangwoon University, [2]Korea Institute of Science and Technology

NDP-1415 **A Study on the Optical and Electrical Properties of GZO/Metal/GZO Multi-layered Transparent Electrodes for Photonic Applications**
Moon-Ki Jeong, Hee Chul Lee
Korea Polytechnic University

NDP-1418 **Dependence of Thermal Properties on the Anorthite/Diopside Ratio by Glass-ceramics Process for LED Package**
Seunggu Kang
Kyonggi University

NDP-1428 **Simulation of Thermal Transport in Carbon Nanotube using Nanoscale Heat Conduction Model**
C. Y. Ho[1], M. Y. Wen[2], B. C. Chen[3], Y. H. Tsai[1]
[1]Hwa Hsia Institute of Technology, [2]Cheng Siu University, [3]Buddhist Dalin Tzu Chi General Hospital

NDP-1513 **Graphene as Passivation Layer for Ge PIN Photodiode**
Zagarzusem Khurelbaatar, Jong-Hee Kim, Taek Sung Kim, Yeon-Ho Kil, Chel-Jong Choi, Kyu-Hwan Shim
Chonbuk National University

NDP-1521 **Biaxially Textured MgO Films on Solution Derived Planarization Y2O3 Buffer Substrate**
RockKil Ko, BooMin Kang, GwanTae Kim, DongWoo Ha, ByungGeol Kim
Korea Electrotechnology Research Institute

NDP-1546 **Long Length Y2O3 Thin Film Tape by Chemical Solution Multi-nano Layer Coating for IBAD-MgO Templates**
BooMin Kang, RockKil Ko, GwanTae Kim, DongWoo Ha
Korea Electrotechnology Research Institute

NDP-1686 **Metallic Glass-Polymer Nanolaminate with Enhanced Tensile Strength and Ductility**
O Bae Woo, Ju-Young Kim
Ulsan National Institute of Science and Technology

NDP-1708 **Evaluation of Tensile Mechanical Properties of Electro-plated Copper Thin Film from Single Nanoindentation**
Si-Hoon Kim, Young-Cheon Kim, Ju-Young Kim
Ulsan National Institute of Science and Technology

NDP-1767 **Facile Fabrication of Galvanic Skin Response Sensor based on Vertically-aligned Silver Nanowires**
Sun Hwa Park[1], Ji Eun Lee[1], Hanna Park[2], Jae Yong Song[1]
[1]Korea Research Institute of Standards and Science, [2]Kyungpook National University

NDP-1838 **Diffusion Behavior and Adhesion Strength of Ti/Cu Laminate Fabricated by Surface Activation Bonding and Subsequent Heat Treatment**
Taek-Kyun Jung[1], Myung-Sik Choi[2], Jong-Jin Baek[2], Ho-Joon Choi[1], Young-Chul Shin[1], Sung-Chul Lim[1], Hyo-Soo Lee[1]
[1]Korea Institute of Industrial Technology, [2]Inha University

NDP-1840 **The FIB Marking Technique for the Site-specific Target TEM Lamella**
Sungho Lee[1,2], Jonghyuk Kang[1,2], Cheol-Woong Yang[1]
[1]Sungkyunkwan University, [2]Samsung Electronics Co

NDP-1861 **Effect of RF Plasma Treatment on Evaporation Behavior and Powder Characteristics of Ru-Cr Alloy Powder**
Jong-Whan Ho[1], Jong-Jin Baek[2], Kyu-Bong Jang[3], Taek-Kyun Jung[3], Sung-Chul Lim[3], Hyouk-Chon Kwon[3], Seung-Boo Jung[1]
[1]SungKyunKwan University, [2]Inha University, [3]Korea Institute of Industrial Technology

NDP-1867 **Effect of Operating Conditions on Adhesion Strength of Al/Al2O3 Laminate Fabricated by Surface Activation Bonding**
Jong-Jin Baek[1], Jong-Whan Ho[2], Kyu-Bong Jang[3], Taek-Kyun Jung[3], Sung-Chul Lim[3], Hyouk-Chon Kwon[3], Chi-Hwan Lee[1]
[1]Inha University, [2]SungKyunKwan University, [3]Korea Institute of Industrial Technology

NDP-1879 **In-Situ Ftir Study on Atomic Layer Deposition of Silicon Nitride**
Tirta R. Mayangsari, Luchana L. Yusup, Jae-Min Park, Won-Jun Lee
Sejong University

NDP-2050 **Fabrication of High Performance Single-crystal Silicon Nanowire Field-effect Transistors on a Large Area**
Se Ryeun Yang, Jae Won Jeong, JongMin Kim, Yeon Sik Jung
Korea Advanced Institute of Science and Technology

NDP-2061 **The Dynamic Friction Performance of a Pneumatic Cylinder with Al2O3 Film on Cylinder Surface**
Ho Chang[1], Chou-Wei Lan[2], Mu-Jung Kao[1], Hao-Xian Wang[1]
[1]National Taipei University of Technology, [2]Industrial Technology Research Institute

NDP-2436 **Glass Capillary based Optimized Electro-kinetic Small Molecular Trapping System**
Yong Kyoung Yoo[1], Sung Il Han[1], Junwoo Lee[1], Cheon Jung Kim[1], Myung-Sic Chae[1], Kyo Seon Hwang[2], Jeong Hoon Lee[1]
[1]Kwangwoon University, [2]Korea Institute of Science and Technology

NDP-2536 **Direct Fabrication of Nanochannels by Mechanical Folding of a Stiff Layer on a Soft Polymer**
So Nagashima[1], Hamid Ebrahimi[2], Kwang-Ryeol Lee[1], Ashkan Vaziri[2], Myoung-Woon Moon[1]
[1]Korea Institute of Science and Technology, [2]Northeastern University

NDP-2821 **Characterization of Aluminum Capacitor Fabricated by Complex Anodizing Method**
Jin-Ha Shin, Jung-Ho Park, Hwa-sun Park, Su-Jeong Suh
Sungkyunkwan University

NDP-2828 **Near-field Scanning Optical Microscope Photoluminescence Studies of Rubrene Nanostructures Grown by Vapor Phase Transport**
Yongjun Lee[1], Seki Park[1], Cheol-Joon Park[2], Hyeon Jung Park[2], Jubok Lee[1], Min Su Kim[1], Mickaël Fevrier[1], Jinsoo Joo[2], Jeongyong Kim[1]
[1]Sungkyunkwan University, [2]Korea University

NDP-2894 **Optical Determination of Crystal Axis of Organic Single Nanostructures**
Jubok Lee[1], Cheol-Joon Park[2], Min Su Kim[1], Seki Park[1], Yongjoon Lee[1], Jinsoo Joo[2], Jeongyong Kim[1]
[1]Sungkyunkwan University, [2]Korea University

NDP-2994 **Nano-scale Surface Roughness of Mesoporous Silica Thin Films**
Chi Won Ahn
Korea Advanced Institute of Science and Technology

NDP-2997 **Seebeck-coefficient Measurements of Pt-C FEBID Nanostructures**
Heiko Reith[1], Roland Sachser[2], Friedemann Völklein[3], Kornelius Nielsch[1], Michael Huth[2]
[1]Universität Hamburg, [2]Goethe-Universität, [3]Hochschule RheinMain

NDP-3031 **Formation of GaN Quantum Dots on Si(111) by using Ga Pre-deposition**
Ilgyu Choi[1], Jin Soo Kim[1], Byonggu Jo[1], Dongwoo Park[1], Kwanjae Lee[1], Hyunjung Lee[1], Cheul Ro Lee[1], Jae Young Leem[2]
[1]Chonbuk National University, [2]Inje University

NDP-3400 **Synthesizing of Hollow Silver Spheres by RF Plasma Method**
JongRok Ahn[1], YangKoo Cho[1], Hwackjoo Lee[1], Moonsup Bae[1], Kweonha Park[2]
[1]Korea Research Institute of Standards and Science, [2]Korea Marine University

NDP-3401 **A Study on the Lubricant Effects of Nano Metal Powders**
JongRok Ahn[1], YangKoo Cho[1], Hwackjoo Lee[1], Moonsup Bae[1], Kweonha Park[2]
[1]Korea Research Institute of Standards and Science, [2]Korea Marine University

TFT Materials and Devices

Nov. 19, 2014 (Wed.)

DDP (TFT Materials and Devices) Ramada Ballroom Lobby

Chair: Wooyoung Shim (Yonsei University) 08:00-10:00

DDP-0190 **Effects of Chlorine Ions on the Dissolution Mechanism of Cu Thin Film in Phosphoric Acid based Solutions**
Bo-Hyun Seo[1], Joerg Winkler[2], Jong Hyun Seo[1]
[1]Korea Aerospace University, [2]PLANSEE SE

DDP-0262 **High Performance Polymer Transistors on Plastic Substrate**
Gi-Seong Ryu[1], Kwang Hun Park[2], Yun-Hi Kim[2], Yong-Young Noh[1]
[1]Dongguk University, [2]Gyeongsang National University

DDP-0408 **Charge Injection Enigineering for Ambipolar Transistor with Grapheme Oxide**
Museok Go, Mijung Lee
Kookmin University

DDP-0426 **Effects of Double Active Layer & Stabilizer on the Performance of Solution-processed Zinc Tin Oxide Thin Film Transistor**
Jihun Shin, Sangjo Kim, Seungsoo Ha, Yongjin Lim, Chanhee Park, Moonsuk Yi
Pusan National University

DDP-0597 **Improvement in the Electrical Performance of Ge doped InZnO Thin Film Transistor**
Yongjin Lim, Jihun Shin, Sangjo Kim, Seungsoo Ha, Chanhee Park, Moonsuk Lee
Pusan National University

DDP-0656 **Inkjet-printed Zinc-tin-oxide TFTs with a Solution-processed Hybrid Dielectric Layer**
Young-Jin Kwack, Woon-Seop Choi
Hoseo University

DDP-0663 **Low Temperature Inkjet-Printed Indium Zinc Oxide TFTs with Lithium Doping**
Woon-Seop Choi
Hoseo University

DDP-0674 **Photo-initiator Free, Photo-patternable Polyimides as Gate Insulator for Pentacene Thin-film Transistors**
Hoon Joo Yang[1], Hye Jung Suk[2], Yi Mi Hye[2], Taek Ahn[1]
[1]Kyungsung University, [2]Korea Research Institute of Chemical Technology

DDP-0686 **Synthesis and Characterization of Post-functionalized Photo-patternable Soluble Polyimide Gate Insulator for Pentacene Thin Film Transistors**
Ji Young Kim[1], Mi Hye Yi[1], Taek Ahn[2]
[1]Korea Research Institute of Chemical Technology, [2]Kyungsung University

DDP-0949 **The Performance of Transparent Oxide TFT Employed ZTO-In2O3 based Active Layer**
Kyung-Hyun Kim, Chang-Woo Song, Jae-Heon Shin, Nae-Man Park, Chan-Hwa Hong, Woo-Hyung Seo, Ji-Woong Yang, Woo-Seok Cheong
Electronics and Telecommunications Research Institute

DDP-0967 **The Effects of Post-deposition Treatments of Gate Insulator on the Electrical Properties of IZO-based Oxide TFTs**
Chang-Woo Song[1], Ji-Woong Yang[2], Jae-Heon Shin[1], Kyung-Hyun Kim[1], Nae-Man Park[1], Chan-Hwa Hong[1], Woo-Hyung Seo[1], Hyuck-In Kwon[2], Woo-Seok Cheong[1]
[1]Electronics and Telecommunications Research Institute, [2]Chung-Ang University

DDP-1038 **Electrical and Thermal Properties of Laminated Nano-composite Gate Insulators for Flexible Thin Film Transistors**
Jinsoo Kim
Sungkyunkwan University

DDP-1493 **Low-temperature processed diF-TES-ADT Large Crystal High Performance Organic Field-effect Transistor (OFET) for Flexible Electronics**
Won-Tae Park, Yong-Young Noh
Dongguk University

DDP-1789 **Photo-induced Instability in Amorphous Metal-oxide based TFTs for Transparent Electronic Applications**
Min-Seok Kang, Sang-Mo Koo, Tae-Jun Ha
Kwangwoon University

DDP-1817 **Gate Insulator Effects on the Electrical Performance of P-type SnO Thin-Film Transistors**
Myeonghun U[1], Young-Joon Han[1], Yong-Jin Choi[1], Sang-Hun Song[1], In-Tak Cho[2], Jong-Ho Lee[2], Hyuck-In Kwon[1]
[1]Chung-Ang University, [2]Seoul National University

DDP-1984 **Characteristics of FTO as Transparent Conductive Oxide Electrode Material for Flexible Display**
Eun Jung Jang[1], Chairul Hudaya[2], Ji Hun Park[3], Bup Ju Jeon[1], Joong Kee Lee[4]
[1]Shinhan University, [2]University of Science and Technology, [3]IM Co., Ltd, [4]Korea Institute of Science and Technology

DDP-2746 **High-Performance and Stability of Dual Channel Layer Amorphous InGaZnO TFTs by UV Irradiation**
Sung-Hoo Kim, Myung-Min Kim, Duck-Kyun Choi
Hanyang University

DDP-2768 **Electrical and Optical Properties of Mn-doped SnO2/Ag/ Mn-doped SnO2 Multilayer Thin Films**
YoonHo Cho[1], Sahn Nahm[2], Ji-Won Choi[1]
[1]Korea Institute of Science and Technology, [2]Korea University

DDP-2784 **UV Exposure Enhancement in Contact Resistance and Electrical Characteristics of Coplanar a-IGZO Thin Film Transistor**
Myung-Min Kim, Seung-Man Ryu, Duck-Kyun Choi
Hanyang University

DDP-2804 **Effect of Surface Composition of IGZO Films on TFT Characteristics Fabricated by Electron-assisted Sputtering Process**
Ji-Yun Seon, Young Joon Yoon
Korea Institute of Ceramic Engineering and Technology

DDP-3013 **The Influence of Oxygen Partial Pressure on the Characteristics of TiO2 TFT Device Performance**
Dongsuk Han, Jaehyung Park, Minsoo Kang, Jongwan Park
Hanyang University

DDP-3018 **Etching Mechanism of IGZO Thin Films in CF4/Ar Plasma with the Addition of Inert Gases**
Young-Hee Joo, Jea-Hyung Wi, Chang-Il Kim
Chung-Ang University

DDP-3294 **Digital X-ray Detector with a-IGZO Thin Film Transistors**
Hyoung-seok Choi, Myeong-ho Kim, Duck-kyun Choi
Hanyang University

Emerging Materials and Devices for Unconventional Displays

Nov. 19, 2014 (Wed.)

DEP (Emerging Materials and Devices for Unconventional Displays) Ramada Ballroom Lobby

Chair: Wooyoung Shim (Yonsei University) 08:00-10:00

DEP-1055 **Development of Copper Bezel Metal for Window-unified 30" Touch Screen Panel**
Woo-Hyung Seo[1], Chang-Woo Song[1], Ji-Woong Yang[2], Kyung-Hyun Kim[1], Jae-Heon Shin[1], Nae-Man Park[1], Chan-Hwa Hong[1], Hyuck-In Kwan[2], Woo-Seok Jeong[1]
[1]Electronics and Telecommunication Research Institute, [2]Chung-Ang University

DEP-1374 **Synthesis and Characterization of Highly Luminescent, Near-infrared Emitting CuInS2/ZnS Quantum Dots for Bio-imaging**
Hyung Seok Choi, Jae Chul Park, Youngsun Kim, Mi Hwa Oh, Duk Young Jeon, Yoon Sung Nam
Korea Advanced Institute of Science and Technology

DEP-2779 **Optimization of Inverted InP Quantum Dot Light-emitting Diodes using Low-temperature Solution-processed Zinc Oxide as an Electron Transport Layer**
Ilwan Jang[1], Jiwan Kim[2], Christian Ippen[3], Tonino Greco[3], Min Suk Oh[2], Jeongno Lee[2], Won Keun Kim[2], Armin Wedel[3], Chul Jong Han[2], Sung Kyu Park[1]
[1]ChungAng University, [2]Korea Electronics Technology Institute, [3]Fraunhofer Institute for Applied Polymer Research

DEP-3080 **Generation of Binary Holograms from Real Object using the Direct Binary Search Algorithm**
Thibault Leportier[1], Taegeun Kim[2], You Seok Kim[2], Min-Chul Park[1]
[1]Korea Institute of Science and Technology, [2]Sejong University

Advances in Fuel Cells and Hydrogen Storage

Nov. 19, 2014 (Wed.)

ECP (Advances in Fuel Cells and Hydrogen Storage) Ramada Ballroom Lobby

Chair: Denis Andrienko (Max Planck Institute for Polymer Research) 08:00-10:00

ECP-0159 **Effects of Lithium Oxide Addition on Sintering Behavior and Electrical Conductivity of yttria-doped Ceria**
Joo-Sin Lee
Kyungsung University

ECP-0162 **Effects of Lithium Oxide Addition on Sintering Behavior and Electrical Conductivity of Ce0.8Gd0.2O1.9 Ceramics prepared by Commercial Powders**
Ji-Hoon Park[1], Seung-Woo Seo[1], Min-Woo Park[1], Ji-Hoon Koo[2], Ki-Tae Lee[2], Joo-Sin Lee[1]
[1]Kyungsung University, [2]Chonbuk National University

ECP-0228 **Hydrogen Susceptibility of AISI 316 Stainless Steel at Low Temperatures below 300°C**
Yun-Hee Lee, Ki-Bok Kim, Yongil Kim, Seung-Wook Baek, Unbong Baek, Hae Moo Lee
Korea Research Institute of Standards and Science

ECP-0647 **Hydrogenation Behavior of MgHx-BZY(BaZr0.8Y0.2O3-δ) Composites**
Young-Sang Lee, Tae-Whan Hong
Korea National University of Transportation

ECP-0734 **Stability and Activity of Au-decorated Pt Surface for Oxygen Reduction Reaction in Acidic Media**
Hana Lim, Ji Hea Jung, Ho Nyun Lee, Hyun-Jong Kim
Korea Institute of Industrial Technology

ECP-0995 **Synthesis and Property of Sulfonated Poly(methylisatin biphenylene) containing Diphenyl ether by Polyhydroalkylation for Proton Exchange Membrane Applications**
Soonho Lee, Hohyoun Jang, Sangyoung Lee, Jaeseong Ha, Kyunghwan Kim, Whangi Kim
Konkuk University

ECP-0996 **Synthesis and Characterization of Imidazolium Linear Bisphenol Polycarbonate Hydroxides for Anion Exchange Membrane**
Hohyoun Jang, Soonho Lee, Hyunho Joo, Taehoon Hong, Seungtae Kim, Whangi Kim
Konkuk University

ECP-1476 **Molecular Dynamics Simulation of Oxygen Ion Conduction in Orthorhombic Perovskite Ba-doped LaInO3**
Kuk-Jin Hwang[1], Mi-Young Yoon[1], Hae-Jin Hwang[1], Soon-Mok Choi[2], Seong-Min Jeong[3]
[1]Inha University, [2]Korea University of Technology and Education, [3]Korea Institute of Ceramic Engineering and Technology

ECP-1622 **Recovery of Bi and Sb from Copper Spent Electrolytes by Electrowinning Method**
Ja-kyung Koo, Jae-Ho Lee
Hongik University

ECP-1672 **Catalytic Activity of Metal-oxide Nanocatalysts Synthesized using Ultrasonic Spray Pyrolysis Process**
Chan Ho Jung[1,2], Jaecheol Yun[3], Kamran Qadir[1,2], Brundabana Naik[1,2], Jung Yeul Yun[3], Jeong Young Park[1,2]
[1]Graduate School of EEWS, Korea Advanced Institute of Science and Technology, [2]Institute for Basic Science, [3]Korea Institute of Materials Science

ECP-1749 **Catalytic H2 Oxidation on TiO2/Nanoporous Au; Towards Engineering TiO2/Au Interface**
Kamran Qadir[1,2], Bui Thi Phuong Quynh[3], Hyosun Lee[1,2], Song Yi Moon[1,2], Sang Hoon Kim[3], Jeong Young Park[1,2]
[1]Korea Advanced Institute of Science and Technology, [2]Institute for Basic Science, [3]Korea Institute of Science and Technology

ECP-1753 **Pd based Alloy Nanomaterials for Chemical Hydrogen Storage: Efficient Catalysts for Hydrogen Production from Formic Acid**
Chang Won Yoon
Korea Institute of Science and Technology

ECP-1762 **Anion Conductive Nickel Catalyzed Polyphenylene containing Imidazolium Cation for Fuel Cell Membrane Application**
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[1]Korea University of Science and Technology, [2]Korea Institute of Science and Technology

Thermoelectric Power Devices and Nanogenerators

Nov. 19, 2014 (Wed.)

EFP (Thermoelectric Power Devices and Nanogenerators) Ramada Ballroom Lobby

Chair: Ju-Young Kim (Ulsan National Institute of Science and Technology) 08:00-10:00

EFP-0211 **The Effects of Bi on the Thermoelectric Properties of Mg_2Si-Mg_2Ge Solid Solutions**
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EFP-0219 **Thermoelectric Properties of Yb-filled $CoSb_3$ Skutterudites**
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EFP-0856 **Thermoelectric Properties of Si-based Multilayers with Various Ultra-thin Films**
Sin Young Kang, Kyoung Min Kim, Kyoung Wan Park
University of Seoul

EFP-1087 **Characteristic Evaluation on Cooling Performance of Thermoelectric Modules**
Sea Rom Seo[1], Seungwoo Han[2]
[1]Chungnam National University, [2]Korea Institute of Machinery and Materials

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Seongsu Kim, Manoj Kumar Gupta, Jeong Hwan Lee, Sang-Woo Kim
Sungkyunkwan University

EFP-1215 **The Generation of High-Power Single Direction Stress-Induced Dipole Alignment from ZnSnO 3 Nanocubes/Polymer Hybrid Piezoelectric Nanogenerator**
Sung Soo Kwak, Keun Young Lee, Suhyun Yoon, Sang-Woo Kim
Sungkyunkwan University

EFP-1230 **Effective Pressure-to-energy Conversion using Micro-structured Film based Piezoelectric Nanogenerator**
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Sungkyunkwan University

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Jae-Hwan Kim, Kang-Je Shin, Woo-Jun Kim, Tae Sung Oh
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EFP-1784 **Effects of Si Dopant on Thermoelectric Properties of InAs Nanowires**
Seong Gi Jeon[1], Jin Yu[1], Sang Jun Lee[2], Ji Eun Lee[2], Hyun Min Park[2], Jae Yong Song[2]
[1]Korea Advanced Institute of Science and Technology, [2]Korea Research Institute of Standards and Science

EFP-1799 **Effects of Bi0.5Na0.5TiO3 Dopant on Microstructure and Thermoelectric Properties of NaxCoO2 Ceramics**
Suwapitcha Buntham, Sukanda Jiansirisomboon, Anucha Watcharapasorn
Chiang Mai University

EFP-2370 **Atomic Layer-by-Layer Thermoelectric Conversion in Topological Insulator Bismuth/Antimony Tellurides**
Ji Ho Sung, Hoseok Heo, Inchan Hwang, Myung-Soo Lim, Donghun Lee, Kibum Kang, Hee Cheul Choi, Jae-Hoon Park, Seung-Hoon Jhi, Moon-Ho Jo
Pohang University of Science and Technology

EFP-2570 **Flexible Single Crystalline PMN-PT Thin Film Nanogenerator and its Application for Self-powered Cardiac Pacemaker**
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Korea Advanced Institute of Science and Technology

EFP-2701 **Self-Powered Flexible Light-Emitting Device via Piezoelectric PZT Nanogenerator**
Dae Yong Park, Chang Kyu Jeong, Keon Jae Lee
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[1]University of Hamburg, [2]Max-Planck-Institute for Microstructure Physics

EFP-3175 **Batch-Processed Lead Chalcogenide Nanowire for Thermoelectric Applications**
Youngsup Song[1], Jiwon Kim[2], Sanghyun Roh[1], Hyunsung Jung[3], Nosang (Vincent) Myung[2], Joo Yul Lee[1], Jae-Hong Lim[1]
[1]Korea Institute of Materials Science, [2]University of California, Riverside, [3]Korea Institute of Ceramic Engineering & Technology

EFP-3218 **Pulsed Electrodeposition of Bi2(Te-Se)3 Thermoelectric Films**
Na-Ri Heo[1], Sanghyun Roh[2], Youngsup Song[2], Kyu Hwan Lee[2], Kwang Ho Kim[1], Jae-Hong Lim[2]
[1]Busan National University, [2]Korea Institute of Materials Science

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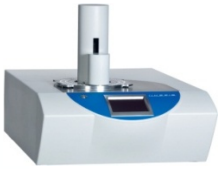
Thermophysical Properties

- **Thermal Analysis System (TG-DTA-DSC)**



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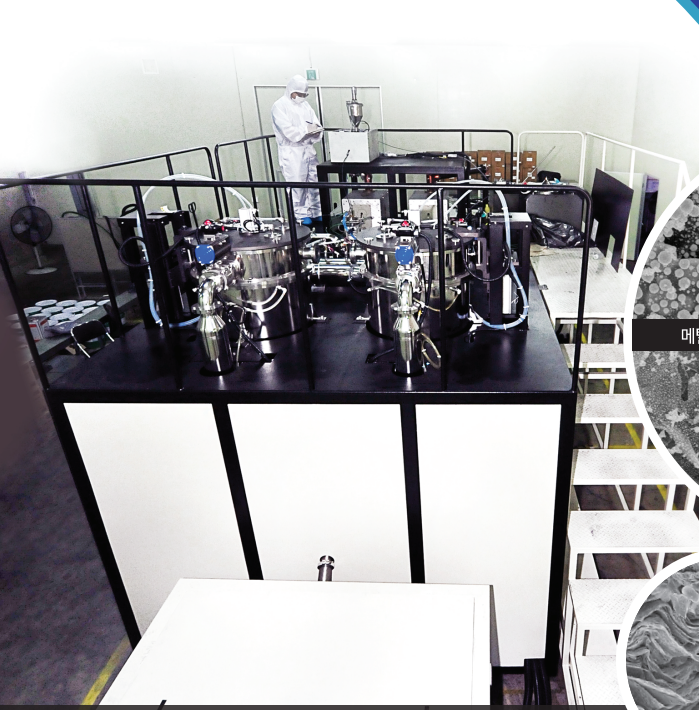

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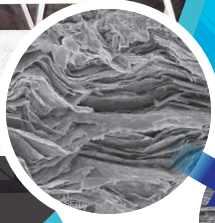

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· 나노소재 (생산)-(공정)-(활용)의 생태계

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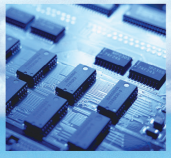

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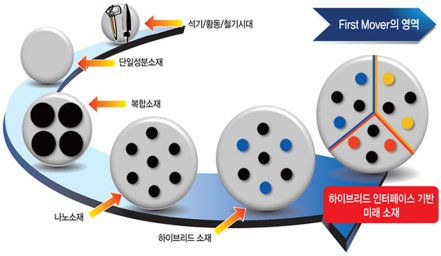
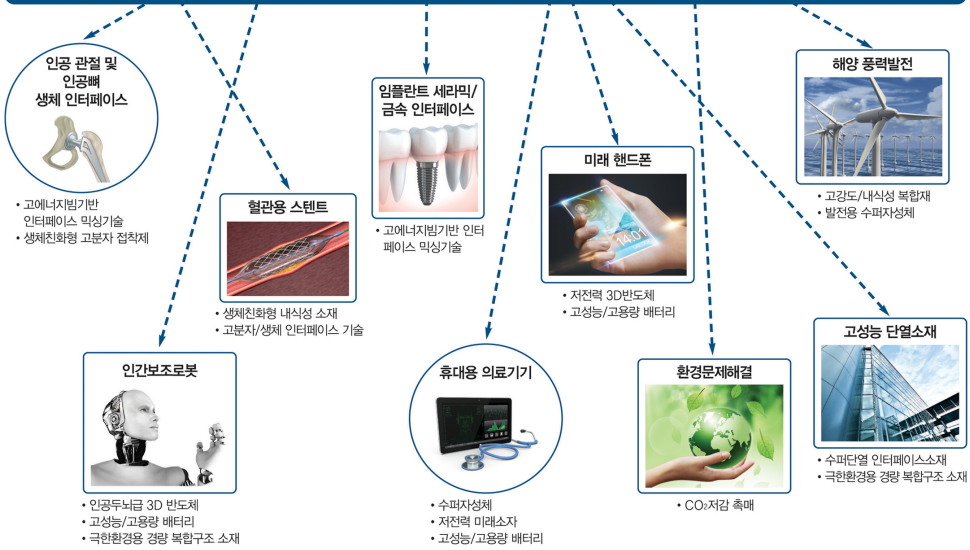


연구단장	김광호(부산대학교)
연구배경	21세기 6T분야에서의기초·원천기술을 비롯한 세계1등 기술과 국가산업경쟁력의 핵심은 원천소재기술에 달려 있어 하이브리드소재 기술로 다양한 미래소재개발이 필요함
연구목표	하이브리드 인터페이스 기술을 기반으로 미래 혁신 제품을 개발할 수 있는 세계 1등 원천기술을 확보하고 이를 사업화하여 미래소재/부품/제품을 개발함
주요 연구내용	IT기술과의 융합을 통해 고분자·금속·세라믹 등 이종소재간의 인터페이스에서 발현되는 물리·화학· 전기적 특성들을 규명하고, 신기능성·고기능성을 가지는 혁신적인 하이브리드 인터페이스 소재의 설계 및 합성기술을 개발함
기대효과	고용량·고수명 및 안전성을 확보한 배터리와 현재 대비 4배 이상의 성능을 갖는 슈퍼자석, 한국형 발사체 등 우주항공 산업의 핵심부품에 적용될 수 있는 초고강도 복합구조체 및 가스자원을 효율적으로 합성하고, 에너지화할 수 있는 신 촉매기술 등이 개발되어 국가산업경쟁력을 크게 높일 수 있을것으로 기대됨

하이브리드 인터페이스 기반 미래소재 플랫폼



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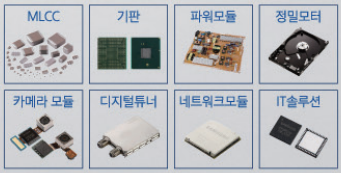

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