

# IcAUMS 2018

The 5th International Conference of  
Asian Union of Magnetics Societies

**June 3-7 (Sun.-Thur.), 2018**

**Ramada Plaza Jeju Hotel, Jeju, Korea**

Organized by



The Asian Union of Magnetics Societies

Co-organized by



The Korean Magnetics Society

Sponsored by



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- 024 June 4 (Mon.)
- 031 June 5 (Tue.)
- 043 June 6 (Wed.)
- 052 June 7 (Thur.)

### Poster Session

- 058 June 4 (Mon.)
- 067 June 5 (Tue.)
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# 즐거운 상상이 현실이 됩니다

알아서 운전해주는 편리한 스마트카  
흔들림없이 선명한 스마트폰 카메라  
박테리아까지 없애주는 청소기  
외출 중에 우리집을 지켜주는 스마트홈

LG 이노텍의 최첨단 기술이  
당신의 즐거운 상상을 현실로 만들어 갑니다



## Mobile

카메라·무선충전모듈,  
PCB 등



## Automotive

모터, 센서, ADAS 및 통신 부품,  
전기차용 부품, 무선충전·열전모듈 등



## LED

조명·모바일·차량용 LED,  
BLU, LED드라이버, UV LED 등



## Display

포토마스크, 테이프 서브스트레이트,  
디지털 튜브, 파워 모듈 등



## Semiconductor

Flip Chip CSP, SiP,  
2Metal COF, COB 등



## IoT

3G/4G모뎀, 모바일 라우터, ESL,  
네트워크·스마트 카메라, 센서 등



**LG 이노텍**  
Inside your life!

# AMOGREENTECH

Global Leader  
for IT • Energy • Environment fields  
based on Advanced Materials

## IT/Nano

- HTF Solution
- GIM(Graphite Injection Molding)
- Vent
- Flexible PCB
- Nano Ink / Paste

## Energy

- Amorphous/Nano-Crystalline
- Magnetic Components
- Flexible Battery
- ESS(UPS)

## Environment

- Water Treatment System
- Vent Cleaner
- SCR(Den-NOx system)
- Hydrogen Reformer

## Smart Tex

- Silver Wire
- Nano Fiber for Functional Textile

# WELCOME MESSAGE

On behalf of the Organizing Committee for the 5th International Conference of Asian Union of Magnetism Societies, we are pleased to welcome you all to the ICAUMS 2018 to be held in Jeju, Korea, from June 3 to 7, 2018.

As you are probably aware, the ICAUMS is one of the foremost international conferences for researchers working in the fields of magnetism and magnetic materials, affording participants a great opportunity to share and learn about the most recent research results and technological trends.

The Organizing Committee is committed to hosting the scientific must-attend event of 2018, with a broad range of plenary and award lectures, symposiums, oral & poster presentations, and lively sightseeing activities. ICAUMS 2018 opens discussions on latest advances in spintronics, nanostructured magnetic materials, novel magnetic phenomena, soft/hard magnetic materials, energy applications of magnetic materials, bio-magnetism, and many other relevant topics.

Jeju island has been granted UNESCO World Heritage site thanks to its unique natural scenery of a volcanic island. Beautiful beaches, waterfalls, cliffs and caves lie in harmony, and the mild weather makes Jeju an even more ideal tourist destination. We believe that all the participants enjoy the beautiful natural scenery as well as the scientific programs by attending ICAUMS 2018.

Please join the 5th ICAUMS with your colleagues and friends. We are sure that you will have a memorable and productive conference.

We look forward to having the pleasure of welcoming you all to Jeju.



**Kyung-Ho Shin**

*General Chairman, ICAUMS 2018  
Korea Institute of Science and Technology*



**Soon Cheol Hong**

*Conference Chairman, ICAUMS 2018  
University of Ulsan*



# ABOUT AUMS

## The Asian Union of Magnetism Societies

The AUMS was initiated by the four magnetic societies - the Magnetism Society of Japan (MSJ), the Korean Magnetism Society (KMS), the Taiwan Association for Magnetic Technology (TAMT), and the Chinese Society of Magnetic Materials and Applications (CSMMA). The framework of the AUMS was first proposed at the 4th Asia Forum on Magnetism in Taiwan, 2007. One year later in Beijing, at the 5th Asia Forum foundation of the AUMS has been decided.

Since the establishment in January 1, 2009, AUMS has been contributing tremendous efforts to promote advances in the fields of magnetism, magnetic materials and applications in Asia Pacific region. ICAUMS has been very proud of providing an outstanding platform for all scientists, experts, and entrepreneurs to communicate and exchange recent academic and industrial developments.

## THE AUMS COUNCIL MEMBERS

President		
Koki Takanashi	Tohoku University	Japan
Vice President		
Kyung-Ho Shin	Korea Institute of Science and Technology	Korea
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Masaki Nakano	Nagasaki University	Japan
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Run-Wei Li	Ningbo Institute of Materials Technology and Engineering, CAS	China
Ching-Ray Chang	National Taiwan University	Taiwan
Mean-Jue Tung	Industrial Technology Research Institute	Taiwan
Nikolai Perov	Lomonosov Moscow State University	Russia
Konstantin Zvezdin	Moscow Institute of Physics and Technology	Russia
Nguyen Huu Duc	Vietnam National University	Vietnam

# HISTORY

<b>The 5<sup>th</sup> IcAUMS</b>	June 3-7, 2018 Jeju, Korea	
<b>The 4<sup>th</sup> IcAUMS</b>	August 1-5, 2016 Tainan, Taiwan	
<b>The 3<sup>rd</sup> IcAUMS</b>	October 28-November 2, 2014 Haikou, China	
<b>The 2<sup>nd</sup> IcAUMS</b>	October 2-5, 2012 Nara, Japan	
<b>The 1<sup>st</sup> IcAUMS</b>	December 5-8, 2010 Jeju, Korea	

## HIGHLIGHT ON IcAUMS 2018!

- ✓ New ideas and intelligence presented at 15 symposiums focusing on contemporary topics
- ✓ 6 plenary & 153 invited talks by prestigious scholars
- ✓ Special events at the 5th IcAUMS  
: outdoor reception, doughnut time, student communication party, and more
- ✓ 10 exhibitors showcasing their advanced technology!

# IcAUMS 2018

The 5th International Conference of  
Asian Union of Magnetism Societies

# COMMITTEE

## General Chairman

Kyung-Ho Shin	Korea Institute of Science and Technology	Korea
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## Conference Chairman

Soon Cheol Hong	University of Ulsan	Korea
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## Program

Chair	CheolGi Kim	Daegu Gyeongbuk Institute of Science & Technology	Korea
Associate Chair	Jung-II Hong	Daegu Gyeongbuk Institute of Science & Technology	Korea
Member	Sung Yong An	Samsung Electro-Mechanics	Korea
	Sug-Bong Choe	Seoul National University	Korea
	Gyung Min Choi	Sungkyunkwan University	Korea
	Jun Woo Choi	Korea Institute of Science and Technology	Korea
	Jisang Hong	Pukyong National University	Korea
	Jung-Pyo Hong	Hanyang University	Korea
	Chanyong Hwang	Korea Research Institute of Standards and Science	Korea
	Mi-Young Im	LBNI/Daegu Gyeongbuk Institute of Science & Technology	Korea
	Dong Young Kim	Andong National University	Korea
	Hwi Jun Kim	Korea Institute of Industrial Technology	Korea
	Hyo Jun Kim	JAHWA Electronics	Korea
	Kee Hoon Kim	Seoul National University	Korea
	Sang-Koog Kim	Seoul National University	Korea
	Bongsuk Kwak	Korea Institute of Machinery & Materials	Korea
	Haigun Lee	Korea University	Korea
	Ki-Suk Lee	Ulsan National Institute of Science and Technology	Korea
	Sang-Suk Lee	Sangji University	Korea
	Bae Ho Park	Konkuk University	Korea
	Gwan Soo Park	Pusan National University	Korea
	Hyunsoo Yang	National University of Singapore	Korea
	Haerin Yim	Sookmyung Women's University	Korea
	Shaojie Hu	Xi'an Jiaotong University	China
	Deren Li	China Iron and Steel Research Institute Group	China
	Run-Wei Li	Ningbo Institute of Materials Technology and Engineering, CAS	China



Member	Yaodong Yang	Xi'an Jiaotong University	China
	Shigeki Nakagawa	Tokyo Institute of Technology	Japan
	Yoshiaki Saito	Toshiba Corporation	Japan
	Jung-Chun Huang	National Cheng Kung University	Taiwan
	Ko-Wei Lin	National Chung Hsing University	Taiwan
	Nguyen Thi Ngoc Anh	Institute of Materials Science, Vietnam Academy of Science and Technology	Vietnam
	Nguyen Phuc Duong	Hanoi University of Science and Technology	Vietnam
	Do Thi Huong Giang	VNU University of Engineering and Technology	Vietnam

### General Secretary

Chair	Kwang-Ho Shin	Kyung Sung University	Korea
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### Treasurer

Chair	Kyung-Jin Lee	Korea University	Korea
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### Publication

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	Byong-Guk Park	Korea Advanced Institute of Science and Technology	Korea
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	Teruo Ono	Kyoto University	Japan
	Jong-Ching Wu	National Changhua University of Education	Taiwan
	Pham Duc Thang	VNU University of Engineering and Technology	Vietnam
	Manh-Huong Phan	University of South Florida	USA

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Associate Chair	Sung-Hyon Rhim	University of Ulsan	Korea

### Industrial Support & Exhibition

Chair	Sung Lae Cho	University of Ulsan	Korea
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### Local

Chair	Jung-Goo Lee	Korea Institute of Materials Science	Korea
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## Global Cooperation

Chair	Pan Kyu Choi	MTI Co., Ltd.	Korea
Member	Myung-Hwa Jung	Sogang University	Korea
	Tae Hee Kim	Ewha Womans University	Korea
	Chunli Liu	Hankuk University of Foreign Studies	Korea

## Advisory

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Ching-Ray Chang	National Taiwan University	Taiwan
Mean-Jue Tung	Industrial Technology Research Institute	Taiwan
Te-Ho Wu	National Yunlin University of Science and Technology	Taiwan
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Yang-Ki Hong	The University of Alabama	USA
Valentine Novosad	Argonne National Laboratory	USA
Manh-Huong Phan	University of South Florida	USA
Nguyen Huu Duc	Vietnam National University	Vietnam
Nguyen Hoang Luong	VNU University of Science	Vietnam
Nguyen Xuan Phuc	Vietnam Academic of Science and Technology	Vietnam

# PROGRAM AT A GLANCE

	June 3 (Sun.)	June 4 (Mon.)	June 5 (Tue.)	June 6 (Wed.)	June 7 (Thur.)
09:00		<b>Opening Ceremony &amp; Award Speech</b> Ballroom 1 (2F)			
10:00			<b>Oral Session</b>	<b>Oral Session</b>	<b>Oral Session</b>
11:00		<b>Plenary Session 1&amp;2</b> Ballroom 1 (2F)			
12:00					
			<b>Lunch</b>		
13:00					
14:00		<b>Plenary Session 3</b> Tamra (8F)	<b>Plenary Session 4&amp;5</b> Ballroom 1 (2F) & Tamra (8F)	<b>Plenary Session 6</b> Ballroom 1 (2F)	<b>Poster Session</b> Lobby (8F)
15:00		<b>Oral Session</b>	<b>Oral Session</b>	<b>Oral Session</b>	<b>Closing Ceremony</b> Ballroom 1 (2F)
16:00					
17:00		<b>Poster Session</b> Lobby (8F)			
18:00			<b>Poster Session</b> Lobby (8F)	<b>Poster Session</b> Lobby (8F)	
19:00	<b>Welcome Reception</b> Outdoor Pool (3F)			<b>Banquet</b> Ramada Ballroom (2F)	
20:00					
21:00	<b>Summer School</b> Tamra (8F)	<b>Summer School</b> Tamra (8F)	<b>Summer School</b> Tamra (8F)		
22:00		<b>Student Communication Party</b> Lobby (8F)	<b>Student Communication Party</b> Lobby (8F)		
23:00					

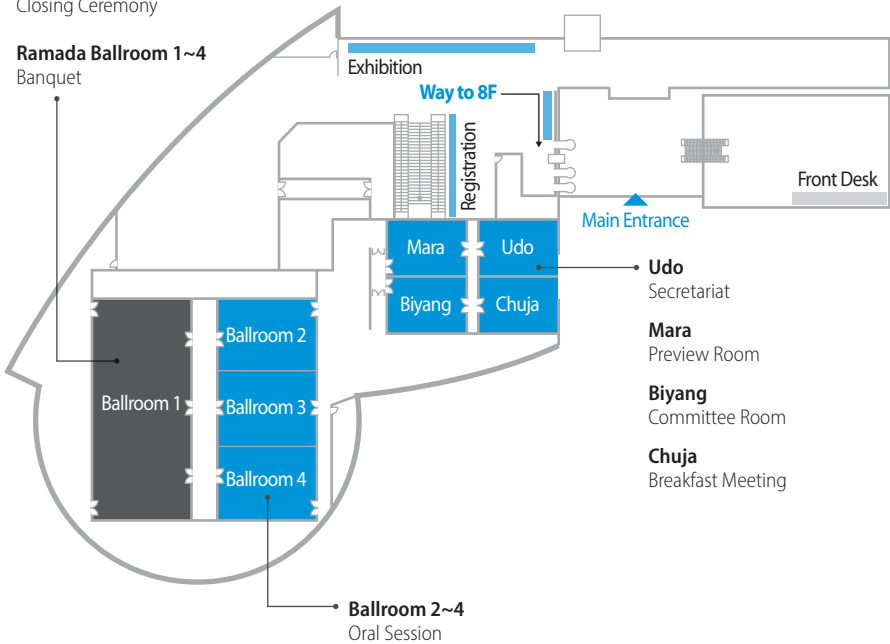
# VENUE LAYOUT

## Ballroom 1

Opening Ceremony  
Award Speech  
Plenary Session  
Closing Ceremony

## Ramada Ballroom 1~4

Banquet



2F

## Save the Schedule!

Welcome Reception

**SUN** June 3 18:00-20:00

3F Outdoor Pool

Opening Ceremony & Award Speech

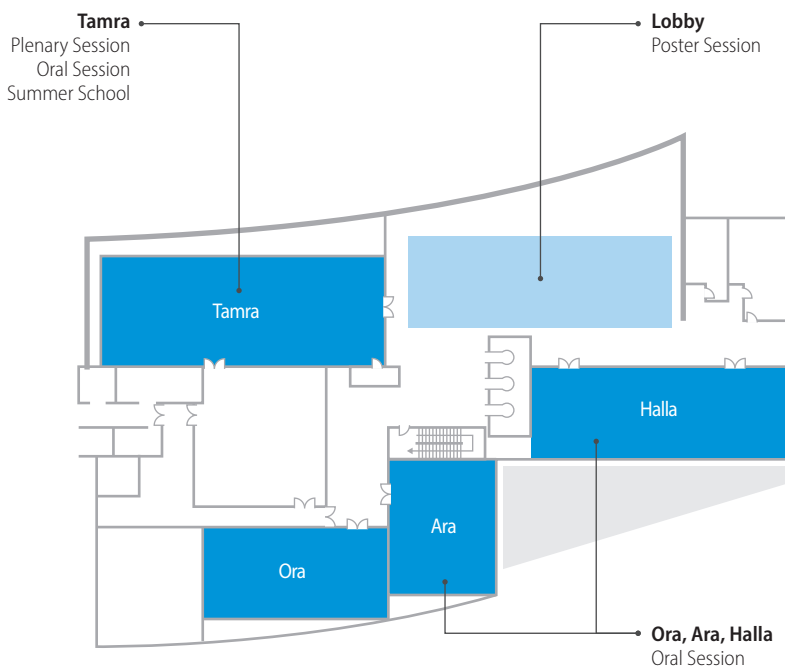
**MON** June 4 09:00-10:20

Banquet

**WED** June 6 18:30-20:00

Closing Ceremony

**THU** June 7 14:30-15:00



8F

## Daily Poster Session

<b>MON</b>	June 4	<b>G1-1</b>	<b>G2-1</b>	<b>G5-1</b>	<b>G9</b>				
<b>TUE</b>	June 5	<b>G1-2</b>	<b>G2-2</b>	<b>G3</b>	<b>G5-2</b>	<b>G10</b>	<b>G11</b>		
<b>WED</b>	June 6	<b>G1-3</b>	<b>G5-3</b>	<b>G6</b>	<b>G7-1</b>	<b>G8-1</b>			
<b>THU</b>	June 7	<b>G4</b>	<b>G7-2</b>	<b>G8-2</b>					

## SESSION TIMETABLE

## June 3 (Sun.)

	Ballroom 1 (2F)	Ballroom 2 (2F)	Ballroom 3 (2F)	Ballroom 4 (2F)	Tamra (8F)	Halla (8F)	Ara (8F)	Ora (8F)
18:00-20:00	Welcome Reception (3F Outdoor Pool)							
20:00-22:00					Summer School Hyun Soo Yang Haifeng Ding			

## June 4 (Mon.)

	Ballroom 1 (2F)	Ballroom 2 (2F)	Ballroom 3 (2F)	Ballroom 4 (2F)	Tamra (8F)	Halla (8F)	Ara (8F)	Ora (8F)
09:00-10:20	Opening Ceremony & Award Speech (2F Ballroom 1)							
10:20-10:40	Coffee Break							
10:40-12:00	Plenary Session Joonyeon Chang Ryoji Asahi							
12:00-13:30	Lunch							
13:30-16:30	S1 High-Performance Permanent Magnets for Future Society p. 024	S5 Recent Development on Nanomaterials for Biomagnetics p. 025	G9 Bio-magnetism and Biomedical Applications p. 025	Plenary Session Chih-Huang Lai	G1-1 Spintronics p. 027	S6 Spin-orbitronics p. 028	S13 Ab initio Theory in Magnetism 1 – Memorial for Arthur J. Freeman p. 029	G2-1 Nanostructured Magnetic Materials p. 029
16:30-18:00	Poster Session (8F Lobby) G1-1 Spintronics p. 058 G5-1 Fundamental Properties of Materials p. 063 G2-1 Nanostructured Magnetic Materials p. 060 G9 Bio-magnetism and Biomedical Applications p. 065							
20:00-22:00					Summer School Chanyong Hwang H. Fukunaga			

## June 5 (Tue.)

	Ballroom 1 (2F)	Ballroom 2 (2F)	Ballroom 3 (2F)	Ballroom 4 (2F)	Tamra (8F)	Halla (8F)	Ara (8F)	Ora (8F)
09:00-12:00		<b>S4</b> Permanent Magnets (Hard Ferrite Magnets) p. 031	<b>G3/G10</b> Magnetic Recording and Information Technology/ Functional Magnetic Devices p. 032		<b>G1-2</b> Spintronics p. 035	<b>S15</b> Modulated Spin and Magnetic Properties p. 037	<b>G5</b> Fundamental Properties of Materials p. 038	<b>G2-2</b> Nanostructured Magnetic Materials p. 040
12:00-13:30								
13:30-14:10	<b>Plenary Session</b> Yoshihiko Oda				<b>Plenary Session</b> Ung-Hwan Pi			
14:10-14:30								
14:30-17:30		<b>S2</b> Bio-Initiative Spintronics p. 031	<b>S3</b> Next Generation Permanent Magnetic Materials p. 033	<b>G11</b> Magnetic Characterizations p. 034	<b>G1-3</b> Spintronics p. 036	<b>S7-1</b> Antiferromagnetic and Ferromagnetic Spintronics p. 038	<b>S14</b> Ab initio Theory in Magnetism 2 – Memorial for Arthur J. Freeman p. 039	<b>G2-3</b> Nanostructured Magnetic Materials p. 041
17:00-18:30	<b>G1-2</b> Spintronics p. 067 <b>G5-2</b> Fundamental Properties of Materials p. 071	<b>G2-2</b> Nanostructured Magnetic Materials p. 069 <b>G10</b> Functional Magnetic Devices p. 073	<b>G3</b> Magnetic Recording and Information Technology p. 070 <b>G11</b> Magnetic Characterizations p. 075					
20:00-22:00					<b>Summer School</b> Hiroaki Yoda Ying-Hao Chu			

# June 6 (Wed.)

	Ballroom 1 (2F)	Ballroom 2 (2F)	Ballroom 3 (2F)	Ballroom 4 (2F)	Tamra (8F)	Halla (8F)	Ara (8F)	Ora (8F)
09:00-12:00		<b>S8</b> Magnetic Microscopy for nm- scale Spin Structure  p. 043	<b>S11</b> Superconducting Magnet Technology and Applications  p. 043	<b>G7-1</b> Soft/Hard Magnetic Materials and Their Applications  p. 044	<b>G1-4</b> Spintronics  p. 045	<b>S7-2</b> Spin and Heat Conversion  p. 047	<b>G8-1</b> Energy Applications of Magnetic Materials  p. 048	<b>G6-1</b> Novel Magnetic Phenomena  p. 050
12:00-13:30	Lunch							
13:30-14:10	<b>Plenary Session</b> Boping Hu							
14:10-14:30					Coffee Break			
14:30-17:30		<b>Banquet Preparation</b>			<b>S9</b> Spin Dynamics  p. 046	<b>S7-3</b> Magnetic Domain Walls and Skyrmions  p. 048	<b>Vietnam Magnetics Society</b> – International Cooperation for Further Development (1600-1730)  p. 049	<b>G6-2</b> Novel Magnetic Phenomena  p. 051
17:00-18:30	<b>Poster Session (8F Lobby)</b> <b>G1-3</b> Spintronics p. 076 <b>G5-3</b> Fundamental Properties of Materials p. 077 <b>G6</b> Novel Magnetic Phenomena p. 078 <b>G7-1</b> Soft/Hard Magnetic Materials and Their Applications p. 080 <b>G8-1</b> Energy Applications of Magnetic Materials p. 082							
18:30-20:00	<b>Banquet (2F Ramada Ballroom)</b>							

## Poster Session (8F Lobby)



June 7 (Thur.)

	Ballroom 1 (2F)	Ballroom 2 (2F)	Ballroom 3 (2F)	Ballroom 4 (2F)	Tamra (8F)	Halla (8F)	Ara (8F)	Ora (8F)
09:00-12:00		<b>S12</b> Soft Magnetic Materials p. 052	<b>S10</b> Smart Control of Ferrioic Orders, Vortices and Topology p. 052	<b>G7-2</b> Soft/Hard Magnetic Materials and Their Applications p. 053	<b>G4</b> Magnetization Dynamics p. 054	<b>S7-4</b> Spin and Charge Conversion p. 055	<b>G8-2</b> Energy Applications of Magnetic Materials p. 056	
12:00-13:30	Lunch							
13:30-14:30	<b>Poster Session (8F Lobby)</b> <b>G4</b> Magnetization Dynamics p. 084 <b>G7-2</b> Soft/Hard Magnetic Materials and Their Applications p. 085 <b>G8-2</b> Energy Applications of Magnetic Materials p. 087							
14:30-15:00	<b>Closing Ceremony (2F Ballroom 1)</b>							

ICAUMS 2018

The 5th International Conference of  
Asian Union of Magnetcs Societies

# CATEGORIES

## 1. Spintronics

Spin-Orbit Torque, Spin-Transfer Torque, Magnetoresistance, THz, Spin Current, MRAM, Skyrmions, etc.

## 2. Nanostructured Magnetic Materials

Interface Effects, Magnetic Domains, Thin Films, Superlattices, Nanowires, Exchange Bias, 2D Materials, etc.

## 3. Magnetic Recording and Information Technology

Computing Devices, Patterned Media, Read/Write Heads, etc.

## 4. Magnetization Dynamics

Spin Waves, Micromagnetics, Ultrafast Switching, etc.

## 5. Fundamental Properties of Materials

Electronic Structures, Anisotropies, etc.

## 6. Novel Magnetic Phenomena

Spin Glasses, Superconductivity, Magnetoelasticity, Multiferroics, Oxide Magnets, Voltage Controlled Magnetism, etc.

## 7. Soft/Hard Magnetic Materials and Their Applications

Soft/Hard Magnetic Materials, Permanent Magnets, Amorphous Alloys, Ferrites, etc.

## 8. Energy Applications of Magnetic Materials

Motors, Transformers, Power Electronics, etc.

## 9. Bio-magnetism and Biomedical Applications

Nanoparticles, Chemical Magnetism, Biomedical Sensors and Devices, Magnetofluidics, Molecular Magnets, etc.

## 10. Functional Magnetic Devices

High Frequency, Sensors, Actuators, Magneto-Optics, Magnetic Shielding and Absorption, Wireless Power Transfer, etc.

## 11. Magnetic Characterizations

Microscopy, Soft/Hard X-rays, Magnetic Measurement Techniques, etc.

## GENERAL SESSION

## SYMPOSIUM

Sym. 1	Jung-Goo Lee	High-Performance Permanent Magnets for Future Society
Sym. 2	CheolGi Kim	Bio-initiative Spintronics
Sym. 3	Chul-Jin Choi	Next Generation Permanent Magnetic Materials
Sym. 4	Masaki Nakano Jae-Young Kim	Permanent Magnets (Hard Ferrite Magnets)
Sym. 5	Yasushi Takemura	Recent Development on Nanomaterials for Biomagnetics
Sym. 6	Young Keun Kim	Spin-orbitronics 1
Sym. 7	Kyung-Jin Lee	Spin-orbitronics 2
Sym. 8	Chanyong Hwang	Magnetic Microscopy for nm-scale Spin Structure
Sym. 9	Sang-koog Kim	Spin Dynamics
Sym. 10	Kee Hoon Kim	Smart Control of Ferroic Orders, Vortices and Topology
Sym. 11	Haigun Lee	Superconducting Magnet Technology and Applications
Sym. 12	Haein Yim	Soft Magnetic Materials
Sym. 13	S. H. "Sonny" Rhim	Ab initio Theory in Magnetism 1 – Memorial for Arthur J. Freeman
Sym. 14	S. H. "Sonny" Rhim	Ab initio Theory in Magnetism 2 – Memorial for Arthur J. Freeman
Sym. 15	Kyung-Jin Lee	Modulated Spin and Magnetic Properties

# PRESENTATION GUIDELINE

## ORAL PRESENTATION

### 1. Presentation Time

- Length of presentation material should be in accordance with your time assigned as follows;  
**Invited Presentation: 25 min. presentation + 5 min. Q&A**  
**Oral Presentation: 12 min. presentation + 3 min. Q&A**
- Due time is strongly encouraged.

### 2. Presentation File & Speaker's Autobiography

- If you use fonts other than standard Windows Office 2016, please bring the font files along with the presentation file.
- Please bring your PowerPoint presentation file on USB memory stick and submit it to the staff of each presentation room at least 15 minutes before each session starts. The operator will load the presentation files to the laptop PC.
- Each presenter (except invited speaker) is also asked to submit his/her own short autobiography to the session chair at least 10 minutes before each session starts.

### 3. Preview Room

**Place: Mara (2F)**

**Operation Hours: 16:00-18:00, June 3(Sun.) /**

**08:00-18:00, June 4-6(Mon.-Wed.) / 08:00-15:00, June 7(Thur.)**

- Please visit the preview room to check your presentation file at least 3 hours before your session starts to ensure your presentation file appears properly.
- If your presentation file contains animations or movies, you are advised to check over the technical matters 6 hours prior to your session.

### 4. No Camera & No Record

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

## POSTER PRESENTATION

### Poster Session Information and Dates

Presentation Day	Set-up Time	Presentation Time	Tear-Down Time
June 4 (Mon.)		16:30-18:00	08:00-10:00, June 5 (Tue.)
June 5-6 (Tue.-Wed.)	12:00-13:00	17:00-18:30	08:00-10:00, June 6-7 (Wed.-Thur.)
June 7 (Thur.)		13:30-14:30	14:30-, June 7 (Thur.)

- Each poster will be assigned a panel, which has its own paper's number at the conference.
- We do not specify the poster format, but each poster should include the paper title, authors, and affiliation and must fit within a 0.9m x 1.2m space.
- The poster text including the paper title should be printed and enlarged, so that it can be read from a distance of at least 2 meters.
- Poster presenters are required to prepare their own poster materials in advance.
- The materials such as some scissors and tapes will be provided in poster session place.

# REGISTRATION

## REGISTRATION DESK: CONFERENCE ROOM LOBBY (2F)

<b>SUN</b>	June 3	16:00-18:30
<b>MON TUE WED</b>	June 4, 5, 6	08:00-18:30
<b>THU</b>	June 7	08:00-15:00

## ON-SITE REGISTRATION FEE

Regular	USD 600   KRW 650,000
Students/Retired	USD 300   KRW 350,000
Accompanying Person	USD 100   KRW 110,000
Banquet Fee (Student)	Not accept

### Registration Fee Includes

Regular/Retired	Admission to All Sessions, Welcome Reception, Banquet, Lunch (1 day only), Coffee Service, Souvenir
Students	Admission to All Sessions, Welcome Reception, Lunch (1 day only), Coffee Service, Souvenir
Accompanying Person	Welcome Reception, Banquet, Coffee Service



### Name Badge

**01** For security purposes, wearing the badge is required for admission to all areas during the conference



### Coupons

**02** • Lunch  
• Souvenir  
• Excursion (applicant only)



### Receipt & Certificate

**03** Registration receipt and a certificate of attendance are provided.



### Program Book

**04** Useful information of IcAUMS 2018



### LUNCH

One free lunch on a day of your choice  
Bring your lunch coupon with your name badge.

Korean Cuisine (1F) OR  
International Buffet (2F)

Mon. 6/4	12:00-13:30
Tue. 6/5	12:00-13:30
Wed. 6/6	12:00-13:30
Thur. 6/7	12:00-13:30



### COFFEE

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

Conference Room Lobby  
(2F & 8F)

Mon. 6/4	10:20-10:40
Tue. 6/5	14:10-14:30
Wed. 6/6	14:10-14:30



### PREVIEW ROOM

Internet and printing service are available.

Mara  
(2F)

Sun. 6/3	16:00-18:00
Mon. 6/4	08:00-18:00
Tue. 6/5	08:00-18:00
Wed. 6/6	08:00-18:00
Thur. 6/7	08:00-15:00



### DOUGHNUT TIME

Doughnut & coffee will be provided every morning.

Conference Room Lobby  
(2F & 8F)

Mon. 6/4	08:30-09:00
Tue. 6/5	08:30-09:00
Wed. 6/6	08:30-09:00
Thur. 6/7	08:30-09:00



### MESSAGE BOARD

Message board will be set up at the conference room lobby (2F & 8F) so that participants can get useful information.



### MOBILE CHARGE

Mobile device charging is available at the registration desk (2F).



### Wi-Fi ACCESS

IcAUMS 2018 Area  
Wireless Network  
Network: RAMADA or  
RAMADA\_PAD



### PARKING

Parking is available at no cost during the conference.

## ABSTRACT e-BOOK



**Simply scan the QR code with your device!**

You can download your abstract from the website. [www.icaums.org](http://www.icaums.org)

# SOCIAL PROGRAMS



## Welcome Reception

18:00-20:00, June 3(Sun.) Outdoor Pool (3F)

Come and feel most welcome. The host of ICAUMS 2018 will offer free refreshments and drinks to all registrants.



## Opening Ceremony & Award Speech

09:00-10:20, June 4(Mon.) Ballroom 1 (2F)

The ceremony in Ballroom 1 will mark the official opening of ICAUMS 2018. All registered participants are cordially invited to join us and celebrate the official opening of the conference. The AUMS award speeches will follow.



## Student Communication Party

22:00-23:00, June 4(Mon.)-5(Tue.) Lobby (8F)

Student Communication Party will be a good chance to make new connections and to build friendship. Beer and snacks are on us!



## Banquet

Sponsor



KOREA  
TOURISM  
ORGANIZATION

18:30-20:00, June 6(Wed.) Ramada Ballroom (2F)

Please join us and share an unforgettable evening. The Banquet will be the ideal place for networking among participants. It will surely be the climax of ICAUMS 2018 with an amazing dinner.



## Excursion

13:00-17:30, June 6 or 7(Wed. or Thur.) Entrance (1F)

Itinerary: Ramada Plaza Jeju Hotel → Hallim Park → Hyeopjae Beach → Ramada Plaza Jeju Hotel  
Please come to the designated meeting point on time.



## Closing Ceremony

14:30-15:00, June 7(Thur.) Ballroom 1 (2F)

This ceremony is a chance for you to say goodbye to your friends, look back through this year's ICAUMS, and have a sneak preview of the venue for the next ICAUMS. Moreover, the winners of the Migaku Awards will be announced!

# PLENARY SPEAKERS



**Joonyeon Chang**

Korea Institute of Science  
& Technology, Korea

**"Spin Transport in  
Low Dimensional  
Nanostructures"**

10:40-11:20, June 4(Mon.)  
Ballroom 1 (2F)



**Ryoji Asahi**

Toyota Central R&D Labs.,  
Inc., Japan

**"Materials Design of  
Function Materials  
using Machine  
Learning"**

11:20-12:00, June 4(Mon.)  
Ballroom 1 (2F)

**Chih-Huang Lai**  
National Tsing Hua  
University, Taiwan  
**"Multilevel-state  
and Unidirectional  
Switching Driven by  
Spin-orbit Torque"**

13:30-14:10, June 4(Mon.)  
Tamra (8F)



**Yoshihiko Oda**  
JFE Steel Corporation,  
Japan  
**"Recent Development  
of Non-oriented  
Electrical Steel Sheet  
for Automobile  
Motors"**

13:30-14:10, June 5(Tue.)  
Ballroom 1 (2F)



**Ung-Hwan Pi**

Samsung Electronics,  
Korea

**"Recent Progress of  
Spin Transfer Torque  
Magnetic Random  
Access Memory"**

13:30-14:10, June 5(Tue.)  
Tamra (8F)



**Boping Hu**

Beijing Zhongke Sanhuan  
Hi-tech, China

**"China's Rare-earth  
Permanent Magnet  
Industry"**

13:30-14:10, June 6(Wed.)  
Ballroom 1 (2F)

# AUMS AWARDEES

## AUMS AWARDS



**Xiufeng Han**

Institute of Physics, CAS,  
China

**“Magnon Valve and  
Magnon Valve Effect”**

09:35-09:55, June 4(Mon.)  
Ballroom 1 (2F)



**Hiroaki Muraoka**

Tohoku University, Japan

**“Big-data Storage by  
Small Magnetic Bits”**

09:55-10:15, June 4(Mon.)  
Ballroom 1 (2F)

## AUMS YOUNG RESEARCHER AWARDS

**Dahai Wei**

Institute of Semiconductors,  
CAS, China

**“Spin Hall Effect as a  
PRObe of Magnetic  
Fluctuation and  
A.C. Spin Currents”**

14:15-14:45, June 4(Mon.)  
Tamra (8F)



**Ming-Hao Liu**

National Cheng Kung  
University, Taiwan

**“Magnetoelectric  
Oscillation in  
Graphene pn  
Junctions”**

14:45-15:15, June 4(Mon.)  
Tamra (8F)



**Kyoung-Woong Moon**

Korea Research Institute  
of Standards and  
Science, Korea

**“Electric Current  
Induced Domain  
Walls in Perpendicular  
Magnetic Films”**

15:15-15:45, June 4(Mon.)  
Tamra (8F)



**Shunsuke Fukami**

Tohoku University, Japan

**“Spin-orbit Torque  
Switching and Its  
Applications – From  
High-speed Memory  
to Artificial Neural  
Network –”**

15:00-15:30, June 5(Tue.)  
Tamra (8F)



# SUMMER SCHOOL SPEAKERS



**Hyunsoo Yang**

National University of  
Singapore, Singapore

**“Advancing Terahertz  
Technology Using  
Spintronics”**

20:00-21:00, June 3(Sun.)  
Tamra (8F)



**Haifeng Ding**

Nanjing University, China

**“Towards Skyrmion  
Spintronics: Hybrid  
Magnetic Skyrmion  
Approach”**

21:00-22:00, June 3(Sun.)  
Tamra (8F)



**Chanyong Hwang**

Korea Research Institute  
of Standards and Science,  
Korea

**“Metrology for  
Spintronics”**

20:00-21:00, June 4(Mon.)  
Tamra (8F)



**Hirotohi Fukunaga**

Nagasaki University,  
Japan

**“Micromagnetic  
Simulation for  
Future Magnets”**

21:00-22:00, June 4(Mon.)  
Tamra (8F)



**Hiroaki Yoda**

Toshiba Corporate R&D  
Center, Japan

**“Applications of  
Spintronics Physics to  
Memories”**

20:00-21:00, June 5(Tue.)  
Tamra (8F)



**Ying-Hao Chu**

National Chiao Tung  
University, Taiwan

**“Multiferroic BiFeO<sub>3</sub>  
Thin Films”**

21:00-22:00, June 5(Tue.)  
Tamra (8F)

June 4, 2018 (Mon.)

Oral Session

## S1. High-Performance Permanent Magnets for Future Society

June 4 (Mon.)

Ballroom 2 (2F)

### Chairs

Ming Yue (Beijing University of Technology, China)

Jung-Goo Lee (Korea Institute of Materials Science, Korea)

### S1-0771 Magnetic Performance and Electrical Resistivity of Ceramics-bonded Nd-Fe-B-type Magnet

13:30-14:00 Hae-Woong Kwon<sup>1</sup>, Min-Seok Kang<sup>1</sup>, Dong-Hwan Kim<sup>2</sup>, Jung-Goo Lee<sup>3</sup>, Ji-Hoon Yu<sup>3</sup><sup>1</sup>Pukyong National University, Korea, <sup>2</sup>Star-group Ind. Co., Korea, <sup>3</sup>Korea Institute of Materials Science, Korea

### S1-0648 High Performance Sm-Fe-N Zn-bonded Magnets Prepared Using Hydrogen Plasma-metal Reaction and Arc Plasma Deposition

14:00-14:30

Satoshi Sugimoto<sup>1</sup>, Masashi Matsuura<sup>1</sup>, Yuki Nishijima<sup>1</sup>, Nobuki Tezuka<sup>1</sup>, Tomoki Shiraiwa<sup>1</sup>, Noritsugu Sakuma<sup>2,3</sup>, Tetsuya Shoji<sup>2,3</sup><sup>1</sup>Tohoku University, Japan, <sup>2</sup>Toyota Motor Corporation, Japan, <sup>3</sup>Technology Research Association of Magnetic Materials for High-efficiency Motors, Japan

### S1-0680 Bulk Nanocrystalline RCo<sub>5</sub> (R=Sm, Pr) Permanent Magnets with Strong Magnetic Anisotropy

14:30-15:00

Ming Yue, Weiqiang Liu

Beijing University of Technology, China

### S1-1250 Anisotropic Sm-Co/α-Fe Thick Film-magnets with Layered Structure

15:00-15:30

Hirotoshi Fukunaga<sup>1</sup>, Xu Hun<sup>1</sup>, Masaru Itakura<sup>2</sup>, Masaki Nakano<sup>1</sup>, Takeshi Yanai<sup>1</sup><sup>1</sup>Nagasaki University, Japan, <sup>2</sup>Kyushu University, Japan

### S1-1343 Study on the Effects of Synergetic Crystallization in a Nd<sub>2</sub>Fe<sub>14</sub>B/α-Fe Nanocomposite under Electron Beam Exposure Conditions

15:30-16:00

Jinbo Yang, Jingzhi Han, Haidong Tian

Peking University, China

### S1-0918 TEM Studies on Magnetic Microstructures of Permanent Magnets

16:00-16:30

Hyun Soon Park

Inha University, Korea

### S1-0626 Magnetic Properties and Microstructure of Hard Magnetic Nanostructure Prepared by Chemical Method

16:30-17:00

Yongsheng Yu

Harbin Institute of Technology, China

### S1-1654 Development of Heavy-rare-earth-free Hot-deformed Nd-Fe-B Magnets for Traction Motors

17:00-17:30

Keiko Hioki<sup>1</sup>, Atsushi Hattori<sup>2</sup><sup>1</sup>Daido Steel Co., Ltd., Japan, <sup>2</sup>Daido Electronics Co., Ltd., Japan

## S5. Recent Development on Nanomaterials for Biomagnetics

June 4 (Mon.)

Ballroom 3 (2F)

**Chair** Yasushi Takemura (Yokohama National University, Japan)

### S5-1721 Surface Functionality of Au/Iron-oxide Composite Nanoparticles for Nano-bio Applications

13:30-14:00 Satoshi Seino, Takashi Nakagawa, Takao A. Yamamoto  
Osaka University, Japan

### S5-1232 Fe<sub>3</sub>O<sub>4</sub> Nanoparticles : Doping, Clustering and Magnetic Properties

14:00-14:30 D Darminto  
Institut Teknologi Sepuluh Nopember, Indonesia

### S5-1202 Targeted Hyperthermia Based on Robotic Control with an Electromagnetic Manipulation

14:30-15:00 Sung Hoon Kim  
Wonkwang University, Korea

### S5-0974 Magnetic Nanoparticle/Graphene Oxide Composite for Magnetic Hyperthermia

15:00-15:30 Jun Ding  
National University of Singapore, Singapore

### S5-0774 Chemical Synthesis and Theranostic Applications of Magnetic Nanoparticles

15:30-16:00 Yanmin Ju, Hongchen Zhang, Zhiyi Wang, Yanglong Hou  
Peking University, China

### S5-0604 Magnetic Hyperthermia Using Magnetic Nanoparticles: - For Maximizing Temperature Rise -

16:00-16:30 Yasushi Takemura  
Yokohama National University, Japan

## G9. Bio-magnetism and Biomedical Applications

June 4 (Mon.)

Ballroom 4 (2F)

**Chairs** Takashi Yoshida (Kyushu University, Japan)  
Sang-Suk Lee (Sangji University, Korea)

### G9-0848 Evaluation and Optimization of Magnetic Nanoparticles for Magnetic Particle Imaging

13:30-14:00 Takashi Yoshida, Oji Higashi, Takuru Nakamura, Yuki Matsugi, Keiji Enpuku  
**INVITED** Kyushu University, Japan

### G9-2053 Biomolecule-loaded Superparamagnetic Colloids Monitoring by Using Spintrophoretic Spider-web

14:00-14:15 Byeonghwa Lim, CheolGi Kim  
Daegu Gyeongbuk Institute of Science and Technology, Korea

- G9-1586**      **Application of Nano  $\text{SiO}_2@\text{Fe}_3\text{O}_4@\text{SH}$  Immobilized with A/G Antigen for CD34 Isolation from Umbilical Cord Mono-nuclear Cells**  
 14:15-14:30      Thuong Nguyen Thi Lien<sup>1</sup>, Bach Thang Phan<sup>2</sup>, Ik-Keun Yoo<sup>3</sup>  
<sup>1</sup>Thu Dau Mot University, Vietnam, <sup>2</sup>Vietnam National University, Ho Chi Minh City, Vietnam, <sup>3</sup>University of Ulsan, Korea
- G9-1274**      **Synthesis of  $\text{Fe}_3\text{O}_4@\text{SiO}_2$  with Mesoporous and Biodegradable Shell for Drug Delivery Application**  
 14:30-14:45      Thi Kieu Hanh Ta<sup>1,2</sup>, Ngoc Xuan Dat Mai<sup>2</sup>, Le Hoang Tan Doan<sup>2</sup>, Kim Ngoc Pham<sup>1,2</sup>, Thi Y Dang<sup>2</sup>, Thi Thanh Van Tran<sup>1</sup>, Thi Hoa Lai<sup>2</sup>, Bach Thang Phan<sup>1,2</sup>  
<sup>1</sup>University of Science, Vietnam National University, Ho Chi Minh City, Vietnam, <sup>2</sup>Center for Innovative Materials and Architectures, Vietnam National University, Ho Chi Minh City, Vietnam
- G9-1254**      **Effect of RAMicro Beats on Layered GMR Platforms Magnetization**  
 14:45-15:00      Oksana Koplak<sup>1</sup>, Roman Morgunov<sup>1,2</sup>, Artem Talantsev<sup>1,2</sup>, Stéphane Mangin<sup>3</sup>  
<sup>1</sup>Institute of Problems of Chemical Physics of Russian Academy of Sciences, Russia, <sup>2</sup>Tambov State Technical University, Russia, <sup>3</sup>University de Lorraine, France
- G9-0147**      **A New Method for Measuring Magnetic Moment of a Single Particle by Trapping within a Suspended Water Droplet**  
 15:00-15:15      Norio Inui, Naoya Kishimoto, Takuma Kawano, Koji Sumitomo, Kousuke Moritani  
 University of Hyogo, Japan
- G9-1713**      **Highly Efficient Energy Dissipation in Soft Magnetic Nanoparticles in Single-domain State for Hyperthermia Bio-application**  
 15:15-15:30      Min-Kwan Kim, Jaegun Sim, Jae-Hyeok Lee, Miyoung Kim, Sang-Koog Kim  
 Seoul National University, Korea
- G9-0913**      **Multifunctional Graphene Oxide-iron Oxide-silver Nanostructures for Bacterial Disinfection and Sensing Applications**  
 15:30-15:45      Anh-Tuan Le<sup>1</sup>, Xuan Dinh Ngo<sup>2</sup>, Ngoc Phan Vu<sup>1</sup>, Van Quy Nguyen<sup>1</sup>, Quang Huy Tran<sup>3</sup>  
<sup>1</sup>Hanoi University of Science and Technology, Vietnam, <sup>2</sup>University of Transport Technology, Vietnam, <sup>3</sup>National Institute of Hygiene and Epidemiology, Vietnam
- G9-0351**      **Effects of Calcium Channel Blockers and Extremely Low Frequency Electromagnetic Radiation (1 mT, 50 Hz) on Mice's Motor Coordination of Mice**  
 15:45-16:00      Lama Sakhnini<sup>1</sup>, Habib A.Nabi Habib<sup>2</sup>, Mohammed Naiser<sup>2</sup>, Mohamed Hameed Alrahim<sup>2</sup>, Ahmed Adel Almubarak<sup>2</sup>, Amer Kamal<sup>2</sup>  
<sup>1</sup>University of Bahrain, Bahrain, <sup>2</sup>Arabian Gulf University, Bahrain
- G9-0283**      **Physiological Magnetic Stimulation Using Small ELF Magnetic Field for Bio Activation**  
 16:00-16:15      Yoshiyuki Mohri<sup>1</sup>, Kaneo Mohri<sup>2</sup>, Masanori Fukushima<sup>3</sup>, Muneo Yamada<sup>4</sup>, Yasuya Inden<sup>5</sup>  
<sup>1</sup>Aichi Steel Corporation, Japan, <sup>2</sup>Prof. emeritus at Nagoya University, Japan, <sup>3</sup>Foundation for Bio-medical Research, Japan, <sup>4</sup>Meijo University, Japan, <sup>5</sup>Nagoya University, Japan
- G9-0270**      **Detection of Critical Nucleation and Aggregation of Magnetic Nanoparticles by Magnetic Linear Dichroism**  
 16:15-16:30      Hitoshi Watarai  
 Osaka University, Japan

## G1-1. Spintronics

June 4 (Mon.)

Tamra (8F)

**Chairs** Dahai Wei (Institute of Semiconductors, Chinese Academy of Sciences, China)  
Jongill Hong (Yonsei University, Korea)

### G1-2094 Spin Hall Effect as a Probe of Magnetic Fluctuation and A.C. Spin Currents

**INVITED** [Dahai Wei](#)

14:15-14:45 *Institute of Semiconductors, Chinese Academy of Sciences, China*

### G1-2084 Magnetoconductance Oscillation in Graphene pn Junctions

14:45-15:15 [Ming-Hao Liu](#)

**INVITED** *National Cheng Kung University, Taiwan*

### G1-2096 Electric Current Induced Domain Walls in Perpendicular Magnetic Films

15:15-15:45 [Kyoung-Woong Moon](#)

**INVITED** *Korea Research Institute of Standards and Science, Korea*

### G1-0382 Photonic Crystal Enhanced Conversion Efficiency in Optically Pumped Spintronic THz Emitter

15:45-16:00 [Zheng Feng](#)<sup>1</sup>, Rui Yu<sup>2</sup>, Yu Zhou<sup>3</sup>, Hai Lu<sup>4</sup>, Wei Tan<sup>1</sup>, Hu Deng<sup>5</sup>, Quan Cheng Liu<sup>5</sup>, Zhao Hui Zhai<sup>6</sup>, Li Guo Zhu<sup>6</sup>, Jian Wang Cai<sup>3</sup>, Bing Feng Miao<sup>2</sup>, Hai Feng Ding<sup>2</sup>

<sup>1</sup>Microsystem & Terahertz Research Center, China Academy of Engineering Physics, China,

<sup>2</sup>Nanjing University, China, <sup>3</sup>Institute of Physics, Chinese Academy of Sciences, China, <sup>4</sup>Henan Normal

University, China, <sup>5</sup>Southwest University of Science and Technology, China, <sup>6</sup>Institute of Fluid Physics, China Academy of Engineering Physics, China

### G1-1075 Magnetic Skyrmion Diode: Unidirectional Skyrmion Transport via Confining Potential Modulation

16:00-16:15 [Dae-Han Jung](#), Hee-Sung Han, Namkyu Kim, Ki-Suk Lee

*Ulsan National Institute of Science and Technology, Korea*

### G1-0853 Observation of Spin-orbit Torque-induced Skyrmion Dynamics Revealed by Time-resolved X-ray Imaging

16:15-16:30 [Kyung Mee Song](#)<sup>1,2</sup>, Seonghoon Woo<sup>1</sup>, Hee-Seung Han<sup>3</sup>, Min Seung Jung<sup>4</sup>, Mi-Young Im<sup>4,5</sup>, Ki-Suk Lee<sup>3</sup>, Kun Soo Song<sup>1</sup>, Jae-Sung Kim<sup>2</sup>, Peter Fischer<sup>5,6</sup>, Jung Il Hong<sup>4</sup>, Jun Woo Choi<sup>1</sup>, Hyun Cheol Koo<sup>1,7</sup>, Joonyeon Chang<sup>1</sup>

<sup>1</sup>Korea Institute of Science and Technology, Korea, <sup>2</sup>Sookmyung Women's University, Korea,

<sup>3</sup>National Institute of Science and Technology, Korea, <sup>4</sup>Daegu Gyeongbuk Institute of Science and

Technology, Korea, <sup>5</sup>Lawrence Berkeley National Laboratory, USA, <sup>6</sup>University of California, USA,

<sup>7</sup>KU-KIST Graduate School of Converging Science and Technology, Korea

### G1-1299 Current Driven Domain Wall Motion Study of Magnetic Wire with Hetero-interface between RE-TM and Heavy Metal Layers

16:30-17:00 [Hiroyuki Awano](#)<sup>1</sup>, Cheng Ying Wu<sup>1,2</sup>, Hiroyasu Kondo<sup>1</sup>, Ryogo Yoshimura<sup>1</sup>, Satoshi Sumi<sup>1</sup>, Yuichiro Kurokawa<sup>1</sup>, Do Bang<sup>1</sup>, Pham Van Thach<sup>1</sup>, Ko Wii Lin<sup>2</sup>

<sup>1</sup>Toyota Technological Institute, Japan, <sup>2</sup>National Chung Hsing University, Taiwan

- G1-2048** Negative Tunneling Magnetoresistance in Magnetic Tunnel Junctions with Tetragonal and Ferrimagnetic  $\text{Mn}_3\text{Ge}$  Heusler Electrodes Having Giant Perpendicular Magnetic Anisotropy Using Amorphous Substrates  
 17:00-17:15  
Yari Ferrante<sup>1</sup>, Jaewoo Jeong<sup>2</sup>, Sergey Faleev<sup>3</sup>, Mahesh Samant<sup>1</sup>, Claudia Felser<sup>4</sup>, Stuart Parkin<sup>3</sup>  
<sup>1</sup>IBM Almaden Research Center, USA, <sup>2</sup>Samsung Electronics, USA, <sup>3</sup>Max-Planck Institute for Microstructure Physics, Germany, <sup>4</sup>Max-Planck Institute for Chemical Physics of Solids, Germany
- G1-0965** Long Distance Lateral Spin Transport in Antiferromagnetic Insulators  
 17:15-17:30  
 Romain Lebrun<sup>1</sup>, Andrew Ross<sup>1</sup>, Alireza Qaiumzadeh<sup>2</sup>, Lorenzo Baldrati<sup>1</sup>, Joel Cramer<sup>1</sup>, Olena Gomonay<sup>1</sup>, Jairo Sinova<sup>1</sup>, Arne Brataas<sup>1</sup>, Mathias Kläui<sup>1</sup>  
<sup>1</sup>Johannes Gutenberg University, Germany, <sup>2</sup>Norwegian University of Science and Technology, Norway

## S6. Spin-orbitronics

June 4 (Mon.)

Halla (8F)

- Chair** Young Keun Kim (Korea University, Korea)
- S6-1215** Beyond the STT-MRAM; Faster, to a Higher Density - Spin-Orbit-Torque (SOT) and Voltage-Control-MRAM -  
 14:15-14:45  
Masashi Sahashi<sup>1,2</sup>  
<sup>1</sup>Japan Science and Technology Agency, Japan, <sup>2</sup>Tohoku University, Japan
- S6-1142** Spin-orbit Torque Materials for Magnetic Memory Applications  
 14:45-15:15  
Young Keun Kim  
 Korea University, Korea
- S6-0801** Magnetization Behaviors of Magnetic Tunnel Junctions Driven by the Spin-orbit Torque  
 15:15-15:45  
Te-Ho Wu  
 National Yunlin University of Science and Technology, Taiwan
- S6-0673** From Stt-mram to Voltage-control Spintronics Memory (Vocsm), as the Pursuit of Saving Energy Consumption of Memory Systems  
 15:45-16:15  
Hiroaki Yoda  
 Toshiba Corporation, Japan
- S6-1415** Control of Magnetization Switching via Spin-orbit Torque  
 16:15-16:45  
Chanyong Hwang  
 Korea Research Institute of Standards and Science, Korea
- S6-2068** Spin Pumping and Probe in Permalloy Dots-topological Insulator Nanostructured Bilayers  
 16:45-17:15  
Konstantin Zvezdin  
 Moscow Institute of Physics and Technology, Russia

## S13. Ab initio Theory in Magnetism 1 – Memorial for Arthur J. Freeman

June 4 (Mon.)

Ara (8F)

**Chairs** Jae Il Lee (Inha University, Korea)  
S. H. "Sonny" Rhim (University of Ulsan, Korea)

### S13-3001 Art Freeman, a Physicist, Material Scientist, and Father

14:15-14:45 [Jeffrey G. Grossman](#)  
*Massachusetts Institute of Technology, USA*

### S13-2064 The Role of the FLAPW Method in the Understanding of Magnetic Materials – A Retrospective

14:45-15:15 [Erich Wimmer](#)  
*Materials Design S.A.R.L., France*

### S13-1261 Working on Surface Magnetism with Art Freeman

15:15-15:45 Ding-sheng Wang<sup>1</sup>, [Ru-qian Wu](#)<sup>2</sup>, Lie-ping Zhong<sup>3</sup>  
<sup>1</sup>Chinese Academy of Sciences, China, <sup>2</sup>University of California - Irvine, USA, <sup>3</sup>Western Digital Corporation, USA

### S13-0658 Exploration of Heusler Alloys for Spintronics

15:45-16:15 [Tamio Oguchi](#)  
*Osaka University, Japan*

### S13-0924 Electronic Structures and Topological Properties off-electron Systems

16:15-16:45 [B. I. Min](#), Chang-Jong Kang, Junwon Kim, Kyoo Kim, Sooran Kim, Hong Chul Choi, Ji Hoon Shim  
*Pohang University of Science and Technology, Korea*

### S13-1508 Novel Topological Magnetic Insulators in Layered Transition Metal Compounds

16:45-17:15 [Jaejun Yu](#)  
*Seoul National University, Korea*

### S13-1305 Magnetic Fluctuations in Single-layer FeSe

17:15-17:45 [Tatsuya Shishidou](#), Daniel Agterberg, Michael Weinert  
*University of Wisconsin-Milwaukee, USA*

## G2-1. Nanostructured Magnetic Materials

June 4 (Mon.)

Ora (8F)

**Chairs** Manh-Huong Phan (University of South Florida, USA)  
Sanghoon Kim (University of Ulsan, Korea)

### G2-1888 Varied Magnetoelectric Coupling Effects from Designed Multiferic Composite Configurations

14:15-14:45 [Yaodong Yang](#)<sup>1</sup>, Yanxi Li<sup>2</sup>  
**INVITED** <sup>1</sup>Xian Jiaotong University, China, <sup>2</sup>Virginia Tech, USA

**G2-1290** Room Temperature Ferromagnetism and Exchange Bias Effect in Transition Metal Dichalcogenide Monolayers

14:45-15:15

INVITED

Manh-Huong Phan

*University of South Florida, USA*

**G2-0716** Molecular Tuning of Giant Exchange Bias at Metal-organic Hybrid Interface

15:15-15:30

Jung-Woo Yoo<sup>1</sup>, Junhyeon Jo<sup>1</sup>, Inseon Oh<sup>1</sup>, Jungmin Park<sup>1</sup>, Mi-Jin Jin<sup>1</sup>, Jaekwang Lee<sup>2</sup>

<sup>1</sup>Ulsan National Institute of Science and Technology, Korea, <sup>2</sup>Busan National University, Korea

**G2-1485** The Study of Flexible La<sub>0.7</sub>Sr<sub>0.3</sub>MnO<sub>3</sub>/Muscovite Heteroepitaxial Structure

15:30-15:45

Min Yen<sup>1</sup>, Ying-Hao Chu<sup>1,2</sup>

<sup>1</sup>National Chiao Tung University, Taiwan, <sup>2</sup>Industrial Technology Research Institute, Taiwan

**G2-1708** Effect of Surface Plasmon Resonance on Magnetism of Sub-micron Hollow CeO<sub>2</sub> Sphere

15:45-16:00

Eric Nestor Tseng, Pei-Kai Hsu, Yuan-Ching Tsai, Yi-Che Chen, Shih-Yun Chen

*National Taiwan University of Science and Technology, Taiwan*

**G2-1684** Anomalous and Spin Hall Effect in Co and Co(0001)/TMs Interface : First-principles Study

16:00-16:15

Duc Cuong Do, Soon Cheol Hong, S.H Rhim

*University of Ulsan, Korea*

**G2-1099** Structural and Magnetic Characterization of MnBi Thin Films

16:15-16:30

Yi-Ju Lee<sup>1</sup>, Chun-Hsien Wu<sup>1</sup>, Yi-Lun Huang<sup>1</sup>, Chiao-Ling Huang<sup>1</sup>, Jai-Lin Tsai<sup>1</sup>, Te-Ho Wu<sup>2</sup>, Ko-Wei Lin<sup>1</sup>

<sup>1</sup>National Chung Hsing University, Taiwan, <sup>2</sup>National Yunlin University of Science and Technology, Taiwan

**G2-1354** The Role of Graphene Oxide (GO) to Enhance Magnetism in Fe<sub>3</sub>O<sub>4</sub>-graphene Nanocomposite: Interfacial Effect

16:30-16:45

S. Majumder<sup>1,2</sup>, M. Sardar<sup>3</sup>, B. Satpati<sup>1</sup>, S. Kumar<sup>2</sup>, S. Banerjee<sup>1</sup>

<sup>1</sup>Saha Institute of Nuclear Physics, India, <sup>2</sup>Jadavpur University, India, <sup>3</sup>Indira Gandhi Centre for Atomic Research, India



## S4. Permanent Magnets (Hard Ferrite Magnets)

June 5 (Tue.)

Ballroom 2 (2F)

**Chair** Jae-Young Kim (Institute for Basic Science, Korea)

### S4-1368 Rare-earth Free Permanent Magnets and Motor: M- and W-type Hexaferrites

09:00-09:30 Yang-Ki Hong

*The University of Alabama at Tuscaloosa, USA*

### S4-1122 Magnetic Anisotropy of Epitaxially Strained Cobalt Ferrite Thin Films

09:30-10:00 Hideto Yanagihara, Hiroshige Onoda, Takeshi Tainosho, Jun-ichiro Inoue

*University of Tsukuba, Japan*

### S4-1499 Temperature Dependence of the Squareness Ratio of Ferrite Sintered Magnets

10:00-10:30 Gaku Obara, Yuta Kakimi, Naoyuki Takahashi

*Meiji University, Japan*

### S4-1601 Estimation of Occupation Sites of Metal Ions in Hexagonal Ferrites Using X-ray and Neutron Beam

10:30-11:00 Takashi Nakagawa, Satoshi Seino, Takao Yamamoto

*Osaka University, Japan*

### S4-2015 Microscopic Origin of the Local Anisotropy in La and Co Substituted M-type Hexaferrites

11:00-11:30 Yoon Young Koh<sup>1</sup>, Jae-Young Kim<sup>2</sup>

<sup>1</sup>Max Planck POSTECH Center for Complex Phase Materials, Korea, <sup>2</sup>Institute for Basic Science, Korea

### S4-2059 Spectroscopic Approach for Y-type Hexaferrite : Site Specific Analysis

11:30-12:00 Kyung-Tae Ko

*Max Planck-POSTECH/Hsinchu Center, Korea*

## S2. Bio-initiative Spintronics

June 5 (Tue.)

Ballroom 2 (2F)

**Chairs** Paolo Vavassori (CIC nanoGUNE, Spain)  
Ratnasingham Sooryakumar (The Ohio State University, USA)

### S2-2039 Shapeable Microelectronics

14:30-15:00 Daniil Karnaushenko

*Leibniz Institute for Solid State and Materials Research, Germany*

### S2-2044 Non-linear Magnetophoretic Separation Using Micro-magnet Arrays

15:00-15:30 Gil Lee

*University College Dublin, Ireland*

- S2-0389** Hydrodynamics and Actuation of Magnetic Bacteria at Solid-liquid Interfaces:  
Single Cells to Swarms  
15:30-16:00 [Ratnasingham Sooryakumar](#)  
*The Ohio State University, USA*
- S2-1303** Microwires-based Manipulation of Magnetically Labeled Cells  
16:00-16:30 [Valeria Rodionova](#)  
*Immanuel Kant Baltic Federal University, Russia*
- S2-2010** Bio-medical Applications of Magnetic Nanostructures  
16:30-17:00 [Paolo Vavassori](#)  
*CIC nanoGUNE, Spain*
- S2-1805** Magneto-nanosensor and Its Biomedical Applications  
17:00-17:30 [Jung-Rok Lee](#)  
*Ewha Womans University, Korea*
- S2-2034** Magnetically Softened Iron Oxide (MSIO) Nanofluid and Its Application for Ocular Neuroprotection  
17:30-18:00 in Glaucoma  
[Jung-Tak Jang](#), [Seongtae Bae](#)  
*University of South Carolina, USA*

## G3. Magnetic Recording and Information Technology

### G10. Functional Magnetic Devices

June 5 (Tue.)

Ballroom 3 (2F)

#### Chairs

Takeshi Kato (Nagoya University, Japan)  
Dong Young Kim (Andong National University, Korea)

#### G3-1384 Planar Bit Patterned MnGa Films Fabricated by Ion Irradiation

09:00-09:30 [Takeshi Kato](#), Daiki Oshima, Satoshi Iwata

INVITED *Nagoya University, Japan*

#### G3-2077 Origin of In-plane Component for L<sub>10</sub>-FePt Nanogranular Films Deposited on MgO Single Crystal Substrate

09:30-10:00

INVITED [Jian Wang](#)<sup>1</sup>, H. Sepehri-Amin<sup>1</sup>, Keisuke Masuda<sup>1</sup>, Yukiko Takahashi<sup>1</sup>, Hiroo Tajiri<sup>2</sup>, Tetsuya Nakamura<sup>2</sup>, Toshiaki Ina<sup>2</sup>, Tomoya Uruga<sup>2</sup>, Yoshio Miura<sup>1</sup>, Kazuhiro Hono<sup>1</sup>

<sup>1</sup>National Institute for Materials Science, Japan, <sup>2</sup>Japan Synchrotron Radiation Research Institute, Japan

#### G3-1076 Towards Magnetic Memristor: Resistive Switching and Superferromagnetic Ordering Effects in Nanogranular (CoFeB)<sub>x</sub>(AlOy)<sub>100-x</sub> (CoFeB)<sub>x</sub>(LiNbO<sub>y</sub>)<sub>100-x</sub> Nanocomposites

10:00-10:15

[Andrey Emelyanov](#)<sup>1</sup>, Kristina Nikiruy<sup>1</sup>, Vladimir Rylkov<sup>1</sup>, Aleksandr Sitnikov<sup>2</sup>, Vyacheslav Demin<sup>1</sup>, Aleksandr Granovsky<sup>3</sup>

<sup>1</sup>National Research Centre Kurchatov Institute, Russia, <sup>2</sup>Voronezh State Technical University, Russia,

<sup>3</sup>Lomonosov Moscow State University, Russia

**G10-1946** Navigation Electronic Compass Based on Magnetoelectric Effect of Magnetostriction-piezoelectric Composites  
 10:15-10:45 Thi Huong Giang Do<sup>1</sup>, Van Tuan Nguyen<sup>2</sup>, Ba Bien Nguyen<sup>1</sup>, Anh Tuan Phung<sup>3</sup>, Huu Duc Nguyen<sup>1</sup>  
<sup>1</sup>Vietnam National University, Hanoi, Vietnam, <sup>2</sup>Le Quy Don University, Vietnam, <sup>3</sup>Hanoi University of Science and Technology, Vietnam

**G10-1578** Effect of Complex Permeability on Circuit Parameters of CPW with Co-Zr-Nb Film  
 10:45-11:00 Sho Muroga<sup>1</sup>, Yasushi Endo<sup>2</sup>, Motoshi Tanaka<sup>1</sup>  
<sup>1</sup>Akita University, Japan, <sup>2</sup>Tohoku University, Japan

**G10-0312** Magneto-optical Properties of Fe<sub>3</sub>O<sub>4</sub> Nanoparticles Using Surface Plasmon Resonance (SPR)-Based Biosensor  
 11:00-11:15 Supardianningsih, Edi Suharyadi, Kamsul Abraha  
 Universitas Gadjah Mada, Indonesia

**G10-1762** Experimental Approach to Rotational Mechanics of a Magnetostrictive Motor about an Arbitrary Axis  
 11:15-11:30 Ha Gyun Lee, Young Woo Park, Myounggyu Noh  
 Chungnam National University, Korea

### S3. Next Generation Permanent Magnetic Materials

June 5 (Tue.)

Ballroom 3 (2F)

**Chair** Chul-Jin Choi (Korea Institute of Materials Science, Korea)

**S3-1957** Improvement of the Magnetic Properties of Hexaferrites  
 14:30-15:00 Sang-Im Yoo  
 Seoul National University, Korea

**S3-1426** Synthesis and Magnetic Properties of Samarium-cobalt One-dimensional Structure Using an Electrospinning Method  
 15:00-15:30 Jongryoul Kim, Yong-Ho Choa  
 Hanyang University, Korea

**S3-0744** Structural Evolution and Magnetic Properties of Bulk MnAl(C) Magnets Prepared by Melt-spinning Method and High-pressure Compaction  
 15:30-16:00 Pingzhan Si<sup>1</sup>, Huidong Qian<sup>1</sup>, Jihoon Park<sup>1</sup>, Chul-Jin Choi<sup>1</sup>, Xinyou Wang<sup>1</sup>, Yang Yang<sup>1</sup>, Hongliang Ge<sup>2</sup>  
<sup>1</sup>Korea Institute of Materials Science, Korea, <sup>2</sup>China Jiliang University, China

**S3-0695** Fabrication of Hard/Soft Magnetic Nanoparticle Nanocomposite Magnet  
 16:00-16:30 Young Soo Kang  
 Sogang University, Korea

**S3-1210** Micromagnetic Simulations of Magnetization Reversals in Rare-earth Free Permanent Magnets  
 16:30-17:00 Namkyu Kim, Ki-Suk Lee  
 Ulsan National Institute of Science and Technology, Korea

**S3-0702** Hard-magnetic Properties of Rare-earth-free IRon-based Nanostructures Synthesized by Solution Chemistry

17:00-17:30

Da Li

*Institute of Metal Research, Chinese Academy of Sciences, China*

**S3-1363** Enhanced Properties of MnBi Synthesized via Novel Fabrication Method

17:30-18:00

Jong-Woo Kim, Y.H. Shin, C.-W. Ahn, J.-J. Choi, G.-T. Hwang, B.-D. Hahn, J. Park, K.-C. Chung, C.-J. Choi

*Korea Institute of Materials Science, Korea*

## G11. Magnetic Characterizations

June 5 (Tue.)

Ballroom 4 (2F)

**Chairs**

Mi-Young Im (Lawrence Berkeley National Laboratory, USA)

Yasushi Endo (Tohoku University, Japan)

**G11-1049** Study on the New Technique of Spin Dynamics Measurement

14:30-15:00

Yasushi Endo

INVITED

*Tohoku University, Japan*

**G11-0264** Non-destructive Imaging of Buried Junctions Using Scanning Electron Microscopy

15:00-15:30

Edward Jackson<sup>1</sup>, Jun-young Kim<sup>1</sup>, Samik Duttagupta<sup>2</sup>, Shunsuke Fukami<sup>2</sup>, Hideo Ohno<sup>2</sup>,

INVITED

Mingling Sun<sup>2</sup>, Takahide Kubota<sup>2</sup>, Koki Takanashi<sup>2</sup>, Atsufumi Hirohata<sup>1</sup>

<sup>1</sup>University of York, UK, <sup>2</sup>Tohoku University, Japan

**G11-0842** Heterojunction-induced Magnetic Anisotropy of Ni Wires on LiNbO<sub>3</sub> Substrate

15:30-16:00

Akinobu Yamaguchi

INVITED

*University of Hyogo, Japan*

**G11-0192** Direct Imaging of Spin Structures Utilizing Soft X-ray Microscopy

16:00-16:15

Mi-Young Im<sup>1,2</sup>, Hee-Sung Han<sup>3</sup>, Min Seung Jung<sup>2</sup>, Anjan Soumyanarayanan<sup>4</sup>, Ki-Suk Lee<sup>3</sup>, Jung-Il Hong<sup>2</sup>

<sup>1</sup>Lawrence Berkeley National Laboratory, USA, <sup>2</sup>Daegu Gyeongbuk Institute of Science and Technology,

*Korea*, <sup>3</sup>Ulsan National Institute of Science and Technology, *Korea*, <sup>4</sup>Data Storage Institute, *Singapore*

**G11-1283** Magnetic Leverage Effects in Amorphous Heterostructures

16:15-16:30

Thomas Hase

*University of Warwick, UK*

**G11-0251** Development Strategy for pMTJ Free Layer with High Thermal Stability at Operating Temperatures

16:30-16:45

Wai Cheung Law<sup>1,2</sup>, Tian Li Jin<sup>1</sup>, Dao Hwee Wong<sup>1,2</sup>, Ganesh Kolliylil Rajan<sup>2</sup>, Wei Liang Gan<sup>1</sup>,

Chim Seng Seet<sup>2</sup>, Alex See<sup>2</sup>, S. N. Piramanayagam<sup>1</sup>, Wen Siang Lew<sup>1</sup>

<sup>1</sup>Nanyang Technological University, *Singapore*, <sup>2</sup>Globalfoundries Singapore, *Singapore*

**G11-0875** Direct Observation of Domain Wall Using Scanning Electron Microscopy with Polarization Analysis (SEMPA)

16:45-17:00

D.H. Kim, Sangsun Lee, Jungbum Yoon, Kyoung-Woong Moon, Dongseuk Kim, Changsoo Kim,

Byoung Sun Chun, Wondong Kim, Chan Yong Hwang

*Korea Research Institute of Standards and Science, Korea*

**G11-0879** Novel Scanning Magnetometry Based on Quantum Defects in Diamond

17:00-17:15 Donghun Lee, [Myeongwon Lee](#)  
Korea University, Korea

**G11-0402** A Study on Effective Deperming Protocol Considering Hysteresis Characteristics and Demagnetizing Factor in Ferromagnetic Material

17:15-17:30 [Sang Hyeon Im](#), Gwan Soo Park  
Pusan National University, Korea

**G11-1410** Study of Coprecipitation Production at Nano Ferrite ( $\text{MnxZn}_{1-x}\text{Fe}_2\text{O}_4$ ) with Waste and Electromagnetic Properties

17:30-17:15 [Yenchun Liu](#), Jarnchih Hsu  
WuFeng University, Taiwan

**G11-0182** Singlet Ground State in the Spin-1/2 Weakly Coupled Dimer Compound  $\text{NH}_4[(\text{V}_2\text{O}_3)_2(4,4'\text{-bpy})_2(\text{H}_2\text{PO}_4)(\text{PO}_4)_2] \cdot 0.5\text{H}_2\text{O}$ 

17:45-18:00 [Arjun Unnikrishnan](#)<sup>1</sup>, Vinod Kumar<sup>2</sup>, P. K. Anjana<sup>1</sup>, A. Thirumurugan<sup>1</sup>, J. Sichelschmidt<sup>3</sup>, Avinash V. Mahajan<sup>4</sup>, Ramesh Chandra Nath<sup>1</sup>  
<sup>1</sup>Indian Institute of Science Education and Research Thiruvananthapuram, India, <sup>2</sup>Indian Institute of Technology Bombay, India, <sup>3</sup>Max Planck Institute for Chemical Physics of Solids, Germany, <sup>4</sup>Indian Institute of Science Education and Research Bombay, India

## G1-2. Spintronics

June 5 (Tue.)

Tamra (8F)

**Chairs**

Wen Siang Lew (Nanyang Technological University, Singapore)  
Hyun Cheol Koo (Korea Institute of Science and Technology, Korea)

**G1-0206** Graphene-based Spintronic Devices: From a Field-effect Transistor to a Spin-to-charge Converter

09:00-09:30 [Luis E. Hueso](#), Wenying Yan, Oihana Txoperena, Edurne Sagasta, Mario Ribeiro, Felix Casanova  
INVITED *CIC nanoGUNE, Spain*

**G1-1025** Ultrathin Manganese Alloys with Perpendicular Magnetic Anisotropy for Spintronic Devices

09:30-10:00 [Shigemi Mizukami](#)  
INVITED *Tohoku University, Japan*

**G1-0228** Inverse Spin Hall Effect in Half-Heusler NiMnSb Alloy Films

10:00-10:30 [Zhenchao Wen](#), Zhiyong Qiu, Takeshi Seki, Dazhi Hou, Takahide Kubota, Eiji Saitoh, Koki Takanashi  
*Tohoku University, Japan*

**G1-1011** Effect of Fe Doping on the Magnetic Properties of  $\text{SrRuO}_3$  Epitaxial Thin Film

10:30-10:45 [Umasankar Dash](#), Chang Uk Jung  
*Hankuk University of Foreign Studies, Korea*

**G1-1621** Electrical Tuning of Magneto-conductance in N-type Ferromagnetic Semiconductor (In,Fe)As-based Esaki Diodes

10:45-11:00 [Le Duc Anh](#)<sup>1</sup>, Pham Nam Hai<sup>2</sup>, Masaaki Tanaka<sup>1</sup>  
<sup>1</sup>The University of Tokyo, Japan, <sup>2</sup>Tokyo Institute of Technology, Japan

**G1-0562** **Electrical and Optical Characterisation of Fe/n-GaAs Non-local Spin Valve**  
 11:00-11:15 Jun-young Kim<sup>1</sup>, Marjan Samiepour<sup>1</sup>, Jeongchun Ryu<sup>2</sup>, Daisuke Iizasa<sup>2</sup>, Takahito Saito<sup>2</sup>, Makoto Kohda<sup>2</sup>, Junsaku Nitta<sup>2</sup>, Harvey E. Beere<sup>3</sup>, David A. Ritchie<sup>3</sup>, Atsufumi Hirohata<sup>1</sup>  
<sup>1</sup>University of York, UK, <sup>2</sup>Tohoku University, Japan, <sup>3</sup>University of Cambridge, UK

**G1-1974** **Electric Field Induced Change in Magnetization Direction in 3d/PZT Nanostructured Composites**  
 11:15-11:30 Nguyen Thi Minh Hong, Dang Dinh Long, Pham Duc Thang, Le Viet Cuong  
 Vietnam National University of Engineering and Technology, Vietnam

### G1-3. Spintronics

June 5 (Tue.)

Tamra (8F)

**Chairs** Ming-Hao Liu (National Cheng Kung University, Taiwan)  
 Byoung-Chul Min (Korea Institute of Science and Technology, Korea)

**G1-2058** **Spin Caloritronics in Nanostructured Materials**  
 14:30-15:00 Masaki Mizuguchi  
 INVITED Tohoku University, Japan

**G1-0972** **Spin-orbit Torque Switching and Its Applications – From High-speed Memory to Artificial Neural Network –**  
 15:00-15:30 Shunsuke Fukami, Chaoliang Zhang, William Borders, Aleksandr Kurenkov, Samik DuttaGupta, Hideo Ohno  
 INVITED Tohoku University, Japan

**G1-1194** **Development of Multi-terminal Spin Valve Device Exhibiting Three States**  
 15:30-15:45 Joo-hyeon Lee<sup>1,2</sup>, Hyun Cheol Koo<sup>1,2</sup>, Joonyeon Chang<sup>1</sup>, Suk Hee Han<sup>1</sup>, Hyung-jun Kim<sup>1</sup>, Supriyo Datta<sup>3</sup>, Shehrin Sayed<sup>3</sup>, Seokmin Hong<sup>1,3</sup>  
<sup>1</sup>Korea Institute of Science and Technology, Korea, <sup>2</sup>KU-KIST Graduate School of Converging Science and Technology, Korea University, Korea, <sup>3</sup>Purdue University, USA

**G1-0656** **FORC Analysis of Magnetic Relaxation in Ferromagnetic Bilayers with Perpendicular Anisotropy**  
 15:45-16:00 Artem Talantsev<sup>1,2</sup>, Yan Lu<sup>3</sup>, Thibaud Fache<sup>3</sup>, M. Lavanant<sup>3</sup>, Abbass Hamadeh<sup>3</sup>, Oksana Koplak<sup>1,4</sup>, Roman Morgunov<sup>1,4</sup>, Stephane Mangin<sup>3</sup>  
<sup>1</sup>Institute of Problems of Chemical Physics, Russia, <sup>2</sup>Daegu Gyeongbuk Institute of Science & Technology, Korea, <sup>3</sup>Institute Jean Lamour, France, <sup>4</sup>Tambov State Technical University, Russia

**G1-0941** **Voltage-assisted Magnetic Switching in MgO/CoFeB-based Magnetic Tunnel Junctions by Way of Interface Engineering**  
 16:00-16:30 Jongill Hong, Jungho Ko  
 INVITED Yonsei University, Korea

**G1-0521** **Voltage-control Spintronics Memory (VoCSM) with Low Write Current Using High-Selectivity Patterning Process**  
 16:30-16:45 Mariko Shimizu, Yuuichi Ohsawa, Hiroaki Yoda, Satoshi Shirotori, Naoharu Shimomura, Yushi Kato, Soichi Oikawa, Hideyuki Sugiyama, Altansargai Buyandalai, Tomoaki Inokuchi, Katsuhiko Koui, Mizue Ishikawa, Kazutaka Ikegami, Atsushi Kurobe  
 Toshiba Corporation, Japan

- G1-0998** Direct Observation of Magnetic Droplets in All-perpendicular Spin Torque Nano-oscillators  
 16:45-17:00 [Sunjae Chung](#)<sup>1,2,3</sup>, Q. Tuan Le<sup>1,2</sup>, Martina Ahlberg<sup>1,4</sup>, Ahmad A. Awad<sup>1,4</sup>, Markus Weigand<sup>5</sup>, Iuliia Bykova<sup>5</sup>, Roman Khymyn<sup>1</sup>, Mykola Dvornik<sup>1</sup>, Hamid Mazraati<sup>2,4</sup>, Afshin Houshang<sup>1,4</sup>, Sheng Jiang<sup>2</sup>, T. N. Anh Nguyen<sup>1,2,6</sup>, Eberhard Goering<sup>5</sup>, Gisela Schütz<sup>5</sup>, Joachim Gräfe<sup>5</sup>, Johan Åkerman<sup>1,2,4</sup>  
<sup>1</sup>University of Gothenburg, Sweden, <sup>2</sup>KTH Royal Institute of Technology, Sweden, <sup>3</sup>University Uppsala, Sweden, <sup>4</sup>NanOsc AB, Sweden, <sup>5</sup>Max Planck Institute for Intelligent Systems, Germany, <sup>6</sup>Vietnam Academy of Science and Technology, Vietnam
- G1-0408** Magnetization Angle Dependence of Spin-orbit Torque Probed by In-plane Direct Current Approach  
 17:00-17:15 [Seungmo Yang](#), Jinhyung Choi, Wonsub Shin, Jinpyo Hong  
 Hanyang University, Korea
- G1-1483** Hetero-interface Effect on Gilbert Damping in Nonmagnetic Metal/Permalloy/Nonmagnetic Metal Trilayers  
 17:15-17:30 [Bosung Kim](#)<sup>1</sup>, Young-Jun Cho<sup>1</sup>, Biswanath Bhoi<sup>1</sup>, Seung-Young Park<sup>2</sup>, Sang-Koog Kim<sup>1</sup>  
<sup>1</sup>Seoul National University, Korea, <sup>2</sup>Korea Basic Science Institute, Korea

## S15. Modulated Spin and Magnetic Properties

June 5 (Tue.)

Halla (8F)

### Chair

Kyung-Jin Lee (Korea University, Korea)

- S15-1370** Control of Spin Phases in Aharonov-casher Spin Interferometers  
 09:00-09:30 [Junsaku Nitta](#)  
 Tohoku University, Japan
- S15-1435** Spin Absorption Effects into Ferromagnetic Metal and Superconductor  
 09:30-10:00 [Takashi Kimura](#)  
 Kyushu University, Japan
- S15-2066** Voltage Control of Magnetic Properties and Its Application to the MRAM and AI Chips  
 10:00-10:30 [Yoshishige Suzuki](#)  
 Osaka University, Japan
- S15-1364** Chiral Spintronics  
 10:30-11:00 [See-Hun Yang](#)  
 IBM Research - Almaden, USA
- S15-1504** Physical Meaning of Line Width of the Switching Time Distribution in Ferromagnetic Nano-structure  
 11:00-11:30 [Chun-Yeol You](#)<sup>1</sup>, Jung-Hwan Moon<sup>2</sup>  
<sup>1</sup>Daegu Gyeongbuk Institute of Science and Technology, Korea, <sup>2</sup>Korea University, Korea
- S15-1906** Various Edelstein Effects in Inversion Asymmetric Crystals  
 11:30-12:00 [Shuichi Murakami](#)  
 Tokyo Institute of Technology, Japan

## S7-1. Antiferromagnetic and Ferrimagnetic Spintronics

June 5 (Tue.)

Halla (8F)

**Chair** Masamitsu Hayashi (The University of Tokyo, Japan)

### S7-0782 Spin Dynamics in Antiferromagnets and Ferrimagnets

14:30-15:00 Teruo Ono  
Kyoto University, Japan

### S7-0566 Unconventional Spin-orbit Torques and Their Applications

15:00-15:30 Hyunsoo Yang  
National University of Singapore, Singapore

### S7-0923 Spin-orbit Torque in Antiferromagnets

15:30-16:00 Cheng Song, Xianzhe Chen, Xiaofeng Zhou, Guoyi Shi, Feng Pan  
Tsinghua University, China

### S7-0867 Spin-orbit Physics at Transition Metal Interfaces

16:00-16:30 Aurelien Manchon, Akshay Salimath, Sumit Ghosh, Slimane Laref  
King Abdullah University of Science and Technology, Saudi Arabia

### S7-0755 Spin-orbit Magnetoresistance in Metallic Thin Films on Magnetic Insulators

16:30-17:00 Jiang Xiao<sup>1</sup>, Di Wu<sup>2</sup>  
<sup>1</sup>Fudan University, China, <sup>2</sup>Nanjing University, China

### S7-0775 Antiferromagnetic Spin Dynamics in Antiferromagnets and Ferrimagnets

17:00-17:30 Kyung-Jin Lee  
Korea University, Korea

## G5. Fundamental Properties of Materials

June 5 (Tue.)

Ara (8F)

**Chairs** Vinh Hung Tran (Polish Academy of Sciences, Poland)  
Kee Hoon Kim (Seoul National University, Korea)

### G5-1302 Magnetic Domains in Ni-Mn-Ga Alloys by Kerr Microscopy

09:00-09:15 Alexej Perevertov<sup>1</sup>, Oleg Heczko<sup>1</sup>, Rudolf Schaefer<sup>2,3</sup>  
<sup>1</sup>Institute of Physics of the Czech Academy of Sciences, Czech Republic, <sup>2</sup>Leibniz Institute for Solid State and Materials Research Dresden, Germany, <sup>3</sup>TU Dresden, Germany

### G5-0788 Strain Dependent Magnetic Anisotropy in FePt Alloy

09:15-09:30 Qurat-ul Ain, S.H. Rhim, S. C. Hong  
University of Ulsan, Korea



**G5-0467** Sign Inversion of Planar Hall Resistance in Fe Film

09:30-09:45 Seong Hoon Choj, Sanghoon Lee  
Korea University, Korea

**G5-1059** Non-empirical Density Functional Theory +U Approach for Electronic and Magnetic Properties of Spintronic Materials

09:45-10:00 Kenji Nawa<sup>1</sup>, Kohji Nakamura<sup>2</sup>, Tamio Oguchi<sup>3</sup>, Michael Weinert<sup>4</sup>, Yoshio Miura<sup>1,5</sup>  
<sup>1</sup>National Institute for Materials Science, Japan, <sup>2</sup>Mie University, Japan, <sup>3</sup>Osaka University, Japan, <sup>4</sup>University of Wisconsin-Milwaukee, USA, <sup>5</sup>Kyoto Institute of Technology, Japan

**G5-0946** Relaxor Behaviors in  $x\text{BaTiO}_3 - (1-x)\text{CoFe}_2\text{O}_4$  Materials

10:00-10:15 Thang Bach Phan<sup>1</sup>, Dung My Thi Cao<sup>2</sup>, Hoa Nhu Thi Tran<sup>3</sup>, Hanh Kieu Thi Ta<sup>2</sup>, Ngoc Kim Pham<sup>2</sup>, Thu Bao Nguyen Le<sup>4</sup>, Heongkyu Ju<sup>3</sup>  
<sup>1</sup>Vietnam National University, Ho Chi Minh City, Vietnam, <sup>2</sup>University of Science, Vietnam National University, Ho Chi Minh City, Vietnam, <sup>3</sup>Gachon University, Korea, <sup>4</sup>University of Information Technology, Vietnam National University, Ho Chi Minh City, Vietnam

**G5-1331** Electronic Structure of 1144-type FeAs-based Superconductors

10:15-10:30 Thi Ly Mai, Vinh Hung Tran  
Polish Academy of Sciences, Poland

**G5-1394** Synchrotron X-ray Absorption Spectroscopy (XAS): Studies on Structural and Magnetic Properties of  $\text{T}'\text{-Pr}_{2-x}\text{Ce}_x\text{CuO}_4$  Nanocrystals

10:30-10:45 Resky Irfanita<sup>1</sup>, Putu Eka Dharma Putra<sup>1</sup>, Bambang Triono<sup>1</sup>, Malik Anjelh Baqiya<sup>1</sup>, D Darminto<sup>1</sup>, Chatree Saiyasombat<sup>2</sup>, Krongthong Kamonsuangkasem<sup>2</sup>  
<sup>1</sup>Institute Teknologi Sepuluh Nopember, Indonesia, <sup>2</sup>Synchrotron Light Research Institute, Thailand

## S14. Ab initio Theory in Magnetism 2 – Memorial for Arthur J. Freeman

June 5 (Tue.)

Ara (8F)

**Chairs**

S. H. "Sonny" Rhim (University of Ulsan, Korea)  
Joo-Hyoung Lee (Gwangju Institute of Science and Technology, Korea)

**S14-0407** Towards Tunable Magnetism from First-principles Studies

14:30-15:00 Dorji Odkhuy<sup>1</sup>, Purev Taivansaikhan<sup>1</sup>, Nicholas Kioussis<sup>2</sup>, Tumurbaatar Tselvelmaa<sup>3</sup>, Sonny H Rhim<sup>3</sup>, Soon Cheol Hong<sup>3</sup>  
<sup>1</sup>Incheon National University, Korea, <sup>2</sup>California State University Northridge, USA, <sup>3</sup>University of Ulsan, Korea

**S14-1125** Effects of Magnetic Dopants and Interfacial Oxygen Vacancies in FeSe-based Systems

15:00-15:30 Mingxing Chen<sup>1,2</sup>  
<sup>1</sup>Hunan Normal University, China, <sup>2</sup>University of Wisconsin-Milwaukee, USA

**S14-1237** Establishing  $J_{\text{eff}}=3/2$  Ground State in a Lacunar Spinel  $\text{GaTa}_4\text{Se}_8$ 

15:30-16:00 Myung-Joon Han  
Korea Advanced Institute of Science and Technology, Korea

- S14-1013** Ab Initio Treatment of Magnetocrystalline Anisotropy, Exchange Interaction, and Dzyaloshinskii-moriya Interaction of Transition-metal Thin Films  
16:00-16:30 [Kohji Nakamura](#), Toru Akiyama, Tomonori Ito  
*Mie University, Japan*
- S14-1362** First-principles Study on Multiferroic Transition-metal Oxides  
16:30-17:00 [Kunihiko Yamauchi](#)  
*Osaka University, Japan*
- S14-2156** Pressure-induced Nodal-loop Semimetal and Topological Phase Transition in a Single-component Molecular Crystal, [Pd(dddtt)<sub>2</sub>]  
17:00-17:30 [Takao Tsumuraya](#)<sup>1,2</sup>, Hikaru Sawahata<sup>3</sup>, Fumiyuki Ishii<sup>3</sup>, Hiori Kino<sup>4</sup>, Reizo Kato<sup>2</sup>, Tsuyoshi Miyazaki<sup>4</sup>  
<sup>1</sup>Kumamoto University, Japan, <sup>2</sup>RIKEN, Japan, <sup>3</sup>Kanazawa University, Japan, <sup>4</sup>National Institute for Materials Science, Japan

## G2-2. Nanostructured Magnetic Materials

June 5 (Tue.)

Ora (8F)

- Chairs** Tao Zhu (Institute of Physics, Chinese Academy of Sciences, China)  
Je-Geun Park (Seoul National University, Korea)
- G2-0845** Novel Performance in SrRuO<sub>3</sub> Thin Films with Emergent Phase Separation  
09:00-09:30 [Jinxing Zhang](#)  
*Beijing Normal University, China*
- G2-0690** New Opportunities for Magnetic Van der Waals Materials  
09:30-10:00 [Je-Geun Park](#)  
*Seoul National University, Korea*
- G2-1020** High Thermal Stability in W/Zr/CoFeB/MgO Stack with Perpendicular Magnetic Anisotropy  
10:00-10:15 Fenfen Chang<sup>1,2</sup>, [Tao Zhu](#)<sup>1</sup>  
<sup>1</sup>Institute of Physics, Chinese Academy of Sciences, China, <sup>2</sup>Institute of High Energy Physics, Chinese Academy of Sciences, China
- G2-0796** Non-local Spin Diffusion Driven by Giant Spin Hall Effect at Oxide Heterointerfaces  
10:15-10:30 [Mi-Jin Jin](#)<sup>1</sup>, Seon Young Moon<sup>2</sup>, Shin-Ik Kim<sup>2</sup>, Daeseung Choe<sup>1</sup>, Jungmin Park<sup>1</sup>, Junhyeon Jo<sup>1</sup>, Inseon Oh<sup>1</sup>, Hyun-Cheol Koo<sup>2</sup>, Byung-Chul Min<sup>2</sup>, Hyun-Woo Lee<sup>3</sup>, Seung-Hyub Baek<sup>2</sup>, Jung-Woo Yoo<sup>1</sup>  
<sup>1</sup>Ulsan National Institute of Science and Technology, Korea, <sup>2</sup>Korea Institute of Science and Technology, Korea, <sup>3</sup>Pohang University of Science and Technology, Korea
- G2-0444** Probing Magnetic and Magnetoplasmonics Properties of Ag/Fe Nano-dot Arrays  
10:30-10:45 [Wan-Chen Chuang](#)<sup>1</sup>, Sheng-Zhe Ciou<sup>2</sup>, Henry Han<sup>2</sup>, Daniel Marko<sup>3</sup>, Jiann-Yeu Chen<sup>1</sup>, Jong-Ching Wu<sup>2</sup>, Gary Paterson<sup>4</sup>, Robert Stamps<sup>5</sup>, Bassel Alkadour<sup>5</sup>, Johan Van Lierop<sup>5</sup>, Ko-Wei Lin<sup>1</sup>, David Schmool<sup>3</sup>  
<sup>1</sup>National Chung Hsing University, Taiwan, <sup>2</sup>National Chunghua University of Education, Taiwan, <sup>3</sup>University of Versailles, France, <sup>4</sup>University of Glasgow, UK, <sup>5</sup>University of Manitoba, Canada

**G2-0617** Various Physical Properties at the Interface between Heavy Metals and Ferromagnets Probed by Brillouin Light Scattering

10:45-11:00

June Seo Kim

*Daegu Gyeongbuk Institute of Science & Technology, Korea*

**G2-1048** Magnetic Field Effect on Photocurrent of Co-coating ZnO Nanowires

11:00-11:15

Dong Lin Li, Huai Sheng Hsu, Hua Shu Hsu

*National Pingtung University, Taiwan*

**G2-0483** Effect of Annealing on the Magnetic Properties of GaMnAsP/GaAsP Multilayers

11:15-11:30

Phunvira Chongthanaphisut, Sanghoon Lee

*Korea University, Korea*

**G2-0914** Facile Synthesis of Fe<sub>3</sub>O<sub>4</sub>@C@Ag Magnetic Nanocomposites for Enhanced Adsorption of Environmental Pollutants from Aqueous Solution

11:30-11:45

Van Tuan Hoang<sup>1</sup>, Ngoc Phan Vu<sup>1</sup>, Quang Huy Tran<sup>2</sup>, Anh-Tuan Le<sup>1</sup>

<sup>1</sup>Hanoi University of Science and Technology, Vietnam, <sup>2</sup>National Institute of Hygiene and Epidemiology, Vietnam

**G2-0545** Perpendicular Exchange Bias in Co/Pt and Co/Pd Antidot Arrays

11:45-12:00

Anh Nguyen

*Vietnam Academy of Science and Technology, Vietnam*

## G2-3. Nanostructured Magnetic Materials

June 5 (Tue.)

Ora (8F)

**Chairs**

Andreas Berger (CIC nanoGUNE, Spain)

Jung-Il Hong (Daegu Gyeongbuk Institute of Science and Technology, Korea)

**G2-0345** Investigations of Magnetic Materials with Predefined Exchange Coupling Strength Profiles

14:30-15:00

Lorenzo Fallarino<sup>1,2</sup>, Patricia Riego<sup>1,3</sup>, Brian Kirby<sup>4</sup>, Casey Miller<sup>5</sup>, Andreas Berger<sup>1</sup>

**INVITED**

<sup>1</sup>CIC nanoGUNE, Spain, <sup>2</sup>Helmholtz-Zentrum Dresden-Rossendorf, Germany, <sup>3</sup>Universidad del País Vasco, Spain, <sup>4</sup>National Institute of Standards and Technology, USA, <sup>5</sup>Rochester Institute of Technology, USA

**G2-0280** Domain Wall Pinning Using Local Compositional Modification for Domain Wall Memory

15:00-15:30

SN Piramanayagam, Tianli Jin, Wen Siang Lew

**INVITED**

*Nanyang Technological University, Singapore*

**G2-1007** The Resistive Switching Characteristics of Fe<sub>3</sub>O<sub>4</sub> Magnetic Nanoparticles

15:30-15:45

Kim Ngoc Pham<sup>1</sup>, Thi Kieu Hanh Ta<sup>1</sup>, Ngoc Xuan Dat Mai<sup>2</sup>, Bach Thang Phan<sup>2</sup>

<sup>1</sup>University of Science, Vietnam National University, Ho Chi Minh City, Vietnam, <sup>2</sup>Vietnam National University, Vietnam

**G2-0213** Two Dimensional Magnetic Semiconductor in Feroxhyte

15:45-16:00

Imran Khan, Jisang Hong

*Pukyong National University, Korea*

- G2-0374**    **Nanoscale Compositional Modification in Co/Pd Multilayers for Pinning Domain Walls**  
16:00-16:15    Tianli Jin, Durgesh Kumar, Weiliang Gan, Mojtaba Ranjbar, Wensiang Lew, S. N. Piramanayagam  
*Nanyang Technological University, Singapore*
- G2-1042**    **Magneto-optical Properties of Graphitic Carbon Nitride**  
16:15-16:30    Feng Wei Guo<sup>1</sup>, Dmitry Zherebtsov<sup>2</sup>, Hua Shu Hsu<sup>1</sup>  
*<sup>1</sup>National Pingtung University, Taiwan, <sup>2</sup>South Ural State University, Russia*
- G2-0479**    **Magneto-transport Properties of GaMnAs Based Trilayers with Opposite Signs of Anisotropic Magnetoresistance**  
16:30-16:45    Kyung Jae Lee, Sanghoon Lee  
*Korea University, Korea*

## S8. Magnetic Microscopy for nm-scale Spin Structure

June 6 (Wed.)

Ballroom 2 (2F)

**Chair** Chanyong Hwang (Korea Research Institute of Standards and Science, Korea)

### S8-1419 Lateral and Temporal High-resolution Scanning Electron Microscopy with Polarization Analysis

09:00-09:30 Fabian Kloodt-Twesten, Susanne Kuhrau, Robert Froemter, [Hans Peter Oepen](#)

*University Hamburg, Germany*

### S8-1966 Spin-polarized Scanning Electron Microscopy and Its Application

09:30-10:00 [Teruo Kohashi](#)<sup>1</sup>, Hideo Matsuyama<sup>2</sup>

<sup>1</sup>Hitachi, Ltd., Japan, <sup>2</sup>Hokkaido University, Japan

### S8-1997 Magnetic Domain Imaging by Spin Polarized Low Energy Electron Microscopy

10:00-10:30 [Yizheng Wu](#)

*Fudan University, China*

### S8-1572 In-situ Lorentz TEM Observations of Magnetic Skyrmions in Chiral-lattice Magnets

10:30-11:00 [Xiuzhen Yu](#)

*RIKEN Center for Emergent Matter Science, Japan*

### S8-0743 Magnetic X-ray Spectromicroscopy of Non-trivial Spin Textures

11:00-11:30 [Peter Fischer](#)<sup>1,2</sup>

<sup>1</sup>Lawrence Berkeley National Laboratory, USA, <sup>2</sup>University of California, USA

### S8-1996 Ultrafast and Very Small – Discover Nanoscale Magnetism with Picosecond Time Resolution

11:30-12:00 [Hendrik Ohldag](#)

*SLAC National Accelerator Laboratory, USA*

## S11. Superconducting Magnet Technology and Applications

June 6 (Wed.)

Ballroom 3 (2F)

**Chair** Haigun Lee (Korea University, Korea)

### S11-2006 Superconductor Magnet Technology for High Field and Large Power Applications:

09:00-09:30 **From Dream to Reality**

[Seungyong Hahn](#)

*Seoul National University, Korea*

### S11-1999 Technology Status and Application of HTS Rotating Machines for Electric Propulsion System

09:30-10:00 [Ho Min Kim](#), Ji Hyung Kim, Huu Luong Quach

*Jeju National University, Korea*

**S11-1866 The Feasibility of High Field Magnet Using Magnetic Field Amplification**

10:00-10:30

Seyong Choi*Kangwon National University, Korea***S11-1193 Progress of 9.4 T Metal-clad No-insulation All-REBCO NMR Magnet in Development**

10:30-11:00

SangGap Lee<sup>1</sup>, Seungyong Hahn<sup>2,3</sup>, Jaemin Kim<sup>4</sup>, Jae Young Jang<sup>1</sup>, Young Jin Hwang<sup>1</sup>, Jun Hee Han<sup>1</sup>, Hunju Lee<sup>4</sup>, Sehwan In<sup>5</sup>, Hankil Yeom<sup>5</sup>, Min Cheol Ahn<sup>6</sup><sup>1</sup>*Korea Basic Science Institute, Korea*, <sup>2</sup>*Seoul National University, Korea*, <sup>3</sup>*National High Magnetic Field Laboratory, USA*, <sup>4</sup>*SuNAM Co., Ltd., Korea*, <sup>5</sup>*Korea Institute of Machinery & Materials, Korea*, <sup>6</sup>*Kunsan National University, Korea***S11-0968 Ferromagnetic Shimming of a High Temperature Superconducting Magnet for NMR Applications**

11:00-11:30

Min Cheol Ahn<sup>1</sup>, Hongmin Yang<sup>1</sup>, Jae Young Jang<sup>2</sup>, Young Jin Hwang<sup>2</sup>, SangGap Lee<sup>2</sup><sup>1</sup>*Kunsan National University, Korea*, <sup>2</sup>*Korea Basic Science Institute, Korea***S11-0858 AC Loss Analysis of Superconducting Coil Wound with High Temperature Superconducting Conductor on Round Core (CORC)**

11:30-12:00

Woo-Seok Kim<sup>1</sup>, Ji-Kwang Lee<sup>2</sup>, Seyeon Lee<sup>1</sup>, Kyeongdal Choi<sup>1</sup><sup>1</sup>*Korea Polytechnic University, Korea*, <sup>2</sup>*Woosuk University, Korea***G7-1. Soft/Hard Magnetic Materials and Their Applications**

June 6 (Wed.)

Ballroom 4 (2F)

**Chairs**

Masahiro Yamaguchi (Tohoku University, Japan)

Wooyoung Lee (Yonsei University, Korea)

**G7-1241 Hexaferrite Composite Sheet to be Embedded in IC Chip for SHF-range Noise Suppression**

09:00-09:30

Ranajit Sai, Mitsuharu Sato, Yasunori Miyazawa, Akihiro Takahashi, Masahiro Yamaguchi**INVITED***Tohoku University, Japan***G7-1085 Sensor Application of Inverse Magnetostriction Effect of Soft Magnetostrictive Film**

09:30-10:00

Shuichiro Hashi, Yuito Kubo, Kaoru Arai, Kazushi Ishiyama**INVITED***Tohoku University, Japan***G7-1041 Magnetic Domain Observation of Permanent Magnet with a Kerr Microscope**

10:00-10:30

Masaki Takezawa, Hiroyuki Taneda, Yuji Morimoto**INVITED***Kyushu Institute of Technology, Japan***G7-1766 Effects of Pre-annealing of Initial Alloy on Microstructure and Magnetic Properties of Nd-Fe-B HDDR Powder during Hot-deformation**

10:30-10:45

Jae-Gyeong Yoo<sup>1</sup>, Youn-Kyoung Baek<sup>1</sup>, Dongyun Lee<sup>2</sup>, Hee-Ryong Cha<sup>3</sup>, Hae-Woong Kwon<sup>4</sup>, Jung-Goo Lee<sup>1</sup><sup>1</sup>*Korea Institute of Materials Science, Korea*, <sup>2</sup>*Pusan National University, Korea*, <sup>3</sup>*National Institute of Advanced Industrial Science and Technology, Japan*, <sup>4</sup>*Pukyong National University, Korea*

**G7-1685** Novel High Coercivity Fe<sub>16-x</sub>Al<sub>x</sub>N<sub>2</sub> Alloy10:45-11:00 [Jinho Byun](#)<sup>1</sup>, Taewon Min<sup>1</sup>, Young-Kyoung Baek<sup>2</sup>, HyoungJeen Jeon<sup>1</sup>, Jaekwang Lee<sup>1</sup><sup>1</sup>Pusan National University, Korea, <sup>2</sup>Korea Institute of Materials Science, Korea**G7-1600** Study on Magnetic Force Calculation of Spherical Permanent Magnets11:00-11:15 [Yuyang Zhang](#), Yonggang Leng, Dan Tan, Jinjun Liu

Tianjin University, China

**G7-1555** A Facile Synthesis of High-coercivity Iron Oxides via an Aerosol Based Route11:15-11:30 [Youn-Kyoung Baek](#), Jung-Goo Lee, Su Gyeong Kim, Young Ju Park

Korea Institute of Materials Science, Korea

**G7-1130** The Effects of Fe-/Ni-doping on the Magnetic Properties of MnBi11:30-11:45 [Yang Yang](#)<sup>1,2</sup>, Pingzhan Si<sup>1</sup>, Jong-Woo Kim<sup>1</sup>, Huidong Qian<sup>1</sup>, Xinyou Wang<sup>1</sup>, Jihoon Park<sup>1</sup>, Chul-Jin Choi<sup>1</sup><sup>1</sup>Korea Institute of Materials Science, Korea, <sup>2</sup>China Jiliang University, China**G7-1069** Electronic Structures of New Nanocrystalline Fe-Co-B-P-Cu Soft Magnet11:45-12:00 [Minyeong Choi](#)<sup>1</sup>, Yang-Ki Hong<sup>1</sup>, Woncheol Lee<sup>1</sup>, Hoyun Won<sup>1</sup>, Seok Bae<sup>2</sup>, Dong-Hyuk Choi<sup>2</sup>, Seong-Gon Kim<sup>3</sup>, Myung-Hwa Jung<sup>4</sup><sup>1</sup>The University of Alabama, USA, <sup>2</sup>LG Innotek, Korea, <sup>3</sup>Mississippi State University, USA,<sup>4</sup>Sogang University, Korea**G7-0828** Structure and Magnetic Properties of Bulk Nanocrystalline MnAl–C Magnets Prepared from Mn Nanoparticles12:00-12:15 [Huidong Qian](#)<sup>1,2</sup>, Pingzhan Si<sup>1</sup>, Jihoon Park<sup>1</sup>, Yang Yang<sup>1</sup>, Xinyou Wang<sup>1</sup>, Kyung Mox Cho<sup>2</sup>, Chuljin Choi<sup>1</sup><sup>1</sup>Korea Institute of Materials Science, Korea, <sup>2</sup>Pusan National University, Korea**G7-1316** Magnetic Nanoparticles Based on Transition Metals: Synthesis and Hard Magnetic Properties12:15-12:30 [Nguyen Hoang Luong](#), Nguyen Hoang Nam

University of Science, Vietnam National University, Hanoi, Vietnam

**G1-4. Spintronics**

June 6 (Wed.)

Tamra (8F)

**Chairs**

Luis E. Hueso (CIC nanoGUNE, Spain)

Tae Hee Kim (Ewha Womans University, Korea)

**G1-0869** Quantification of Spin Accumulation by Harmonics Hall Resistance Measurements09:00-09:30 [Wen Siang Lew](#), Feilong Luo

INVITED Nanyang Technological University, Singapore

**G1-1615** Anomalous Ettingshausen Effect in a Ferromagnetic FePt Thin Film09:30-10:00 [Takeshi Seki](#)<sup>1</sup>, Ryo Iguchi<sup>2</sup>, Koki Takanashi<sup>1</sup>, Ken-ichi Uchida<sup>2</sup>INVITED <sup>1</sup>Tohoku University, Japan, <sup>2</sup>National Institute for Materials Science, Japan

- G1-0199**    **Nontrivial Behaviors of Anomalous Nernst Effect in Ferromagnetic Thin Films**  
 10:00-10:15    Tsao-Chi Chuang, Po-Lung Su, Po-Hsun Wu, Ssu-Yen Huang  
*National Taiwan University, Taiwan*
- G1-0593**    **Ultrafast Magnetism and THz Spintronics**  
 10:15-10:45    Markus Münzenberg, Jakob Walowski  
**INVITED**    *Greifswald University, Germany*
- G1-1373**    **Interface-induced Spin Hall Magnetoresistance Enhancement in Pt-based Tri-layer Structure**  
 10:45-11:00    Jung-Chun-Andrew Huang  
*National Cheng Kung University, Taiwan*
- G1-0956**    **Negative Anisotropic Magnetoresistance by Interfacial Spin-orbit Coupling**  
 11:00-11:15    Dong-Soo Han<sup>1</sup>, Kyoung-Whan Kim<sup>1</sup>, Yuxiang Yin<sup>2</sup>, Kyujoon Lee<sup>1</sup>, Henk J. M. Swagten<sup>3</sup>, Jairo Sinova<sup>1</sup>,  
 Mathias Kläui<sup>1</sup>  
<sup>1</sup>Johannes Gutenberg Universität Mainz, Germany, <sup>2</sup>Eindhoven University of Technology, Netherlands,  
<sup>3</sup>Eindhoven University of Technology, Netherlands
- G1-0644**    **Spin Colossal Magnetoresistance**  
 11:15-11:30    Zhiyong Qiu  
*Dalian University of Technology, China*
- G1-0475**    **Fabrication of Sm-rich SmFe<sub>2</sub> Thin Films with Giant Negative Magnetostriction**  
 11:30-11:45    Masato Tomita, Yugo Ishitani, Shiori Ishiyama, Yota Takamura, Shigeki Nakagawa  
*Tokyo Institute of Technology, Japan*

## S9. Spin Dynamics

June 6 (Wed.)

Tamra (8F)

**Chair**    Hans Peter Oepen (University Hamburg, Germany)

- S9-0585**    **Supercurrents in Magnonic Macroscopic Quantum States**  
 14:30-15:00    Burkard Hillebrands  
*TU Kaiserslautern, Germany*
- S9-2054**    **Excitation and Control of Spin Waves Using Fano Resonances and Graded Magnonic Index**  
 15:00-15:30    Volodymyr Kruglyak<sup>1</sup>, Fedor Mushenok<sup>1</sup>, Carl Davies<sup>1</sup>, Yat-Yin Au<sup>1</sup>, Natalie Whitehead<sup>1</sup>,  
 Simon Horsley<sup>1</sup>, Tom Philbin<sup>1</sup>, Andrei Shytov<sup>1</sup>, René Dost<sup>2</sup>, Dan Allwood<sup>2</sup>, Beverley Inkson<sup>2</sup>,  
 Vlad Poimanov<sup>3</sup>, Andrey Kuchko<sup>4</sup>  
<sup>1</sup>University of Exeter, UK, <sup>2</sup>University of Sheffield, UK, <sup>3</sup>Donetsk National University, Ukraine,  
<sup>4</sup>Institute of Magnetism, Ukraine
- S9-1472**    **Hybridizing Ferromagnetic Magnons to Microwave Photons in Planar Hybrid Inverted Split-ring Resonator/YIG Film System**  
 15:30-16:00    Biswanath Bhoi, Bosung Kim, Junhoe Kim, Young-Jun Cho, Sang-Koog Kim  
*Seoul National University, Korea*



**S9-1334 High Frequency Dynamics of Artificial Spin Ice**

16:00-16:30 [Axel Hoffmann](#)<sup>1</sup>, Matthias B. Jungfleisch<sup>1</sup>, Wei Zhang<sup>2</sup>, Ezio Iacocca<sup>3</sup>, Joseph Sklenar<sup>4</sup>, Junjia Ding<sup>1</sup>, Wanjun Jiang<sup>5</sup>, Sheng Zhang<sup>1</sup>, Jung Sik Park<sup>4</sup>, John E. Pearson<sup>1</sup>, Valentine Novosad<sup>1</sup>, John B. Ketterson<sup>6</sup>, Peter Schiffer<sup>7</sup>, Olle Heinonen<sup>1</sup>

<sup>1</sup>Argonne National Laboratory, USA, <sup>2</sup>Oakland University, USA, <sup>3</sup>University of Colorado at Boulder, USA, <sup>4</sup>University of Illinois at Urbana-Champaign, USA, <sup>5</sup>Tsinghua University, China, <sup>6</sup>Northwestern University, USA, <sup>7</sup>Yale University, USA

**S9-0612 Skyrmion Dynamics – From Thermal Diffusion to Ultra-fast Motion**

16:30-17:00 [Mathias Klaeui](#)

Johannes Gutenberg University Mainz, Germany

**S9-1403 Skyrmion Dynamics in a Frustrated Ferromagnetic Film**

17:00-17:30 [Yan Zhou](#)

The Chinese University of Hong Kong, Hong Kong

## S7-2. Spin and Heat Conversion

June 6 (Wed.)

Halla (8F)

**Chair**

Jiang Xiao (Fudan University, China)

**S7-1348 Transverse Spin Nernst Magnetoresistance in Ferromagnet/Non-magnet Bilayers**

09:00-09:30 [Byong-Guk Park](#)

Korea Advanced Institute of Science and Technology, Korea

**S7-1339 Charge and Heat-spin Conversions in Spin Orbit Systems**

09:30-10:00 [Masamitsu Hayashi](#)<sup>1,2</sup>

<sup>1</sup>The University of Tokyo, Japan, <sup>2</sup>National Institute for Materials Science, Japan

**S7-1143 Strong Interlayer Magnon-magnon Coupling in YIG-based Ferromagnetic Nanostructures**

10:00-10:30 [Haiming Yu](#)

Beihang University, China

**S7-0785 Field-driven Antiferromagnetic Domain Wall Dynamics in Ferrimagnetic GdFeCo**

10:30-11:00 [Kab-Jin Kim](#)

Korea Advanced Institute of Science and Technology, Korea

**S7-0580 Optical Spin-orbit Torque Induced by Longitudinal Photo-spin Current**

11:00-11:30 [Gyungmin Choi](#)

Sungkyunkwan University, Korea

**S7-0381 Detection and Generation of Thermal Spin Current**

11:30-12:00 [Ssu-Yen Huang](#)

National Taiwan University, Taiwan

## S7-3. Magnetic Domain Walls and Skyrmions

June 6 (Wed.)

Halla (8F)

**Chair** Kab-Jin Kim (Korea Advanced Institute of Science and Technology, Korea)

### S7-0776 Measurement Schemes of Dzyaloshinskii-moriya Interaction Based on Domain-wall Dynamics in Ferromagnetic Thin Films

14:30-15:00

Dae-Yun Kim<sup>1</sup>, Duck-Ho Kim<sup>1</sup>, Yune-Seok Nam<sup>1</sup>, Soong-Geun Je<sup>1</sup>, Joo-Sung Kim<sup>1</sup>, Yong-Keun Park<sup>1,2</sup>, Min-Ho Park<sup>1</sup>, Hyun-Seok Hwang<sup>1</sup>, Byoung-Chul Min<sup>2</sup>, Sug-Bong Choe<sup>1</sup>

<sup>1</sup>Seoul National University, Korea, <sup>2</sup>Korea Institute of Science and Technology, Korea

### S7-1308 Correlation between Charge Asphericity and Dzyaloshinskii-moriya Interaction

15:00-15:30

Sanghoon Kim

Kyoto University, Japan

### S7-0698 Experimental Observation of Chiral Magnetic Bobbers in B20-type FeGe

15:30-16:00

Haifeng Du<sup>1</sup>, Fengshan Zheng<sup>2</sup>, Philipp N. Rybakov<sup>3</sup>, Aleksandr B. Borisov<sup>4</sup>, Dongsheng Song<sup>5</sup>, Shasha Wang<sup>1</sup>, Zi-An Li<sup>2</sup>, Nikolai S. Kiselev<sup>6</sup>, Jan Caron<sup>2</sup>, András Kovács<sup>2</sup>, Mingliang Tian<sup>1</sup>, Yuheng Zhang<sup>1</sup>, Stefan Blügel<sup>6</sup>, Rafal E. Dunin-Borkowski<sup>2</sup>

<sup>1</sup>High Magnetic Field Laboratory, Chinese Academy of Science, <sup>2</sup>Forschungszentrum Jülich, Germany, <sup>3</sup>KTH-Royal Institute of Technology, Sweden, <sup>4</sup>M.N. Miheev Institute of Metal Physics of Ural Branch of Russian Academy of Sciences, Russia, <sup>5</sup>Tsinghua University, China, <sup>6</sup>Forschungszentrum Jülich and JARA, Germany

### S7-0636 Electrical Field Induced Directional Motion of Skyrmionic Bubbles in a Micro-racetrack

16:00-16:30

Xiaoxi Liu

Shinshu University, Japan

### S7-0602 Topological Manipulation of Magnetic Skyrmions at Room Temperature

16:30-17:00

Seonghoon Woo

Korea Institute of Science and Technology, Korea

### S7-0597 Self-feedback of Magnetization Dynamics in Chiral Magnets

17:00-17:30

Kyoung-Whan Kim<sup>1</sup>, Hyun-Woo Lee<sup>2</sup>, Kyung-Jin Lee<sup>3,4</sup>, Karin Everschor-Sitte<sup>1</sup>, Olena Gomony<sup>1</sup>, Jairo Sinova<sup>1</sup>

<sup>1</sup>Johannes Gutenberg Universität Mainz, Germany, <sup>2</sup>Pohang University of Science and Technology, Korea, <sup>3</sup>Korea University, Korea, <sup>4</sup>KU-KIST Graduate School of Converging Science and Technology, Korea University, Korea

## G8-1. Energy Applications of Magnetic Materials

June 6 (Wed.)

Ara (8F)

**Chairs** Yunchong Wang (Zhejiang University, China)  
Shanming Wang (Tsinghua University, China)

### G8-1620 Refunction Techniques of Electrical Steel Sheets for High Efficiency Motors

09:00-09:30

Yuji Tsuchida<sup>1</sup>, Masato Enokizono<sup>2</sup>

INVITED

<sup>1</sup>Oita University, Japan, <sup>2</sup>Vector Magnetic Characteristic Technical Laboratory, Japan

- G8-0664**    **Magnetic Properties of Soft Magnetic Materials with Motor Control Excitation**  
 09:30-10:00    Kyyoul Yun  
 INVITED    *Gifu University, Japan*
- G8-1862**    **Comparative Study on Single Pulse and Dual Pulses Variable Width Control Strategies for High-speed PM BLDC Motor Drive**  
 10:00-10:15    Jian-Xin Shen, Xue-Fei Qin, Ke-Ke Zhang, Ting Han  
*Zhejiang University, China*
- G8-1592**    **Design and Analysis of a Split-stator 2DoF Submerged Drilling Motor**  
 10:15-10:30    Lujia Xie<sup>1,2</sup>, Yihua Hu<sup>1</sup>, Jikai Si<sup>2</sup>, Kai Ni<sup>1</sup>  
<sup>1</sup>University of Liverpool, UK, <sup>2</sup>Henan Polytechnic University, China
- G8-1123**    **Spin Seebeck Effect in a Pt/bulk-YIG Structure Fabricated by a Sol-gel Method**  
 10:30-10:45    Min-Sun Jang, Ki-Suk Lee  
*Ulsan National Institute of Science and Technology, Korea*
- G8-2118**    **Magnetic Field Distribution Analysis and Metal Magnetic Memory(MMM) Testing Results around Artificial Cracks under Loads**  
 10:45-11:00    Gye-jo Jung, Su-ji Han, Young-min Lee  
*Korea Electric Power Research Institute, Korea*
- G8-1874**    **Vibration Reduction of Large and Low-speed Motor by Structure Optimization**  
 11:00-11:15    Liu Hailong  
*Wuhan University, China*
- G8-1845**    **Loss and Thermal Characteristic of Cage Asynchronous Motor under Different Operating Conditions**  
 11:15-11:30    Shuye Ding, Xin Jiang, Min Zhu, Zhenya Zhang  
*Nanjing Normal University, China*

## Vietnam Magnetics Society – International Cooperation for Further Development

16:00-17:30, June 6 (Wed.)

Ara (8F)

**Organizer**    Nguyen Huu Duc (Vietnam National University, Vietnam)

To introduce the Vietnam Magnetics Society and its members and encourage cooperation opportunities, It will include presentations:

- General Introduction about VMS
- VMS Oversea
- Activities of VMS in Hanoi
- Activities of VMS in Ho Chi Minh city

## G6-1. Novel Magnetic Phenomena

June 6 (Wed.)

Ora (8F)

**Chairs** Volodymyr Chernenko (BCMaterials & University of the Basque Country, Spain)  
Jinhwan Lee (Korea Advanced Institute of Science and Technology, Korea)

### G6-0934 Electric Field Control of Perpendicular Magnetic Anisotropy in Multiferroic Heterostructures

09:00-09:30 Tomoyasu Taniyama**INVITED** *Nagoya University, Japan*

### G6-0157 Ferromagnetic Shape Memory Effect in NiMnGa/Polymer Composites

09:30-10:00 Volodymyr Chernenko<sup>1,2</sup>, Pimpet Sratongon<sup>2</sup>, Hideki Hosoda<sup>2</sup>**INVITED** <sup>1</sup>BCMaterials & University of the Basque Country, Spain, <sup>2</sup>Tokyo Institute of Technology, Japan

### G6-1545 Electric Field Effect on Magnetism in Co/Pt Bilayers

10:00-10:30 Daichi Chiba**INVITED** *The University of Tokyo, Japan*

### G6-1617 Control of Magnetoelectric Coupling at Room Temperature by Spin Anisotropy and Frustration in the Co<sub>2</sub>Y-type Hexaferrite Single Crystals

10:30-10:45 Chang Bae Park, Kee Hoon Kim*Seoul National University, Korea*

### G6-0966 Magnetic and Magnetocaloric Behaviors in Gd<sub>50</sub>Al<sub>25</sub>Co<sub>25</sub>/FeNi Core/Shell Structured Microwires

10:45-11:00 Duc Thi My Nguyen<sup>1,2</sup>, Manh-Huong Phan<sup>2</sup><sup>1</sup>Hanoi National University, Vietnam, <sup>2</sup>University of South Florida, USA

### G6-1515 Charge Ordering, Ferroelectric, and Magnetic Domains in LuFe<sub>2</sub>O<sub>4</sub> Observed by Scanning Probe Microscopy

11:00-11:15 Yoon Hee Jeong*Pohang University of Science and Technology, Korea*

### G6-0202 Glassy Dynamics of Single Crystalline M-type Lead Substituted Barium Hexaferrite Ba<sub>0.3</sub>Pb<sub>0.7</sub>Fe<sub>12</sub>O<sub>19</sub>

11:15-11:30 Liudmila Alyabyeva<sup>1</sup>, Victor Torgashev<sup>2</sup>, Elena Zhukova<sup>1</sup>, Denis Vinnik<sup>3</sup>, Anatoliy Prokhorov<sup>1,4</sup>,Svetlana Gudkova<sup>1,3</sup>, David Rivas Góngora<sup>5</sup>, Tomislav Ivek<sup>5</sup>, Silvia Tomić<sup>5</sup>, Nikolina Novosel<sup>5</sup>,Damir Starešinić<sup>5</sup>, Damir Dominko<sup>5</sup>, Zvonko Jagličić<sup>6</sup>, Martin Dressel<sup>1,7</sup>, Boris Gorshunov<sup>1</sup><sup>1</sup>Moscow Institute of Physics and Technology, Russia, <sup>2</sup>Southern Federal University, Russia, <sup>3</sup>South UralState University, Russia, <sup>4</sup>A.M. Prokhorov General Physics Institute, Russia, <sup>5</sup>Institut za fiziku, Croatia,<sup>6</sup>University of Ljubljana, Slovenia, <sup>7</sup>Universitat Stuttgart, Germany

## G6-2. Novel Magnetic Phenomena

June 6 (Wed.)

Ora (8F)

### Chairs

Hiromi Yuasa (Kyushu University, Japan)  
Yoon Hee Jeong (Pohang Univ of Science and Technology, Korea)

### G6-1514 Controlling Superconductivity with Spin Currents

14:30-15:00 [Jinhwan Lee](#)

INVITED *Korea Advanced Institute of Science and Technology, Korea*

### G6-1948 From Electronics to Straintronics and Low-energy Memory Devices

15:00-15:30 [Huu Duc Nguyen](#), Thi Huong Giang Do

INVITED *University of Engineering and Technology, Vietnam National University, Hanoi, Vietnam*

### G6-1873 Spin Seebeck Voltage Enhancement by Inserted Layers between YIG and Nonmagnetic Layers

15:30-16:00 [Hiromi Yuasa](#)<sup>1,2</sup>

INVITED <sup>1</sup>Kyushu University, Japan, <sup>2</sup>JST PRESTO, Japan

### G6-0807 Electrical Control of Unidirectional Anisotropy in Exchange Biased AFM/FM Bilayers by Piezoelectric Strains

16:00-16:15 [Hyun-Joong Kim](#), Jung-Il Hong

*Daegu Gyeongbuk Institute of Science and Technology, Korea*

### G6-0392 Electric Field Control of Magnetic and Transport Properties at the Interfaces of 3d Transition Metals and MgO Substrates

16:15-16:30

[Abdul Muizz Pradipto](#), Toru Akiyama, Tomonori Ito, Kohji Nakamura  
*Mie University, Japan*

### G6-1053 Magnetic and Thermal Properties of a New One-dimensional Antiferromagnetic Chain Compounds NiTe<sub>2</sub>O<sub>5</sub>

16:30-16:45

Junhan Lee<sup>1</sup>, Marie Kratochvílová<sup>2</sup>, Zahra Yamani<sup>3</sup>, Daehwan Park<sup>1</sup>, Hong Eun Choi<sup>1</sup>, Je-Geun Park<sup>2</sup>,  
[Yoon Seok Oh](#)<sup>1</sup>

<sup>1</sup>Ulsan National Institute of Science and Technology, Korea, <sup>2</sup>Seoul National University, Korea,

<sup>3</sup>Canadian Neutron Beam Centre, Canada

### G6-1624 Gd-doped BiFeO<sub>3</sub> Single-crystalline Nanowires: Phase Transition from R3c to Pn2<sub>1</sub>a and Ferromagnetic Enhancement in High-coercivity

16:45-17:00

[Sandeep Patel](#)<sup>1,2</sup>, Jae-Hyeok Lee<sup>2</sup>, Min-Kwan Kim<sup>2</sup>, Biswanath Bhoi<sup>2</sup>, Sang-Koog Kim<sup>2</sup>

<sup>1</sup>S.R.P.S.College Muzaffarpur, India, <sup>2</sup>Seoul National University, Korea

June 7, 2018 (Thur.)

Oral Session

## S12. Soft Magnetic Materials

June 7 (Thur.)

Ballroom 2 (2F)

**Chair** Haein Yim (Sookmyung Women's University, Korea)

**S12-1379** Nanocrystallization of Fe-base Alloys under Tensile Stress

09:00-09:30 Giselher Herzer  
VACUUMSCHMELZE GmbH & Co. KG, Germany

**S12-2018** Development of New Rapidly Quenched Bilayer Ribbons with Tailorable Soft Magnetic Properties

09:30-10:00 Ivan Skovranek<sup>1</sup>, Branislav Kunca<sup>1</sup>, Frantisek Andrejka<sup>1</sup>, Peter Svec<sup>2</sup>, Jozef Marcin<sup>1</sup>, Peter Svec Sr.<sup>2</sup>  
<sup>1</sup>Institute of Experimental Physics, Slovak Academy of Sciences, Slovakia, <sup>2</sup>Institute of Physics, Slovak Academy of Sciences, Slovakia

**S12-1780** Fe-based Nanocrystalline Alloys with High Bs for High-current/High-efficiency Power Inductor

10:00-10:30 Sang-Kyun Kwon, Han-Wool Ryu, Byong-Cheol Moon, Chang-Hak Choi  
Samsung Electro-Mechanics Co., Ltd., Korea

**S12-2017** Recent Development of Non-oriented Electrical Steel Sheet for Eco-friendly Vehicles in POSCO

10:30-11:00 Jaesong Kim, Jong-Tae Park  
POSCO, Korea

**S12-2063** Application of Non-metal Doped Magnetic Oxide Nanomaterials in High Efficient Magnetically Recyclable Visible Light Photocatalysts

11:00-11:30 Chunli Liu, Yuefa Jia  
Hankuk University of Foreign Studies, Korea

**S12-2074** High Performance Soft Magnetic Materials for Motors, Inductors, Charging, and Speaker Applications

11:30-12:00 Jaydip Das, Tapan Shah, Chins Chinnasamy, Eric Fitterling, Sam Kernion, Ned Galka  
Carpenter Technology Corporation, USA

## S10. Smart Control of Ferroic Orders, Vortices and Topology

June 7 (Thur.)

Ballroom 3 (2F)

**Chair** Kee Hoon Kim (Seoul National University, Korea)

**S10-1962** Multiferroics and Electric Activity of Different Magnetic Textures

09:00-09:30 Daniel Khomskii  
Koeln University, Germany

**S10-0786** Nonreciprocal Propagation of Microwaves, Magnons, and Acoustic Waves in Noncentrosymmetric Magnets

09:30-10:00 Yoshinori Onose  
Tohoku University, Japan

- S10-0687** Van der Waals Heteroepitaxy for Flexible Spintronic Applications  
 10:00-10:30 Ying-Hao Chu  
*National Chiao Tung University, Taiwan*
- S10-0610** Contrasting Magnetoelectric Behavior in Multiferroic Hexaferrites as Understood by Crystal Symmetry Analyses  
 10:30-11:00 Yisheng Chai<sup>1,2</sup>, SaeHwan Chun<sup>2</sup>, Junzhuang Cong<sup>3</sup>, Keehoon Kim<sup>2</sup>  
<sup>1</sup>Chongqing University, China, <sup>2</sup>Seoul National University, Korea, <sup>3</sup>Institute of Physics, Chinese Academy of Sciences, China
- S10-0576** Configurable Topological Multiferroic Textures and Winding Number Analysis  
 11:00-11:30 Chan-Ho Yang  
*Korea Advanced Institute of Science and Technology, Korea*

## G7-2. Soft/Hard Magnetic Materials and Their Applications

June 7 (Thur.)

Ballroom 4 (2F)

### Chairs

Takashi Hasegawa (Akita University, Japan)  
 Hae-Woong Kwon (Pukyong National University, Korea)

- G7-0947** First-order Reversal Curve (FORC) Analysis on Nd-Fe-B Magnets  
 09:00-09:30 Satoshi Okamoto, Kazunori Miyazawa, Takahiro Yomogita, Nobuaki Kikuchi, Osamu Kitakami  
 INVITED *Tohoku University, Japan*

- G7-0791** Uniaxial Magnetic Anisotropy of Tetragonally Distorted FeCo-based Alloy Films  
 09:30-10:00 Takashi Hasegawa, Masato Sakamoto, Takuya Niibori, Yasuko Nakamura, Mitsuki Oikawa,  
 INVITED Yusuke Takemasa, Daichi Yamamoto  
*Akita University, Japan*

- G7-0631** Issues and Solutions of Magnetic Cores Comprising Fe-Cu-Mo-Si-B High Bs Nanocrystalline Alloy Ribbon  
 10:00-10:30 Motoki Ohta<sup>1</sup>, Ryusuke Hasegawa<sup>2</sup>  
 INVITED <sup>1</sup>Hitachi Metals, Ltd., Japan, <sup>2</sup>Metglas® Inc., USA

- G7-0799** Improving the Magnetic Properties of Nd<sub>9.5</sub>Fe<sub>76</sub>Co<sub>5</sub>Ti<sub>3</sub>B<sub>6.5</sub> Permanent Alloys via Magnetic Field Annealing  
 10:30-10:45 Xueling Hou, Bing Bin, Jianxin Wang, Xiaochen Wang, Lingfeng Xu, Hui Xu  
*Shanghai University, China*

- G7-0661** Computational Materials Science with Special Emphasis on Magnetic Materials  
 10:45-11:00 Yang-ki Hong<sup>1</sup>, Minyeong Choi<sup>1</sup>, Hoyun Won<sup>1</sup>, Woncheol Lee<sup>1</sup>, Chang-Dong Yeo<sup>2</sup>, Bae Seok<sup>3</sup>,  
 Sumin Kim<sup>4</sup>, Wooyoung Lee<sup>4</sup>  
<sup>1</sup>The University of Alabama at Tuscaloosa, USA, <sup>2</sup>Texas Tech University, USA, <sup>3</sup>LG Innotek, Korea,  
<sup>4</sup>Yonsei University, Korea

**G7-0618** Ab-Initio Simulation of Ga-doped Nd-Fe-B Magnets

11:00-11:15 [Yasutomi Tatetsu](#), Yoshihiro Gohda  
Tokyo Institute of Technology, Japan

**G7-0559** Synthesis of Nd-Pr-Fe-B Particles from Solution Obtained by Leaching of Monazite Ores

11:15-11:30 [Syed Kamran Haider](#)<sup>1,2,3</sup>, Vitalli Galkin<sup>1,4</sup>, Young Soo Kang<sup>3</sup>, Dongsoo Kim<sup>1,2</sup>  
<sup>1</sup>Korea Institute of Geoscience and Mineral Resources, Korea, <sup>2</sup>Korea Institute of Materials Science, Korea,  
<sup>3</sup>Sogang University, Korea, <sup>4</sup>Peter the Great Saint Petersburg Polytechnic University, Russia

**G7-0396** Synthesis, Microstructure and Magnetic Properties of Ti doped Fe-6.5wt%Si Soft Magnetic Composites

11:30-11:45 [Jian Wang](#)<sup>1,2</sup>, Xin Liu<sup>1,2</sup>  
<sup>1</sup>Guangdong Institute of Materials and Processing, Guangdong Academy of Sciences, China,  
<sup>2</sup>National Engineering Research Center of Powder Metallurgy of Titanium & Rare Metals, China

**G7-0317** Effect of Annealing Temperature on Crystal Structure and Magnetic Properties of CoZnFe<sub>2</sub>O<sub>4</sub> Magnetic Nanoparticles

11:45-12:00 [Heri Kiswanto](#)<sup>1</sup>, Edi Suharyadi<sup>1</sup>, Takeshi Kato<sup>2</sup>, Satoshi Iwata<sup>2</sup>  
<sup>1</sup>Universitas Gadjah Mada, Indonesia, <sup>2</sup>Nagoya University, Japan

**G7-0287** Crystal Structures and Magnetic Properties of Silica-encapsulated CoZnFe<sub>2</sub>O<sub>4</sub> Magnetic Nanoparticles

12:00-12:15 [La Ode Rusman](#)<sup>1</sup>, Heri Kiswanto<sup>1</sup>, Amjad Tri Puspitasari<sup>1</sup>, Edi Suharyadi<sup>1</sup>, Takeshi Kato<sup>2</sup>, Satoshi Iwata<sup>2</sup>  
<sup>1</sup>Universitas Gadjah Mada, Indonesia, <sup>2</sup>Nagoya University, Japan

**G7-0655** Domain Wall Parameters in (Pr,Dy)(FeCo)B Sintered Magnets

12:15-12:30 [Ekaterina Igorevna Kunitsyna](#)<sup>1,2</sup>, Victor Kucheryaev<sup>3</sup>, Dmitriy Korolev<sup>3</sup>, Vadim Piskorskii<sup>3</sup>,  
Ruslan Valeev<sup>3</sup>, Oksana Koplak<sup>1</sup>, Roman Morgunov<sup>1,2</sup>  
<sup>1</sup>Institute of Problems of Chemical Physics, Russia, <sup>2</sup>Tambov State Technical University, Russia,  
<sup>3</sup>Institute of Aviation Materials, Russia

## G4. Magnetization Dynamics

June 7 (Thur.)

Tamra (8F)

**Chair** Gyung-Min Choi (Sungkyunkwan University, Korea)

**G4-2011** Ultrafast Magnetization Switching and Ultrafast Spin Dependent Phenomena

09:00-09:30 [Arata Tsukamoto](#)  
**INVITED** Nihon University, Japan

**G4-1399** Edge-mode Spin-wave Nonreciprocity for Magnonic Logic Functions

09:30-10:00 [Koji Sekiguchi](#)  
**INVITED** Keio University, Japan

**G4-0204** Interfacial Phenomena in Ferromagnetic/Non-magnetic Thin-films: Damping, Spin-mixing Conductance, DMI and Proximity Induced Magnetisation

10:00-10:30 [Del Atkinson](#)  
**INVITED** Durham University, UK



- G4-0230**    **Large Modulation of Magnetic Vortex Dynamic Properties in Square Shape Ferromagnetic Dots**  
 10:30-10:45    [Xiaomin Cui](#)<sup>1</sup>, Satoshi Yakata<sup>2</sup>, Takashi Kimura<sup>3</sup>  
<sup>1</sup>Northwestern Polytechnical University, China, <sup>2</sup>Fukuoka Institute of Technology, Japan, <sup>3</sup>Kyushu University, Japan
- G4-0951**    **Finding the Spinwave Eigenmodes of Patterned Magnetic System**  
 10:45-11:00    [Indra Purnama](#), Chun-Yeol You  
 Daegu Gyeongbuk Institute of Science and Technology, Korea
- G4-0761**    **Fast and Efficient STT Switching in MTJ Using Additional Transient Pulse Current**  
 11:00-11:15    [Sachin Pathak](#), Jongin Cha, Kangwook Jo, Hongil Yoon, Jongill Hong  
 Yonsei University, Korea
- G4-1006**    **The 3D Spin-wave Modes of the Magnetic Vortex in a Thick Circular Nanodisk**  
 11:15-11:30    [Hee-Sung Han](#), Sooseok Lee, Dae-Han Jung, Namkyu Kim, Ki-Suk Lee  
 Ulsan National Institute of Science and Technology, Korea
- G4-1475**    **Intrinsic Spin-wave Modes and Domain-wall Motions in Soft Magnetic Nanotubes Driven by Circular-rotating Magnetic Fields**  
 11:30-11:45    [Jaehak Yang](#), Junhoe Kim, Bosung Kim, Young-Jun Cho, Jae-Hyeok Lee, Sang-Koog Kim  
 Seoul National University, Korea
- G4-1469**    **Nutation-like-mode Excitation of Coupled Vortex Cores in Magnetic Spherical Shells**  
 11:45-12:00    [Jae-Hyeok Lee](#), Junhoe Kim, Min-Kwan Kim, Jaegun Sim, Sang-Koog Kim  
 Seoul National University, Korea
- G4-1473**    **Coupled Breathing Modes in One- and Two-dimensional Skyrmion Lattices**  
 12:00-12:15    [Junhoe Kim](#), Jaehak Yang, Young-Jun Cho, Jong-Hyuk Lee, Bosung Kim, Sang-Koog Kim  
 Seoul National University, Korea

## S7-4. Spin and Charge Conversion

June 7 (Thur.)

Halla (8F)

Chair

Sanghoon Kim (University of Ulsan, Korea)

- S7-0837**    **Spin and Orbital Hall Effect from Orbital-dependent Level Splitting**  
 09:00-09:30    Dongwook Go<sup>1</sup>, Changyoung Kim<sup>2</sup>, [Hyun-Woo Lee](#)<sup>1</sup>  
<sup>1</sup>Pohang University of Science and Technology, Korea, <sup>2</sup>Seoul National University, Korea
- S7-0816**    **Magneto-electric Control of Antiferromagnetic Domain**  
 09:30-10:00    [Yu Shiratsuchi](#)<sup>1</sup>, Thi Van Anh Nguyen<sup>1</sup>, Kentaro Toyoki<sup>2</sup>, Yohinori Kotani<sup>2</sup>, Tetsuya Nakamura<sup>2</sup>, Ryoichi Nakatani<sup>1</sup>  
<sup>1</sup>Osaka University, Japan, <sup>2</sup>Japan Synchrotron Radiation Research Institute, Japan
- S7-0804**    **Spintronics at Ferromagnet-topological Insulator Interface**  
 10:00-10:30    [Wei Han](#)  
 Peking University, China

- S7-0630** Efficient Charge-spin Interconversion Phenomena in Various Nonmagnetic Metal/Oxide Interfaces  
10:30-11:00  
Kouta Kondou<sup>1</sup>, Hanshen Tsai<sup>2</sup>, YoshiChika Otani<sup>1,2</sup>  
<sup>1</sup>RIKEN, Japan, <sup>2</sup>University of Tokyo, Japan
- S7-0592** From Nano-sized, Micron-Sized, to Un-Patterned Samples: Spin-Orbit Torque Characterization Made Easy  
11:00-11:30  
Chi-Feng Pai  
National Taiwan University, Taiwan
- S7-0976** Efficient Magnetization Switching by AC Spin-orbit Torques  
11:30-12:00  
Gyungchoon Go<sup>1</sup>, Seung-Jae Lee<sup>2</sup>, Kyung-Jin Lee<sup>1,2</sup>  
<sup>1</sup>Korea University, Korea, <sup>2</sup>KU-KIST Graduate School of Converging Science and Technology, Korea University, Korea

## G8-2. Energy Applications of Magnetic Materials

June 7 (Thur.)

Ara (8F)

- Chairs** Yunchong Wang (Zhejiang University, China)  
Shanming Wang (Tsinghua University, China)
- G8-1448** Numerical Calculation of Stator End Leakage Reactance of Permanent Magnet Machines with Concentric Winding  
09:00-09:15  
Xiaoqin Zheng, Xinzhen Wu, Ronggang Ni  
Qingdao University, China
- G8-1423** Design and Analysis of a New Dual-permanent-magnet-excited Machine for Low-speed Large-torque Applications  
09:15-09:30  
Yujun Shi, Linni Jian, Jin Wei  
Southern University of Science and Technology, China
- G8-1789** Research on the Operating Performance of Cryogenic Permanent Magnet Synchronous Motor Submerged in Liquefied Natural Gas  
09:30-09:45  
Chao Guo, Shuodao Huang, Jiabao Wang, Yaojing Feng  
Hunan University, China
- G8-1703** MPPT of Low-grade Waste Energy ORC Power Generation with Turbo-expander Permanent Magnet Synchronous Generator under Disturbance Energy  
09:45-10:00  
Jiabao Wang, Shuodao Huang, Chao Guo  
Hunan University, China
- G8-1671** High-speed PM BLDC Motor Drive with Various PWM Strategies  
10:00-10:15  
Jian-Xin Shen, Ke-Ke Zhang, Xue-Fei Qin, Ting Han  
Zhejiang University, China

- G8-1605**    **Dynamic Magnetic-coupling Effect of Two-degrees-of-freedom Direct Drive Induction Motor**  
 10:15-10:30    Jikai Si<sup>1</sup>, [Peixin Wang](#)<sup>1</sup>, Wei Hua<sup>2</sup>, Yihua Hu<sup>3</sup>, Haichao Feng<sup>1</sup>  
*<sup>1</sup>Henan Polytechnic University, China, <sup>2</sup>Southeast University, China, <sup>3</sup>University of Liverpool, UK*
- G8-1590**    **Comparison of Primary Wound Field Flux-switching Linear Motors with Different Stator and Mover Pole Pitches**  
 10:30-10:45    Yi Jin, [Ruiwu Cao](#), Ning Jiang  
*Nanjing University of Aeronautics and Astronautics, China*
- G8-1825**    **Quantitative Discrimination of Uniform Eccentricity in Wound Rotor Induction Motor**  
 10:45-11:00    Yang Zhou, Xiaohua Bao, [Wei Xu](#)  
*Hefei University of Technology, China*
- G8-1706**    **Electromagnetic Vibration Analysis and Reduction of Inverted-fed Motor**  
 11:00-11:15    [Liu Hailong](#)  
*Wuhan University, China*
- G8-1835**    **Thermal Investigation for Surface Permanent Magnet Synchronous Motors Based on Lumped-parameter Thermal-network**  
 11:15-11:30    [Shuye Ding](#)<sup>1</sup>, Min Zhu<sup>1</sup>, Xin Jiang<sup>1</sup>, Zhenya Zhang<sup>1</sup>, Shuhua Fang<sup>2</sup>  
*<sup>1</sup>Nanjing Normal University, China, <sup>2</sup>Southeast University, China*

## G1-1. Spintronics

16:30-18:00, June 4 (Mon.)

Lobby (8F)

Chair Seung-Young Park (Korea Basic Science Institute, Korea)

**G1-1171 Electrical Transport along the Surface of InAs Nanowire**Taeyueb Kim<sup>1</sup>, Jeehoon Jeon<sup>2,3</sup>, Sangsu Kim<sup>2</sup>, Sungjung Joo<sup>1</sup>, Min Hyeok Jo<sup>4</sup>, Jae Cheol Shin<sup>4</sup>, Jinki Hong<sup>2</sup><sup>1</sup>Korea Research Institute of Standards and Science, Korea, <sup>2</sup>Korea University, Korea, <sup>3</sup>Korea Institute of Science and Technology, Korea, <sup>4</sup>Yeungnam University, Korea**G1-1175 Manipulation of Incoherent Spin Current in Lateral Spin Valves**Shaojie Hu<sup>1</sup>, Xiaomin Cui<sup>2</sup>, Tai Min<sup>1</sup>, Takashi Kimura<sup>3</sup><sup>1</sup>Xi'an Jiaotong University, China, <sup>2</sup>Northwestern Polytechnical University, China, <sup>3</sup>Kyushu University, Japan**G1-1264 Terahertz Time-domain Spectroscopy Study of Ferromagnetic Thin Films**Lin Huang<sup>1</sup>, Dong-Hyun Kim<sup>1</sup>, Sang-Hyuk Lee<sup>1</sup>, Seon-Dae Kim<sup>1</sup>, Jaehun Park<sup>2</sup><sup>1</sup>Chungbuk National University, Korea, <sup>2</sup>Pohang University of Science and Technology, Korea**G1-1266 Detection Magnetism State of Permalloy Wire Used Inverse Spin Hall Effect**Kao-Fan Lai, Chun-chia Chang, Ning-Fang Liang, Deng-Shiang Shiu, Lance Horng

National Changhua University of Education, Taiwan

**G1-1503 Memristive Behavior of Field-driven Domain Wall Motion in Multiple Hall Bar Structures**Hee-Kyeong Hwang, Jaesuk Kwon, Ki-Seung Lee, Jung-Il Hong, Chun-Yeol You

Daegu Gyeongbuk Institute of Science and Technology, Korea

**G1-1525 Current-induced Memristive Magnetization Switching Relevant to the Multiple Domain Walls in Perpendicularly Magnetized Micro-wire**Jaesuk Kwon, Hee-Kyeong Hwang, Jung-Il Hong, Chun-Yeol You

Daegu Gyeongbuk Institute of Science and Technology, Korea

**G1-1553 Spin-orbit Torques Induced by Ferromagnet/Normal Metal Interface**Young-Wan Oh<sup>1</sup>, Seung-heon Baek<sup>1</sup>, Vivek P Amin<sup>2</sup>, Gyungchoon Go<sup>3</sup>, Seung-Jae Lee<sup>3</sup>, Mark D Stiles<sup>2</sup>, Byong-Guk Park<sup>1</sup>, Kyung-Jin Lee<sup>3</sup><sup>1</sup>Korea Advanced Institute of Science and Technology, Korea, <sup>2</sup>National Institute of Standards and Technology, USA, <sup>3</sup>Korea University, Korea**G1-1610 Comparison of Spin-torque Efficiency Measured by Domain-wall Velocity and Depinning Field**Yune-Seok Nam<sup>1</sup>, Yong-Keun Park<sup>1</sup>, Min-Ho Park<sup>1</sup>, Joo-Sung Kim<sup>1</sup>, Byoung-Chul Min<sup>2</sup>, Sug-Bong Choe<sup>1</sup><sup>1</sup>Seoul National University, Korea, <sup>2</sup>Korea Institute of Science and Technology, Korea**G1-1687 Annealing Temperature Dependence on Spin Pumping Efficiency at the CoFeB/Pt Interface**Nyun Jong Lee<sup>1</sup>, Sang-Il Kim<sup>1</sup>, Dongjoon Lee<sup>2</sup>, Oukjae Lee<sup>3</sup>, Seung-Young Park<sup>1</sup><sup>1</sup>Korea Basic Science Institute, Korea, <sup>2</sup>KU-KIST Graduated School of Converging Science and Technology, Korea, <sup>3</sup>Korea Institute of Science and Technology, Korea

- G1-1715**    **Electrical Spin Injection and Detection in a GaAs(110) Channel**  
Hansung Kim<sup>1,2</sup>, Hee Gyum Park<sup>2,3</sup>, Jae-Phil Shim<sup>2</sup>, Seong Kwang Kim<sup>2,4</sup>, Hyeong-Rak Lim<sup>2</sup>, Hyun Cheol Koo<sup>1,2</sup>, Hyung-jun Kim<sup>2,3</sup>  
<sup>1</sup>KU-KIST Graduate School of Converging Science and Technology, Korea University, Korea,  
<sup>2</sup>Korea Institute of Science and Technology, Korea, <sup>3</sup>KIST School, Korea University of Science & Technology, Korea, <sup>4</sup>Kookmin University, Korea
- G1-1748**    **Effects of Reconstructed Substrate Surface on Magnetic Anisotropy and Magnetoresistance of Magnetite Film**  
Santosh Ghimire, Young Jin Lee, Joonghoe Dho  
 Kyungpook National University, Korea
- G1-1870**    **Anisotropic Magnetoresistance Induced by Edelstein Effect in an InAs 2DEG**  
Won Young Choi<sup>1</sup>, Hyun Cheol Koo<sup>1</sup>, Hyung-jun Kim<sup>1</sup>, Joonyeon Chang<sup>1</sup>, Kyung-Jin Lee<sup>2</sup>, Gyeongchoon Go<sup>2</sup>  
<sup>1</sup>Korea Institute of Science and Technology, Korea, <sup>2</sup>Korea University, Korea
- G1-1883**    **Planar Motion Control of a Skyrmion Pair Using Spin Transfer Torque**  
Nam Jun Kim, Changyeon Won  
 Kyung Hee University, Korea
- G1-1923**    **Spin Relaxation in Spin-orbital Coupling (Gold Adatom) Graphene Simulate with NEGF Approximation**  
Shun Zhou Jhan, Tsung Wei Huang, Ching Ray Chang  
 National Taiwan University, Taiwan
- G1-2070**    **Implementation of Fokker-planck Equation Simulator for Spin Transfer Torque Device**  
Eunchong Baek, Chun-Yeol You  
 Daegu Gyeongbuk Institute of Science and Technology, Korea
- G1-2139**    **Atomic Orbital Dependent Spin Rashba Field and Anomalous Spin Precession**  
Jeonghun Sohn, Hyun-woo Lee  
 Pohang University of Science and Technology, Korea
- G1-2148**    **Temperature Dependent Unidirectional Magnetoresistance in a Co<sub>80</sub>Gd<sub>20</sub>/Pt Bilayer**  
Soogil Lee<sup>1</sup>, Jae-Wook Lee<sup>1</sup>, Jeong-Mok Kim<sup>1</sup>, Sanghoon Kim<sup>2</sup>, Nyun Jong Lee<sup>3</sup>, Seung-Young Park<sup>3</sup>, Byong-Guk Park<sup>1</sup>, Kab-Jin Kim<sup>1</sup>  
<sup>1</sup>Korea Advanced Institute of Science and Technology, Korea, <sup>2</sup>University of Ulsan, Korea, <sup>3</sup>Korea Basic Science Institute, Korea
- G1-2153**    **The Effect of Defective Surface on Dynamics of a Magnetic Skyrmion**  
Namkyu Kim, Hee-Sung Han, Daehan Jung, Ki-Suk Lee  
 Ulsan National Institute of Science and Technology, Korea
- G1-2176**    **Forward Volume Spin Wave Modulation Using One-dimensional Magnonic Crystal**  
Taichi Goto<sup>1,2</sup>, Nakamura Yuichi<sup>1</sup>, Hironaga Uchida<sup>1</sup>, Mitsuteru Inoue<sup>1</sup>  
<sup>1</sup>Toyohashi University of Technology, Japan, <sup>2</sup>JST PRESTO, Japan

- G1-2180** **Effect of Magnetoelastic Anisotropy Modulation on Spin Wave Propagation Properties of Yttrium Iron Garnet Films**  
Takuya Yoshimoto<sup>1</sup>, Taichi Goto<sup>1,2</sup>, Bungo Iwamoto<sup>1</sup>, Yuichi Nakamura<sup>1</sup>, Hironaga Uchida<sup>1</sup>,  
 Caroline A. Ross<sup>3</sup>, Mitsuteru Inoue<sup>1</sup>  
<sup>1</sup>Toyohashi University of Technology, Japan, <sup>2</sup>JST PRESTO, Japan, <sup>3</sup>Massachusetts Institute of Technology, USA

## G2-1. Nanostructured Magnetic Materials

16:30-18:00, June 4 (Mon.)

Lobby (8F)

**Chair** Kyoung-Woong Moon (Korea Research Institute of Standards and Science, Korea)

- G2-1036** **Angular Dependence of Low Field Microwave Absorption in NiFe Thin Film**  
Dong Young Kim<sup>1</sup>, Seok Soo Yoon<sup>1</sup>, Shintaro Hinata<sup>2</sup>, Shin Saito<sup>2</sup>  
<sup>1</sup>Andong National University, Korea, <sup>2</sup>Tohoku University, Japan
- G2-1061** **Van der Waals Heterostructure Based on TMPX3 for Forming Antiferromagnetic Tunnel Junction using Dry Transfer Technique**  
Sungmin Lee<sup>1</sup>, Hiroshi Idzuchi<sup>2</sup>, Young Jae Shin<sup>2</sup>, Philip Kim<sup>2</sup>, Je-Geun Park<sup>1</sup>  
<sup>1</sup>Seoul National University, Korea, <sup>2</sup>Harvard University, USA
- G2-1092** **Cooling Partial Pressure Dependent Phase Transition Characteristics of FeRh/MgO(100) Films**  
Sehwan Song, Jiwoong Kim, Dooyong Lee, Sungkyun Park  
 Pusan National University, Korea
- G2-1104** **Magnetic and Optical Properties of 111-oriented Spinel Fe-oxide Films**  
Jiwoong Kim, Dooyong Lee, Sehwan Song, Sungkyun Park  
 Pusan National University, Korea
- G2-1148** **Preparation and Magnetic Properties of Ca<sub>2</sub>Fe<sub>2</sub>O<sub>5</sub> Nanoparticles**  
The-Long Phan, Ngo Tran, Deok Hyeon Kim, P. S. Tola, Bo Wha Lee  
 Hankuk University of Foreign Studies, Korea
- G2-1179** **Symmetry Breaking in 3D Magnetic Vortex Core Structure**  
Sooseok Lee<sup>1</sup>, Hee-Sung Han<sup>1</sup>, Namkyu Kim<sup>1</sup>, Mi-Young Im<sup>2</sup>, Jung-II Hong<sup>3</sup>, Ki-Suk Lee<sup>1</sup>  
<sup>1</sup>Ulsan National Institute of Science and Technology, Korea, <sup>2</sup>Lawrence Berkeley National Laboratory, USA,  
<sup>3</sup>Daegu Gyeongbuk Institute of Science and Technology, Korea
- G2-1227** **Optimal Rotor Structure Design of Claw-pole Alternator for Performance Improving Using Static 3D FEM Coupled-circuit Model**  
 Huai Cong Liu, Gang Seok Lee, Sooyoung Cho, Ju Lee  
 Hanyang University, Korea
- G2-1234** **Depinning Behaviour of Vortex Domain Wall on Permalloy Wires by Using a MOKE Microscopy**  
Chin-Han Su, Deng-Shiang Shiu, Lin Lin, Yun Hong, Yi-Ying Liu, Kao-Fan Lai, Yee-Mou Kao,  
 Jong-Ching Wu, Lance Horng  
 National Changhua University of Education, Taiwan

- G2-1236**    **Design and Analysis of an IE4 Class LS-SynRM Considering Total Loss and Starting Performance**  
 Huai Cong Liu, Gang Seok Lee, Sooyoung Cho, SangJun Ko, Ju Lee  
*Hanyang University, Korea*
- G2-1239**    **Design of Double-path Magnetic Circuit Structure Hybrid Fuel Injector Considering Demagnetization Characteristics**  
 Huai Cong Liu, Gang Seok Lee, SangJun Ko, JunWon Choi, Sungwoo Bae, Ju Lee  
*Hanyang University, Korea*
- G2-1273**    **Vortex Domain Wall Injection in Wider Permalloy Wire**  
Deng-Shiang Shiu, Yun Hong, Kao-Fan Lai, Jong-Ching Wu, Lance Horng  
*National Changhua University of Education, Taiwan*
- G2-1387**    **Role of Fe-doped Effect in Two-dimensional MoS<sub>2</sub> Magnetic Semiconductor**  
Cheng-Wei Kao<sup>1</sup>, Chun-Chuen Yang<sup>1</sup>, Hao-Che Kao<sup>1</sup>, Yung-Hsiang Tung<sup>1</sup>, Ting-Wei Hsu<sup>1</sup>,  
 Wei-Chun Wu<sup>1</sup>, Kuen-Song Lin<sup>2</sup>  
<sup>1</sup>Chung Yuan Christian University, Taiwan, <sup>2</sup>Yuan Ze University, Taiwan
- G2-1439**    **Effect of Annealing Temperature on Magnetic Properties and Microstructure of L<sub>1</sub>0 MnGa Thin Films**  
Chi-Yu Huang<sup>1</sup>, Yu-Shen Chen<sup>2</sup>, Sea-Fue Wang<sup>1</sup>, An-Cheng Sun<sup>2</sup>  
<sup>1</sup>National Taipei University of Technology, Taiwan, <sup>2</sup>Yuan-Ze University, Taiwan
- G2-1464**    **Magneto-transport Properties of the SrTiO<sub>3</sub>/LaAlO<sub>3</sub>/SrTiO<sub>3</sub> Trilayer Systems**  
Jeong-nam Kim<sup>1,2</sup>  
<sup>1</sup>Korea University of Science and Technology, Korea, <sup>2</sup>Korea Research Institute of Standards and Science, Korea
- G2-1505**    **Creating Magnetic Structures in [Co/Ni]/PtMn Multilayers to Influence Exchange Bias Magnetism**  
 Palash Manna<sup>1</sup>, Chiang-Hui Liang<sup>2</sup>, Yu-Ting Su<sup>2</sup>, Ko-Wei Lin<sup>2</sup>, Johan Van Lierop<sup>1</sup>  
<sup>1</sup>University of Manitoba, Canada, <sup>2</sup>National Chung Hsing University, Taiwan
- G2-1632**    **Samarium Doped Zinc Oxide Thin Films Grown by Pulsed-laser Deposition**  
Fang-Yuh Lo, Yu-Tso Liao, Jyun-Han Chen, Yu-Ting Lin, Hsiang-Lin Liu, Ming-Yau Chern  
*National Taiwan Normal University, Taiwan*
- G2-1664**    **Four Fold Symmetric Anisotropy in Magnetoresistance at LaAlO<sub>3</sub>/SrTiO<sub>3</sub> Hetero-interface**  
Yongsu Kwak<sup>1</sup>, Jinhee Kim<sup>2</sup>, Jonghyun Song<sup>1</sup>  
<sup>1</sup>Chungnam National University, Korea, <sup>2</sup>Korea Research Institute of Standards and Science, Korea
- G2-1677**    **Magnetic Anisotropy of 2D Ferromagnet Interfaced with Ferroelectric Material**  
Eun Mi Kim<sup>1</sup>, Cheng Gong<sup>2</sup>, Xiang Zhang<sup>2</sup>, Geunsik Lee<sup>1</sup>  
<sup>1</sup>Ulsan National Institute of Science and Technology, Korea, <sup>2</sup>University of California, Berkeley, USA
- G2-1699**    **On Chip Manipulation of Particle/Cells on Varied Thickness of the Magnetic Diode for Bio Applications**  
Keonmok Kim, CheolGi Kim  
*Deagu Gyeongbuk Institute of Science & Technology, Korea*

- G2-1732** Study of Magnetism and Defect of Hollow  $\text{CeO}_2\text{-Ag}$  Spheres  
Pei-Kai Hsu, Eric Nestor Tseng, Yuan-Ching Tsai, Yi-Che Chen, Shih-Yun Chen  
*National Taiwan University of Science and Technology, Taiwan*
- G2-1735** Correlation between Lattice Parameter and Critical Temperature in  $\text{V}_2\text{O}_3$  Thin Films  
 Jung-Il Hong, Jae-Hyun Ha  
*Gyeongbuk Institute of Science and Technology, Korea*
- G2-1804** Unconventional Behavior of Exchange Bias Effect in Mixture Phase with Ferromagnetic Materials in Bilayers  
Min-Seung Jung, Jung-Il Hong  
*Daegu Gyeongbuk Institute of Science and Technology, Korea*
- G2-1849** Tailoring Magnetism of Ferromagnetic Semiconductors of Single-layer  $\text{CrXTe}_3$  ( $X = \text{Si, Ge, and Sn}$ ): A First-principles Study  
Won Seok Yun, J. D. Lee  
*Daegu Gyeongbuk Institute of Science and Technology, Korea*
- G2-1950** Chemical Design and Synthesis of Magnetic Nanostructures  
Kai Zhu, Yanglong Hou  
*Peking University, China*
- G2-2086** Growth and Simultaneous Valleys Manipulation of Two-dimensional  $\text{MoSe}_2\text{-WSe}_2$  Lateral Heterostructure  
Farman Ullah<sup>1</sup>, Zeeshan Thair<sup>1</sup>, Joon I. Jang<sup>2</sup>, Maseng-Je Seong<sup>3</sup>, Yong Soo Kim<sup>1</sup>  
<sup>1</sup>University of Ulsan, Korea, <sup>2</sup>Sogang University, Korea, <sup>3</sup>Chung-Ang University, Korea
- G2-2165** Effects of Nonlinear Characteristics on Temperature in Magnetic Nanoparticles due to Hysteresis-generated Heat  
 C. Y. Ho<sup>1,3</sup>, B. C. Chen<sup>2</sup>, S. L. Fan<sup>1</sup>, C. W. Xiong<sup>1</sup>, Y. J. Chiou<sup>3</sup>  
<sup>1</sup>Dongguan Polytechnic, China, <sup>2</sup>Buddhist Dalin Tzu Chi General Hospital, Taiwan, <sup>3</sup>Hwa Hsia University of Technology, Taiwan
- G2-2170** Fabrication of Bragg Mirror onto Magneto-optical Q-switch  
Ryohei Morimoto<sup>1</sup>, Taichi Goto<sup>1,2</sup>, John Pritchard<sup>3</sup>, Mani Mina<sup>3</sup>, Takunori Taira<sup>4</sup>, Yuichi Nakamura<sup>1</sup>, Pang Boey Lim<sup>1</sup>, Hironaga Uchida<sup>1</sup>, Mitsuteru Inoue<sup>1</sup>  
<sup>1</sup>Toyohashi University of Technology, Japan, <sup>2</sup>JST PRESTO, Japan, <sup>3</sup>Iowa State University, USA, <sup>4</sup>Institute for Molecular Science, Japan
- G2-2172** Reconstruction of Magnetic Hologram Using Multi-layered Medium with Discrete Magnetic Layers  
Naoki Hoshiba<sup>1</sup>, Taichi Goto<sup>1,2</sup>, Yuichi Nakamura<sup>1</sup>, Pang Boey Lim<sup>1</sup>, Hironaga Uchida<sup>1</sup>, Mitsuteru Inoue<sup>1</sup>  
<sup>1</sup>Toyohashi University of Technology, Japan, <sup>2</sup>JST PRESTO, Japan
- G2-2178** Reproduction of Three Dimensional Image Reconstructed from Magneto-optic Pattern Medium Recorded by Optical System with Microlens Array  
Yota Kimura<sup>1</sup>, Taichi Goto<sup>1,2</sup>, Hiroyuki Takagi<sup>1</sup>, Yuichi Nakamura<sup>1</sup>, Pang Boey Lim<sup>1</sup>, Hironaga Uchida<sup>1</sup>, Mitsuteru Inoue<sup>1</sup>  
<sup>1</sup>Toyohashi University of Technology, Japan, <sup>2</sup>JST PRESTO, Japan



## G5-1. Fundamental Properties of Materials

16:30-18:00, June 4 (Mon.)

Lobby (8F)

**Chair** Jisang Hong (Pukyong National University, Korea)

- G5-1163** **Influence of Mn:Al Ratio on the Structure and Magnetic Properties of Antiperovskite  $\text{Al}_{1-x}\text{CMn}_{3+x}$**   
Xinyou Wang<sup>1</sup>, Pingzhan Si<sup>2</sup>, Huidong Qian<sup>2</sup>, Yang Yang<sup>2</sup>, Chuljin Choi<sup>2</sup>, Jihoon Park<sup>2</sup>, Xinqing Wang<sup>1</sup>, Hongliang Ge<sup>1</sup>  
<sup>1</sup>China Jiliang University, China, <sup>2</sup>Korea Institute of Materials Science, Korea
- G5-1183** **Critical Exponents and Magnetocaloric Effect in  $\text{La}_{0.7}\text{Sr}_{0.3}\text{Mn}_{1-x}\text{Ti}_x\text{O}_3$  ( $x = 0$  and  $0.05$ ) Compounds**  
 Le Viet Bau<sup>1</sup>, Nguyen Manh An<sup>1</sup>, Le Thi Giang<sup>1</sup>, Tran Dang Thanh<sup>2</sup>, Pham Thanh Phong<sup>3</sup>  
<sup>1</sup>Hong Duc University, Vietnam, <sup>2</sup>Vietnamese Academy of Science and Technology, Vietnam, <sup>3</sup>Ton Duc Thang University, Vietnam
- G5-1277** **Critical Behavior and Magnetocaloric Effect of Ni-doped  $\text{La}_{0.7}\text{Sr}_{0.3}\text{MnO}_3$  Ceramics**  
Tran Dang Thanh<sup>1</sup>, Pham Duc Huyen Yen<sup>2</sup>, Kieu Xuan Hau<sup>2</sup>, Nguyen Thi Dung<sup>3</sup>, Le Vi Nhan<sup>4</sup>, Le Thi Huong<sup>4</sup>, Le Viet Bau<sup>4</sup>, Bach Thanh Cong<sup>5</sup>, Yu Seong Cho<sup>2</sup>  
<sup>1</sup>Vietnam Academy of Science and Technology, Vietnam, <sup>2</sup>Chungbuk National University, Korea, <sup>3</sup>Vietnam Academy of Science and Technology, Vietnam, <sup>4</sup>Hong Duc University, Vietnam, <sup>5</sup>Vietnam National University, Hanoi, Vietnam
- G5-1281** **Ferromagnetic Interaction in  $\text{Ni}_{48}\text{X}_2\text{Mn}_{37}\text{Sn}_{13}$  ( $\text{X} = \text{Fe}$  and  $\text{Co}$ ) Alloys**  
Tran Dang Thanh<sup>1</sup>, Wen Zhe Nan<sup>2</sup>, Kieu Xuan Hau<sup>2</sup>, Vu Manh Quang<sup>1</sup>, You Tae Soo<sup>2</sup>, Piao Hong Guang<sup>2</sup>, Nguyen Huy Dan<sup>1</sup>, Bach Thanh Cong<sup>3</sup>, Yu Seong Cho<sup>2</sup>  
<sup>1</sup>Vietnam Academy of Science and Technology, Vietnam, <sup>2</sup>Chungbuk National University, Korea, <sup>3</sup>Vietnam National University, Hanoi, Vietnam
- G5-1285** **Temperature and Transverse Field Dependence of the Specific Heat of Materials Described by XZ Anisotropic Exchange Heisenberg Model**  
Cong Thanh Bach, Niem Tu Nguyen, Giang Huong Bach, Trang Thuy Nguyen  
 University of Science, Vietnam National University, Hanoi, Vietnam
- G5-1407** **A Very Large Perpendicular Magnetic Anisotropy in Pt/Co/MgO Trilayers Fabricated by Controlling the MgO Sputtering Power and Its Thickness**  
Hyung Keun Gweon, Sang Ho Lim  
 Korea University, Korea
- G5-1431** **Dielectric Study of Mo Doped Multiferroic BiFeO<sub>3</sub>**  
Tahir Murtaza, Javid Ali, Mohd. Shahid Khan  
 Jamia Millia Islamia, India
- G5-1481** **Stress-induced Magnetic Properties of Yttrium Iron Garnet ( $\text{Y}_3\text{Fe}_5\text{O}_{12}$ ) Thin Films Fabricated by Pulsed Laser Deposition**  
Biswanath Bhoi, Bosung Kim, Min Kwan, Jae-Hyeok Lee, Yongsu Kim, Sang-Koog Kim  
 Seoul National University, Korea

- G5-1540**    **First-principles Study of Electric Field Induced Giant Perpendicular Anisotropic Energy of Two-dimensional VS<sub>2</sub> Monolayer**  
Huei-Ru Fuh<sup>1,2</sup>, Ke-Chuan Weng<sup>3</sup>, Yeu-Chung Lin<sup>1</sup>, Tsung-Wei Huang<sup>1</sup>, Horng-Tay Jeng<sup>4</sup>, Chi-Ho Cheung<sup>1</sup>, Ming-Chien Hsu<sup>1</sup>, Ching-Ray Chang<sup>1</sup>  
<sup>1</sup>National Taiwan University, Taiwan, <sup>2</sup>Yuan Ze University, Taiwan, <sup>3</sup>Institute of Nuclear Energy Research, Taiwan, <sup>4</sup>National Tsing-Hua University, Taiwan
- G5-1641**    **Comparison and Validation of Anisotropic Magnetization Models for Grain-oriented Silicon Steel**  
 Xuan Teng<sup>1</sup>, Dong Wang<sup>1</sup>, Junquan Chen<sup>1</sup>, Yapeng Jiang<sup>1</sup>, Xiaoqin Zheng<sup>2</sup>  
<sup>1</sup>Naval University of Engineering, China, <sup>2</sup>Qingdao University, China
- G5-1649**    **Magnetism and Magnetocrystalline Anisotropy of C-substituted  $\tau$ -MnAl**  
Jin Sik Park, Sonny Rhim, Soon Cheol Hong  
 University of Ulsan, Korea
- G5-1722**    **Magnetic Anisotropy of Highly Nd<sub>3-x</sub>Bi<sub>x</sub>Fe<sub>5-y</sub>Ga<sub>y</sub>O<sub>12</sub> Studied by FMR Measurements**  
Takayuki Ishibashi<sup>1</sup>, Gengjian Lou<sup>1</sup>, Jion Yamakita<sup>1</sup>, Masami Nishikawa<sup>1</sup>, Nobuyasu Adachi<sup>2</sup>, Takeshi Kato<sup>3</sup>, Satoshi Iwata<sup>3</sup>  
<sup>1</sup>Nagaoka University of Technology, Japan, <sup>2</sup>Nagoya Institute of Technology, Japan, <sup>3</sup>Nagoya University, Japan
- G5-1744**    **Magnetic and Dielectric Properties of LiFePO<sub>4</sub> by Mössbauer Spectroscopy**  
Jae Yeon Seo, Hyunkyung Choi, Jung Tae Lim, Chul Sung Kim  
 Kookmin University, Korea
- G5-1757**    **Mössbauer Studies of LiFe<sub>1/3</sub>Mn<sub>1/3</sub>Ni<sub>1/3</sub>PO<sub>4</sub> Cathode Material**  
Hyunkyung Choi, Soyeon Barn, Chul Sung Kim  
 Kookmin University, Korea
- G5-1775**    **Effect of Decomposition Process on Crystallization of Garnet Films Fabricated by Metal Organic Decomposition Method**  
Yuya Hironaka, Hina Saito, Yoshito Ashizawa, Katsuji Nakagawa  
 Nihon University, Japan
- G5-1840**    **First Principles Calculation on Magnetism and Magnetocrystalline Anisotropy of FeNi**  
Mun Bong Hong, Jin Sik Park, Sonny Rhim, Soon Cheol Hong  
 University of Ulsan, Korea
- G5-1989**    **Electronic Structures of Quasi Two-dimensional Cubic CsSnBr<sub>3</sub> Perovskite Nanoplatelets**  
WJ Fan  
 Nanyang Technological University, Singapore

## G9. Bio-magnetism and Biomedical Applications

16:30-18:00, June 4 (Mon.)

Lobby (8F)

**Chair** Sang-Suk Lee (Sangji University, Korea)

**G9-0524** Use of GMR-SV Device, Variety Helical Multi-turn  $\mu$ -coil, and Single  $\mu$ -channel to Detect the Deformation Properties of Red Blood Cell's Membrane

Jong-Gu Choi<sup>1</sup>, Jang-Roh Rhee<sup>2</sup>, Sang-Suk Lee<sup>1</sup>

<sup>1</sup>Sangji University, Korea, <sup>2</sup>Sookmyung Women's University, Korea

**G9-0641** Study of Noise Reduction Using ICA for MCG -Quantitative Component Selection Method Using Attractor Analysis-

Koichiro Kobayashi

Iwate University, Japan

**G9-0751** The Effect of Low-frequency (1 Hz) rTMS on the Cerebellar Cortex in Patients with Ataxia after a Posterior Circulation Stroke : Randomized Control Trial

Hyun Gyu Cha

Joongbu University, Korea

**G9-0920** Synthesis of Monodisperse Magnetite Nanoparticles by Modified-solvothermal Method

Shen-Yuan Lee, Yu-Shen Chen, An-Cheng Sun

Yuan Ze University, Taiwan

**G9-1005** The Change of Capillaroscopic Features under Pulsed Magnetic Field

Hyun Sook Lee, Yonghyeok Jo

Sangji University, Korea

**G9-1531** One-pot Controllable Synthesis of FePt and FePt@Fe<sub>3</sub>O<sub>4</sub> Nanoparticles for Bio-application

Yunji Eom, Cheolgi Kim

Daegu Gyeongbuk Institute of Science and Technology, Korea

**G9-1536** Bio-selective Logical Separation for Magnetically Driven Magnetic Particles and Cells on the Micro-magnetic Ellipsoid Pathways

Jonghwan Yoon

Daegu Gyeongbuk Institute of Science and Technology, Korea

**G9-1563** A Micromagnet Frictionometer Using Magnetic Colloids for Nano-bio Interfaces

Hyeonseol Kim, CheolGi Kim

Daegu Gyeongbuk Institute of Science & Technology, Korea

**G9-1577** Fabrication and Analysis of Flexible Magnetic Sensor

Mijin Kim, CheolGi Kim

Daegu Gyeongbuk Institute of Science & Technology, Korea

**G9-1676** Lab-on-a-chip Based Electrochemical Device for Simultaneous Detection of Multiple Biomarkers

Kasturi Krishna Chaitanya Satish Babu, CheolGi Kim

Daegu Gyeongbuk Institute of Science and Technology, Korea

- G9-1720**    **Optimization of PHR Sensor's Effective Surface Area for Magnetic Labeling Detection**  
SungJoon Kim, CheolGi Kim, MiJin Kim, JaeHoon Lee  
*Daegu Gyeongbuk Institute of Science and Technology, Korea*
- G9-1968**    **Study on Enhancement of Magnetic Field Gradient in Micro-sized Magnetic Materials**  
Viet Cuong Le  
*University of Engineering and Technology, Vietnam National University, Hanoi, Vietnam*
- G9-1973**    **Synthesis and Characteristics of Magnetic Oxide - Quantum Dots Nanocomposite**  
Tien-Dung Chu<sup>1</sup>, Thi-Thuy-Phuong Doan<sup>1</sup>, Duy-Truong Quach<sup>1</sup>, Pham Duc Thang<sup>2</sup>, Dong-Hyun Kim<sup>3</sup>  
<sup>1</sup>University of Transport and Communications, Vietnam, <sup>2</sup>University of Engineering and Technology, Hanoi, Vietnam, <sup>3</sup>Chungbuk National University, Korea

## G1-2. Spintronics

17:00-18:30, June 5 (Tue.)

Lobby (8F)

**Chair** Hyunsoo Yang (National University of Singapore, Singapore)

- G1-0327** **Coherent Terahertz Spin-wave Emission Associated with Ferrimagnetic Domain Wall Dynamics**  
Se-Hyeok Oh<sup>1</sup>, Kyung-Jin Lee<sup>1</sup>, Se Kwon Kim<sup>2</sup>, Dong-Kyu Lee<sup>1</sup>, Gyungchoon Go<sup>1</sup>, Kab-Jin Kim<sup>3,4</sup>,  
 Teruo Ono<sup>4</sup>, Yaroslav Tserkovnyak<sup>2</sup>  
<sup>1</sup>Korea University, Korea, <sup>2</sup>University of California, USA, <sup>3</sup>Korea Advanced Institute of Science and  
 Technology, Korea, <sup>4</sup>Kyoto University, Japan
- G1-0516** **Effect of Interfacial Spin-transparency on Pt/Ferromagnet**  
Dong-Joon Lee<sup>1,2</sup>, Ouk-Jae Lee<sup>1</sup>, Kyung-Jin Lee<sup>1,2</sup>  
<sup>1</sup>Korea Institute of Science and Technology, Korea, <sup>2</sup>Korea University, Korea
- G1-0539** **First-principles Study on Structural Stability and Magnetism in Equiatomic Quaternary Heusler Alloys**  
Fumiaki Kuroda, Hitoshi Fujii, Tetsuya Fukushima, Tamio Oguchi  
 Osaka University, Japan
- G1-0599** **Giant Enhancement of the Intrinsic Spin Hall Conductivity in  $\beta$ -tungsten via Substitutional Doping**  
Xuelel Sui<sup>1</sup>, Nicholas Kioussis<sup>2</sup>, Wenhui Duan<sup>3</sup>  
<sup>1</sup>Tsinghua University, China, <sup>2</sup>California State University Northridge, USA, <sup>3</sup>Tsinghua University, China
- G1-0623** **Logic Gates for Digital Control of Single Particles/Cells on Chip**  
 CheolGi Kim, Sandhya Rani Goudu  
 Daegu Gyeongbuk Institute of Science and Technology, Korea
- G1-0628** **Empirical Correlation between the Interfacial Dzyaloshinskii-moriya Interaction and Work Function in Metallic Magnetic Trilayers**  
Yong-Keun Park<sup>1,2</sup>, Dae-Yun Kim<sup>1</sup>, Joo-Sung Kim<sup>1</sup>, Yune-Seok Nam<sup>1</sup>, Min-Ho Park<sup>1</sup>, Hyeok-Cheol Choi<sup>1</sup>,  
 Byoung-Chul Min<sup>2</sup>, Sug-Bong Choe<sup>1</sup>  
<sup>1</sup>Seoul National University, Korea, <sup>2</sup>Korea Institute of Science and Technology, Korea
- G1-0669** **Tunable Spin Hall Effect from a Ta Alloy System**  
Tian-Yue Chen, Chi-Feng Pai  
 National Taiwan University, Taiwan
- G1-0682** **Magnetic Skyrmion or Skyrmionium Motion by Attractive or Repulsive Forces of Voltage-controlled Gates**  
Jungbum Yoon, Kyoung-Woong Moon, Dongseuk Kim, Changsoo Kim, Dae Hyun Kim, Sangsun Lee,  
 Byong Sun Chun, Wondong Kim, Chanyong Hwang  
 Korea Research Institute of Standards and Science, Korea

**G1-0685 Experimental Comparison of Spin-orbit Torques between Domain-wall Motion and Harmonic Measurements**

Joo-Sung Kim<sup>1</sup>, Yune-Seok Nam<sup>1</sup>, Dae-Yun Kim<sup>1</sup>, Yong-Keun Park<sup>1,2</sup>, Min-Ho Park<sup>1</sup>, Byoung-Chul Min<sup>2</sup>, Sug-Bong Choe<sup>1</sup>

<sup>1</sup>Seoul National University, Korea, <sup>2</sup>Korea Institute of Science and Technology, Korea

**G1-0769 Magnetic-field-driven Skyrmion Bubble Domains**

Kyoung-Woong Moon, Chanyong Hwang

Korea Research Institute of Standards and Science, Korea

**G1-0844 Tunable Magnetic Interface of Hybrid Hall Bar Device via Insertion of Organometallic Complex**

Jun Hong Park<sup>1,2</sup>, Mario Ribeiro<sup>1,2</sup>, Thi Kim Hang Pham<sup>2</sup>, Tae Hee Kim<sup>1,2</sup>

<sup>1</sup>Institute for Basic Science, Korea, <sup>2</sup>Ewha Womans University, Korea

**G1-0883 Control of Spin-hall Effect of Pt via Sputtering Energy Manipulation**

Dongseuk Kim<sup>1</sup>, Byong Sun Chun<sup>1</sup>, Changsoo Kim<sup>1</sup>, Kyoung-Woong Moon<sup>1</sup>, Jungbum Yoon<sup>1</sup>, Dae Hyun Kim<sup>1</sup>, Sangsun Lee<sup>1</sup>, Wondong Kim<sup>1</sup>, Chang-Jin Yoon<sup>2</sup>, Jiho Kim<sup>2</sup>, Kungwon Rhie<sup>2</sup>, B. C. Lee<sup>3</sup>, Chanyong Hwang<sup>1</sup>

<sup>1</sup>Korea Research Institute of Standards and Science, Korea, <sup>2</sup>Korea University, Korea, <sup>3</sup>Inha University, Korea

**G1-0904 Measurement of Field Like Spin Orbit Torque by Direct Current Tuned Spin Torque Ferromagnetic Resonance**

Changsoo Kim, Dongseuk Kim, Byong Sun Chun, Kyoung-Woong Moon, Jungbum Yoon, Dae Hyun Kim, Sangsun Lee, Wondong Kim, Chanyong Hwang

Korea Research Institute of Standards and Science, Korea

**G1-0908 Ferromagnetic-layer-thickness Dependence of the Magnetic Domain-wall Dynamics**

Dae-Yun Kim<sup>1</sup>, Min-Ho Park<sup>1</sup>, Yong-Keun Park<sup>1,2</sup>, Ji-Sung Yu<sup>1</sup>, Joo-Sung Kim<sup>1</sup>, Duck-Ho Kim<sup>1,3</sup>, Byoung-Chul Min<sup>2</sup>, Sug-Bong Choe<sup>1</sup>

<sup>1</sup>Seoul National University, Korea, <sup>2</sup>Korea Institute of Science and Technology, Korea, <sup>3</sup>Kyoto University, Japan

**G1-1015 Complementary Spin Transistors in an InAs Quantum Well**

Youn Ho Park, Jun Woo Choi, Joonyeon Chang, Hyun Cheol Koo

Korea Institute of Science and Technology, Korea

**G1-1159 Magneto-conductance of InAs Nanowire Tunable by Gate-voltage**

Jeehoon Jeon<sup>1,2</sup>, Taeyueb Kim<sup>3</sup>, Sangsu Kim<sup>1</sup>, Sungjung Joo<sup>3</sup>, Min Hyeok Jo<sup>4</sup>, Jae Cheol Shin<sup>4</sup>, Hyun Cheol Koo<sup>1,2</sup>, Jinki Hong<sup>1</sup>

<sup>1</sup>Korea University, Korea, <sup>2</sup>Korea Institute of Science and Technology, Korea, <sup>3</sup>Korea Research Institute of Standards and Science, Korea, <sup>4</sup>Yeungnam University, Korea

**G1-2122 Magnetoresistance Property of Double-type Ta/CoFe/Cu/CoFe/PtMn/Ta/CoFe/Cu/CoFe/PtMn/Ta Multilayer Films**

Jong-Gu Choi<sup>1</sup>, Jang-Roh Rhee<sup>2</sup>, Sang-Suk Lee<sup>1</sup>

<sup>1</sup>Sangji University, Korea, <sup>2</sup>Sookmyung Women's University, Korea

**G1-2124** Atomic Spin-orbit Coupling-induced Interfacial Spin-flip Scattering at a Heavy Metal/  
Ferromagnet Heterostructure

Mijin Lim, Hyun-Woo Lee

*Pohang University of Science and Technology, Korea*

## G2-2. Nanostructured Magnetic Materials

17:00-18:30, June 5 (Tue.)

Lobby (8F)

**Chair** Byong Sun Chun (Korea Research Institute of Standards and Science, Korea)

**G2-0151** NiFeCr Capping and Buffer Layers Effect on Planar Hall Voltage Response and Magnetic  
Anisotropy for NiFe/Au/IrMn Trilayer Structure

Amir Aly Elzwawy<sup>1,2</sup>, Artem Dmitrievich Talantsev<sup>1,3</sup>, CheolGi Kim<sup>1</sup>

<sup>1</sup>Daegu Gyeongbuk Institute of Science and Technology, Korea, <sup>2</sup>National Research Centre, Egypt,

<sup>3</sup>Institute of Problems of Chemical Physics, Russia

**G2-0324** Quantum Anomalous Hall Effect and Giant Rashba Spin-orbit Splitting in Compensated n-p  
Codoped Graphene

Shifei Qi

*Shanxi Normal University, China*

**G2-0326** Magnetic Properties of Microfabricated Mn<sub>x</sub>Ga Circler Dot Arrays

Yusuke Kikuchi, Hirokazu Makuta, Toshiyuki Shima, Masaaki Doi

*Tohoku Gakuin University, Japan*

**G2-0330** Improvement of Coercivity for Microfabricated FePt Ring Arrays

Takumi Sato, Masaaki Doi, Toshiyuki Shima

*Tohoku Gakuin University, Japan*

**G2-0342** Effect of N<sub>2</sub> Flow Rate Ratio on Magnetic Properties for Mn-GaN Thin Films

Fumitaka Nakagawa, Masaaki Doi, Toshiyuki Shima

*Tohoku Gakuin University, Japan*

**G2-0361** Magnetic and Topological Properties of Graphene-like Heterostructure

Huisheng Zhang, Xiaohong Xu

*Shanxi Normal University, China*

**G2-0492** Magnetic Properties of GaMnAs/GaMnAsP Bilayers with Non-collinear Magnetic Anisotropy

Sanghoon Lee, Suho Choi

*Korea University, Korea*

**G2-0526** Inversed Magnetoresistance Property of Hybrid Type Multilayer of PtMn, IrMn, NiO Based  
GMR-SV Films with High-T<sub>c</sub> Superconductor YBCO Film

Woo-Il Yang, Jong-Gu Choi, Sang-Suk Lee

*Sangji University, Korea*

**G2-0677 Scalable Synthesis of Sheet-like Boron Nitride Nanotube via N<sub>2</sub> Dissociation Mechanism Using Thermal Plasma**

Mi Se Chang

*Korea Institute of Materials Science, Korea*

**G2-0704 Hydrogenation Effect in Two Dimensional Mn Dihalides**

Jisang Hong, M. Umar Farooq

*Pukyong National University, Korea*

**G2-0746 Laser Ablation Synthesis, Structure, and Exchange Bias of Mn<sub>4</sub>C/MnO Powders**

Lulu Yao<sup>1</sup>, Pingzhan Si<sup>2</sup>, Huidong Qian<sup>2</sup>, Jinjun Liu<sup>3</sup>, Hongliang Ge<sup>1</sup>, Jihoon Park<sup>2</sup>, Chul-Jin Choi<sup>2</sup>

<sup>1</sup>China Jiliang University, China, <sup>2</sup>Korea Institute of Materials Science, Korea, <sup>3</sup>Ningbo University, China

**G2-0767 Barkhausen "Waves" in Ferromagnetic/Antiferromagnetic Bilayers**

Artem Talantsev, Amir Elswawy, JaeHoon Lee, SungJoon Kim, CheolGi Kim

*Daegu Gyeongbuk Institute of Science and Technology, Korea*

**G2-0863 Manipulation of Spin=1 Protected by C<sub>3v</sub> Symmetry: A Non-equilibrium Green Function Approach**

Tsung-Wei Huang, Shun-Jhou Jhan, Ching-Ray Chang

*National Taiwan University, Taiwan*

**G2-0868 Enhancement of Magnetic Anisotropy in Rare-earth Free Multilayer Fe<sub>16</sub>N<sub>2</sub>/Ag/Fe<sub>16</sub>N<sub>2</sub> and Fe<sub>16</sub>N<sub>2</sub>/Au/Fe<sub>16</sub>N<sub>2</sub> Permanent Magnet**

Imran Khan, Jisang Hong

*Pukyong National University, Korea*

**G2-1023 Weak Ferromagnetism and Exchange Bias in Antiferromagnetic Cobalt Oxide Nanoparticles Prepared by Arc Discharge in Air**

Xianglian Wang<sup>1</sup>, Hongliang Ge<sup>1</sup>, Quanlin Ye<sup>2</sup>, Pingzhan Si<sup>1</sup>, Huanjian Chen<sup>1</sup>

<sup>1</sup>China Jiliang University, China, <sup>2</sup>Hangzhou Normal University, China

**G2-1140 Structural and Magnetic Properties of BaFe<sub>x</sub>CoO<sub>19</sub> Hexaferrite Nanoparticles**

Ngo Tran, Deok Hyeon Kim, Seok Hee Lee, The-Long Phan, Bo Wha Lee

*Hankuk University of Foreign Studies, Korea*

## G3. Magnetic Recording and Information Technology

17:00-18:30, June 5 (Tue.)

Lobby (8F)

**Chair** Seok Soo Yoon (Andong National University, Korea)

**G3-0159 Improving Two-dimensional Symbol Detection for Staggered Bit-patterned Media Recording**

Seongkwon Jeong, Kijun Seo, Juri Kim, Jaemin Lee

*Soongsil University, Korea*



## G5-2. Fundamental Properties of Materials

17:00-18:30, June 5 (Tue.)

Lobby (8F)

**Chair** Kee Hoon Kim (Seoul National University, Korea)

**G5-0333** Enhancement of Coercive Force of Nd-Fe-B Thin Films by the Diffusion of Capping Layer Materials into Grain Boundary

Yukiya Tamazawa, Masaaki Doi, Toshiyuki Shima  
*Tohoku Gakuin University, Japan*

**G5-0338** New Polytypes of MoS<sub>2</sub>: Candidates for Spintronics

Sang Wook Han, Soon Cheol Hong  
*University of Ulsan, Korea*

**G5-0420** Electrochemical Manipulation of Magnetism and Magnetization Reorientation in LiFePO<sub>4</sub> by Li-ion Intercalation

Tumurbaatar Tsevelmaa<sup>1</sup>, Dorj Odkhui<sup>2</sup>, Soon Cheol Hong<sup>1</sup>  
<sup>1</sup>University of Ulsan, Korea, <sup>2</sup>Incheon National University, Korea

**G5-0426** Machine Learning Approach for Data Analysis of Magnetic Orbital Moments and Magnetocrystalline Anisotropy in Transition-metal Thin Films on MgO(001)

Kohei Hayashi<sup>1</sup>, Kohei Nozaki<sup>1,2</sup>, Abdul Muizz Pradipto<sup>1</sup>, Toru Akiyama<sup>1</sup>, Tomonori Ito<sup>1</sup>, Tamio Oguchi<sup>2,3</sup>, Kohji Nakamura<sup>1,2</sup>  
<sup>1</sup>Mie University, Japan, <sup>2</sup>National Institute for Materials Science, Japan, <sup>3</sup>Osaka University, Japan

**G5-0486** Magnetic Anisotropy of GaMnAsP Ferromagnetic Semiconductor Films Grown on Different Buffer Layers

Sanghoon Lee, JiHoon Chang  
*Korea University, Korea*

**G5-0606** Ab Initio Study of Ultrafast Dynamics of Spin-phonon Coupled States of Spin-orbit Coupled Semiconductors

Noejung Park  
*Ulsan National Institute of Science and Technology, Korea*

**G5-0821** Synchrotron-radiation Spectroscopy Study of Multiferroic Ba<sub>1-x</sub>A<sub>x</sub>(Ti,Fe)O<sub>3</sub> (A=La, Bi)

Seungho Seong<sup>1</sup>, Hyun Woo Kim<sup>1</sup>, Eunsook Lee<sup>1</sup>, Deok Hyun Kim<sup>2</sup>, Bo Wha Lee<sup>2</sup>, Jeongsoo Kang<sup>1</sup>  
<sup>1</sup>The Catholic University of Korea, Korea, <sup>2</sup>Hankuk University of Foreign Studies, Korea

**G5-0926** RIXS Studies of Metal-insulator Transition with Concomitant Quantum Confinement Effect in SrRuO<sub>3</sub> Thin Films

Soonmin Kang, Je-Geun Park  
*Seoul National University, Korea*

**G5-0931** Spin-orbit Interaction Driven Magnetic Anisotropy in Dimerized Honeycomb Ruthenate Li<sub>2</sub>RuO<sub>3</sub>

Seokhwan Yun<sup>1,2</sup>, Youngjung Jo<sup>3</sup>, Je-Geun Park<sup>1,2</sup>  
<sup>1</sup>Seoul National University, Korea, <sup>2</sup>Institute for Basic Science, Korea, <sup>3</sup>Kyungpook National University, Korea

- G5-1003**    **Formation of LIPSS(Laser-Induced-Periodic-Surface-Structures) on Metal for Consumer Electronics by Femto-second Laser Process**  
Tae Hoon Park, Jae Ha Kim, Hyo-Soo Lee  
*Korea Institute of Industrial Technology, Korea*
- G5-1027**    **Influence of Ca-doping on Electronic Structure of  $\text{La}_{0.7}\text{Sr}_{0.3}\text{MnO}_3$  Bulk Compound**  
Duc Huyen Yen Pham  
*Chungbuk National University, Korea*
- G5-1080**    **Spin-orbit Coupling Effect in Frustrated Magnetism of  $J_{\text{eff}}=3/2$  Lacunar Spinel  $\text{GaTa}_4\text{Se}_8$**   
Min Yong Jeong, Jae-Hoon Sim, Myung Joon Han  
*Korea Advanced Institute of Science and Technology, Korea*
- G5-1088**    **Reliability and Applicability of Magnetic Force Linear Response Theory: Numerical Parameters, Predictability, and Orbital Resolution**  
Hongkee Yoon<sup>1</sup>, Taek Jung Kim<sup>1</sup>, Jae-Hoon Sim<sup>1</sup>, Seung Woo Jang<sup>1</sup>, Taisuke Ozaki<sup>2</sup>, Myung Joon Han<sup>1</sup>  
<sup>1</sup>Korea Advanced Institute of Science and Technology, Korea, <sup>2</sup>University of Tokyo, Japan
- G5-1109**    **Electronic Structure, Magnetic Ground State, and Effective Exchange Interaction of  $\text{LaMnO}_3$**   
Seung Woo Jang, Siheon Ryee, Hongkee Yoon, Myung Joon Han  
*Korea Advanced Institute of Science and Technology, Korea*
- G5-1110**    **Quantified Degeneracy and Metal-insulator Transition in Complex Transition-metal Oxides**  
Jae-Hoon Sim<sup>1</sup>, Siheon Ryee<sup>1</sup>, Hunpyo Lee<sup>2</sup>, Myung Joon Han<sup>1</sup>  
<sup>1</sup>Korea Advanced Institute of Science and Technology, Korea, <sup>2</sup>Kangwon National University, Korea
- G5-1392**    **First-principles Study on Half-metallic Properties of  $\text{XCrZ}$  Half-heusler Alloys ( $[\text{X} = \text{Na}, \text{Li}, \text{K}, \text{Rb}]$ ;  $[\text{Z} = \text{As}, \text{Sb}]$ )**  
Hoang Thu Thuy, Soon Cheol Hong  
*University of Ulsan, Korea*
- G5-1879**    **Magnetization Simulation Using Convolution Product in Tensorflow Library**  
Chanki Lee, Hee Young Kwon, Nam Jun Kim, Changyeon Won  
*Kyung Hee University, Korea*
- G5-2131**    **Giant Magnetic Anisotropy of Layered Chromium Compounds Originated by Ligand Spin-orbit Coupling**  
Donghwan Kim<sup>1</sup>, Kyoo Kim<sup>1</sup>, Kyung-Tae Ko<sup>1</sup>, Junho Seo<sup>1,2</sup>, Jun Sung Kim<sup>1,2</sup>, Younghak Kim<sup>1</sup>, Jae-Young Kim<sup>2</sup>, Sang-Wook Cheong<sup>1,3</sup>, Jae-Hoon Park<sup>1</sup>  
<sup>1</sup>Pohang University of Science and Technology, Korea, <sup>2</sup>Institute for Basic Science, Korea, <sup>3</sup>Rutgers University, USA
- G5-2134**    **Density Functional Theory Study of Meta-doped  $\text{WS}_2$  Monolayer**  
Jung-Min Hyun, Miyoung Kim  
*Sookmyung Women's University, Korea*

**G5-2137** Magnetic Properties of Chains of Iron-oxide Particles Obtained from Magnetotactic Bacteria  
Hyeonah Jo, Geonhee Bea, Jae-Hyeok Lee, Min-Kwan Kim, Jaegun Sim, Sang-Koog Kim  
*Seoul National University, Korea*

**G5-2142** Calculation of Magnetic Exchange Interactions and Construction of Spin Model for Low Dimensional Magnetic Compounds  
Zlata Pchelkina  
*Ural Branch of the Russian Academy of Sciences, Russia*

## G10. Functional Magnetic Devices

17:00-18:30, June 5 (Tue.)

Lobby (8F)

**Chair** Seok Soo Yoon (Andong National University, Korea)

**G10-0356** Improved Efficiency Characteristics of Wireless Power Charging System in Superconducting MAGLEV Train Using Inserted Permanent Magnets  
Yoon Do Chung<sup>1</sup>, Eun Young Park<sup>2</sup>, Chang Young Lee<sup>3</sup>  
<sup>1</sup>Suwon Science College, Korea, <sup>2</sup>Korea Christian University, Korea, <sup>3</sup>Korea Railroad Research Institute, Korea

**G10-0529** Optimal Design of the Knee Joint Pitch Motor for Quadruped Robot Using Orthogonal Array, Characteristic Function, and Response Surface Methodology  
Joonwoo Mo<sup>1</sup>, Taewoo Lee<sup>1</sup>, Dokwan Hong<sup>1,2</sup>, Geunhie Rim<sup>1,2</sup>, Byungchul Woo<sup>2</sup>  
<sup>1</sup>University of Science and Technology, Korea, <sup>2</sup>Korea Electrotechnology Research Institute, Korea

**G10-0779** Research on Hall Sensor Error Diagnosis and Compensation Algorithm that Caused Irreversible Demagnetization of PMSM  
Jae Yong Lee<sup>1</sup>, Dong Yeol Lee<sup>1</sup>, Jun Young Kim<sup>2</sup>, Dong Woo Kang<sup>1</sup>  
<sup>1</sup>Keimyung University, Korea, <sup>2</sup>Hanyang University, Korea

**G10-0814** Design Method of an Ultra-high Speed PM Motor/Generator for Electric-turbo Compounding System  
Ho-Joon Lee, Woo-Suk Lee, Chul-Ho Kim  
*Busan Institute of Science & Technology, Korea*

**G10-0890** Shield Effect of a Portable Multi-layered Shield Can  
Young Hak Kim  
*Pukyong National University, Korea*

**G10-1030** Magnetic Sensor Using R/L Transient Response in Cu core/ Ni<sub>80</sub>Fe<sub>20</sub> Shell Composite Wire Fabricated by Electrodeposition  
Seok Soo Yoon, Dong Young Kim  
*Andong National University, Korea*

**G10-1073** Magnetic Garnet Films Fabricated by Metal Organic Decomposition Method for Magneto-plasmonic Effect  
Yoshito Ashizawa, Toshihide Harada, Katsuji Nakagawa  
*Nihon University, Japan*

- G10-1096** Optimized Design of Improved Motor for Articulated Robot Actuator Using the Penalty Function and Response Surface Method  
Tae-Woo Lee<sup>1</sup>, Joon-Woo Mo<sup>1</sup>, Do-Kwan Hong<sup>1,2</sup>, Byung-Chul Woo<sup>2</sup>  
<sup>1</sup>University of Science & Technology, Korea, <sup>2</sup>Korea Electrotechnology Research Institute, Korea
- G10-1103** Synthesis of Zn-substituted Barium Y-type Hexaferrites and Their Microwave Absorbing Property  
Jae-Hyoung You, SungJoon Choi, Sunwoo Lee, Sang-Im Yoo  
 Seoul National University, Korea
- G10-1120** Development of Computational and Mathematical Resonance Frequency Prediction Model of Linear Oscillating Actuators Considering Nonlinearity of Permanent-magnetic Material  
 DongWoo Kang<sup>1</sup>, YongDae So<sup>1</sup>, JiSun Kim<sup>1,2</sup>, EunKyung Hong<sup>1</sup>  
<sup>1</sup>Keimyung University, Korea, <sup>2</sup>JINN Co, Ltd, Korea
- G10-1509** Magnetoelectric Effects and Power Conversion Efficiencies in Gytrators with Functionally-graded Ferrites and Piezoelectrics  
Jitao Zhang<sup>1</sup>, Gopalan Srinivasan<sup>2</sup>  
<sup>1</sup>Zhengzhou University of Light Industry, China, <sup>2</sup>Oakland University, USA
- G10-1520** Microwave Power Absorption and Inter-decoupling Effects in Near-field for Graphene Oxide Sheets Embedded in Carbonyl Iron-polymeric Composites  
Seunggeun Jeon, Jinu Kim, Ki Hyeon Kim  
 Yeungnam University, Korea
- G10-1692** Suppression of 1/f Noise in Tunneling Magnetoresistance Sensors with AC-biasing Bridge  
Van Su Luong, Anh Tuan Nguyen, Thi Hoai Dung Tran, Quoc Khanh Hoang, Anh Tue Nguyen, Tuyet Nga Nguyen  
 Hanoi University of Science and Technology, Vietnam
- G10-1694** Analysis of Defect Signal Interference by Adjacent Defects on the Pipeline in Nondestructive Test Using MFL Method  
Hui Min Kim<sup>1</sup>, Chang Guen Heo<sup>1</sup>, Sung Ho Cho<sup>2</sup>, Gwan Soo Park<sup>1</sup>  
<sup>1</sup>Pusan National University, Korea, <sup>2</sup>Korea Gas Corporation, Korea
- G10-1811** Orthogonality Correction for Concentric Tri-axis Fluxgate Magnetometer  
Xuan-Thang Trinh<sup>1</sup>, Jen-Tzong Jeng<sup>1</sup>, Chih-Cheng Lu<sup>2</sup>  
<sup>1</sup>National Kaohsiung University of Applied Sciences, Taiwan, <sup>2</sup>National Taipei University of Technology, Taiwan
- G10-1937** Electromagnetic Scattering and Transmission of Dual Metallic Grating Screens Inserting a Magnetized Ferrite Sheet  
Hyun Ho Park  
 The University of Suwon, Korea
- G10-2023** Spring Displacement Sensor Composed of LC Resonance Circuit  
 Kwang-Ho Shin, Kyungwon Kim  
 Kyungsung University, Korea

- G10-2145** **Magneto-plasmonic Properties for Au/MnSb/Au Nanostructure at around Curie Temperature**  
Shin Saito, Tatsuki Sasaki  
*Tohoku University, Japan*

## G11. Magnetic Characterizations

17:00-18:30, June 5 (Tue.)

Lobby (8F)

**Chair** Ki-Suk Lee (Ulsan National Institute of Science and Technology, Korea)

- G11-0165** **Magnetic Sensing and Imaging with Diamond Nitrogen-Vacancy(NV) Center**  
Jungbae Yoon<sup>1</sup>, Myeongwon Lee<sup>1</sup>, Alec Jenkins<sup>2</sup>, Mohan Chandra Mathpal<sup>1</sup>, Ania Bleszynski Jayich<sup>2</sup>, Donghun Lee<sup>1</sup>  
<sup>1</sup>Korea University, Korea, <sup>2</sup>University of California, USA

- G11-0224** **Measurements of Spin-selective Magnetic Hysteresis Curve in Fe-3wt% Si Alloy Using Magnetic Compton Scattering**  
Chan Wook Kim<sup>1</sup>, Kyu Seok Han<sup>2</sup>, Naruki Tsuji<sup>3</sup>, Yoshiharu Sakurai<sup>3</sup>  
<sup>1</sup>Research Institute of Industrial Science & Technology, Korea, <sup>2</sup>POSCO, Korea, <sup>3</sup>Spring-8, Japan

- G11-1458** **Pulsed Field Magnetometry: Eddy Current Correction Technique with a Single Pulse**  
Seung-jae Cho<sup>1</sup>, Dae-hyoung Cho<sup>2</sup>, Tae-Won Kim<sup>2</sup>, Minsung Kim<sup>3</sup>  
<sup>1</sup>Seoul Controls Magnet Instrument, Korea, <sup>2</sup>Korea Testing Laboratory, Korea, <sup>3</sup>Pohang University of Science and Technology, Korea

- G11-1953** **Characterization of Rare Earth Substituted Cobalt Ferrite Nanoparticles by First Order Reversal Curve Method**  
Basharat Wani  
*University of Kashmir, India*

### G1-3. Spintronics

17:00-18:30, June 6 (Wed.)

Lobby (8F)

**Chair** Jinho Lee (Seoul National University, Korea)

**G1-0254** Magnetic Skyrmion Motion in the Presence of Defect

Ik-sun Hong<sup>1</sup>, Kyung-Jin Lee<sup>2</sup>

<sup>1</sup>KU-KIST Graduate School of Converging Science and Technology, Korea University, Korea,

<sup>2</sup>Korea University, Korea

**G1-0258** Electrically-modulating Magnetic and Transport Properties in a Composite SiO<sub>2</sub>-Co/ZnO-Co Film

Xiaoli Li, Fanfan Du, Yanchun Li, Yana Shi, Yuhao Bai, Zhiyong Quan, Xiaohong Xu

Shanxi Normal University, China

**G1-0315** Non-adiabatic Spin-transfer Torque for Ferromagnetic Domain Wall

Hyeon-Jong Park<sup>1</sup>, Jung Hyun Oh<sup>2</sup>, Kyung-Jin Lee<sup>1,2</sup>

<sup>1</sup>KU-KIST Graduate School of Converging Science and Technology, Korea University, Korea,

<sup>2</sup>Korea University, Korea

**G1-0348** Electrical Synchronization of Spin-torque Nano-oscillators

Hee Gyum Park<sup>1,2</sup>, Chaun Jang<sup>1</sup>, Byoung-Chul Min<sup>1,2</sup>

<sup>1</sup>Korea Institute of Science and Technology, Korea, <sup>2</sup>Korea University of Science and Technology, Korea

**G1-0378** Tuning the Ferromagnetism in Noncompensated n-p Codoped ZnO Films by Carrier Density

Feng-Xian Jiang, Li-Fei Ji, Rui-Xue Tong, Shi-Fei Qi, Xiao-Hong Xu

Shanxi Normal University, China

**G1-0385** Efficient In-line Skyrmion Injection Method for Synthetic Antiferromagnetic Systems

Weiliang Gan, Sachin Krishnia, Wen Siang Lew

Nanyang Technological University, Singapore

**G1-0400** Effect of 4D and 5D Transition-metal Insertions to Spin-dependent Transports in Fe/MgO Superlattices

Shunta Ando, Kohji Nakamura, Abdul Muizz Pradipto, Tomonori Ito, Toru Akiyama

Mie University, Japan

**G1-0412** Spin-hall Magnetoresistance for Cr / Co<sub>100-x</sub>Gd<sub>x</sub> / Pt Layered Structures

Takeshi Seki, Weinan Zhou, Takahide Kubota, Koki Takanashi

Tohoku University, Japan

**G1-0416** Size Dependence of Vortex Dynamics in a Co<sub>2</sub>(Fe,Mn)Si Heusler Alloy Disk

Takeshi Seki, Takahide Kubota, Tatsuya Yamamoto, Koki Takanashi

Tohoku University, Japan

- G1-0473**    **Manipulation of Magnetization in GaMnAs by Spin-orbit Field in the Absence of External Field**  
 Sanghoon Lee<sup>1</sup>, [Sangyeop Lee](#)<sup>1,2</sup>  
<sup>1</sup>Korea University, Korea, <sup>2</sup>Korea Institute of Science and Technology, Korea
- G1-0498**    **Transition from Current Flow to Electron Flow in Current-induced Domain Wall Motion due to Spin Hall Effect Change**  
[Kwang-Su Ryu](#)<sup>1</sup>, See-Hun Yang<sup>2</sup>, Luc Thomas<sup>3</sup>, Stuart Parkin<sup>2</sup>  
<sup>1</sup>Korea National University of Education, Korea, <sup>2</sup>IBM Almaden Research Center, USA,  
<sup>3</sup>TDK-Headway Technologies, USA
- G1-0503**    **Tuning Atomic-layer Alignment for Perpendicular Magnetocrystalline Anisotropy of Co/Ni Multilayers**  
[Thao Thi Phuong Nguyen](#)<sup>1</sup>, Kohji Nakamura<sup>2</sup>, Tamio Oguchi<sup>1</sup>  
<sup>1</sup>Osaka University, Japan, <sup>2</sup>Mie University, Japan
- G1-0508**    **Correction of Thermoelectric Artifacts in Second Harmonics Measurements**  
[Eun-Sang Park](#)<sup>1,2</sup>, Byoung-Chul Min<sup>2</sup>, Kyung-Jin Lee<sup>1,2</sup>  
<sup>1</sup>KU-KIST Graduate School of Converging Science and Technology, Korea University, Korea,  
<sup>2</sup>Korea Institute of Science and Technology, Korea
- G1-1910**    **Anomalous Hall Effect of Ir<sub>20</sub>Mn<sub>80</sub>/Pt Bilayers**  
 Tae Hee Kim<sup>1</sup>, [Thi Kim Hang Pham](#)<sup>1,2</sup>, Mario Ribeiro<sup>2</sup>  
<sup>1</sup>Ewha Womans University, Korea, <sup>2</sup>Institute for Basic Science, Korea
- G1-2159**    **Complementary Logic Operation Based on Electric Field Controlled Spin-orbit Torques**  
 Seung-heon Chris Baek<sup>1,2</sup>, [Young-Wan Oh](#)<sup>1</sup>, Kyung-Woong Park<sup>1,2</sup>, Kyung-Jin Lee<sup>3</sup>, Byong-Guk Park<sup>1</sup>  
<sup>1</sup>Korea Advanced Institute of Science and Technology, Korea, <sup>2</sup>SK Hynix Semiconductor, Inc., Korea,  
<sup>3</sup>Korea University, Korea

## G5-3. Fundamental Properties of Materials

17:00-18:30, June 6 (Wed.)

Lobby (8F)

**Chair**            Gwan Soo Park (Pusan National University, Korea)

- G5-1979**    **A Density Functional Study of Thickness Effect on Magnetism and Magnetocrystalline Anisotropy of Pd/Co/Pd (111) Films**  
[Huynh Thi Ho](#), S. H. Rhim, Soon Cheol Hong  
 University of Ulsan, Korea

## G6. Novel Magnetic Phenomena

17:00-18:30, June 6 (Wed.)

Lobby (8F)

**Chair** Yoon Seok Oh (Ulsan National Institute of Science and Technology, Korea)

### G6-0177 Optical Investigation of the Metal-insulator Transition in the Manganite Films with the Thickness Dependence

Yunsang Lee, Ilwan Seo

*Soongsil University, Korea*

### G6-0365 Influence of Two Cation Substitution on Low-energy Dynamics of M-type Hexaferrite

$\text{Ba}_{0.8}\text{Pb}_{0.2}\text{Fe}_{(12-x)}\text{Al}_x\text{O}_{19}$

Liudmila Alyabyeva<sup>1</sup>, Denis Vinnik<sup>2</sup>, Victor Torgashev<sup>3</sup>, Svetlana Gudkova<sup>1,2</sup>, Dmitriy Zhrebtsov<sup>2</sup>, Elena Zhukova<sup>1</sup>, Anatoliy Prokhorov<sup>1,4</sup>, Boris Gorshunov<sup>1</sup>

<sup>1</sup>Moscow Institute of Physics and Technology, Russia, <sup>2</sup>South Ural State University, Russia, <sup>3</sup>Southern Federal University, Russia, <sup>4</sup>A.M. Prokhorov General Physics Institute, Russian Academy of Sciences, Russia

### G6-0368 Influence of Co and Al on Magnetic Properties and Magnetocaloric Effect of Ni-Mn-Sn Alloy

Kieu Xuan Hau

*Chungbuk National University, Korea*

### G6-0393 The p+ip Triplet Superconducting Pairs Existing in the Graphene Sandwiched by Superconductor and Ferromagnet

Shih-Jye Sun<sup>1</sup>, Hsiung Chou<sup>2</sup>

<sup>1</sup>National University of Kaohsiung, Taiwan, <sup>2</sup>National Sun Yat-Sen University, Taiwan

### G6-0421 Optimization of High Temperature Superconducting Magnet Using No-insulation Multi-width Winding Technique

Byeongha Yoo, Jong Cheol Kim, Young-Gyun Kim, Jimin Kim, Haigun Lee

*Korea University, Korea*

### G6-0431 Investigation on Purification of CMP Wastewater Using Superconducting a High-Gradient Magnetic Separation (HGMS) System

Byeongha Yoo, Jong Cheol Kim, Young-Gyun Kim, Jihoon Lee, Haigun Lee

*Korea University, Korea*

### G6-0434 Study on the Electromagnetic Stability of a No-insulation GdBCO Superconducting Magnet in Magnetic Ripple Field

Jihoon Lee, Young-Gyun Kim, Byeongha Yoo, Hyun Hee Son, Haigun Lee

*Korea University, Korea*

### G6-0438 Investigation of Thermal/Electrical Characteristics of REBCO Superconducting Magnets Wound Using the Metallic Insulation Winding Technique

Jimin Kim, Jong Cheol Kim, Young-Gyun Kim, Byeongha Yoo, Haigun Lee

*Korea University, Korea*



- G6-0440** Charge-discharge and Over-current Characteristics of GdBCO Superconducting Magnets Wound with Various Thermal Greases  
Jimin Kim, Young-Gyun Kim, Byeongha Yoo, Hyun Hee Son, Haigun Lee  
*Korea University, Korea*
- G6-0442** Investigation on the Development of High Temperature Superconducting Magnets for 10 MW Class Wind Power Generators  
Jihoon Lee, Jong Cheol Kim, Hyun Hee Son, Jimin Kim, Haigun Lee  
*Korea University, Korea*
- G6-0452** Effect of Current Sweep Reversal Method on Screening Current-induced Field of a No-insulation REBCO Superconducting Magnet  
Young-Gyun Kim, Byeongha Yoo, Jihoon Lee, Hyun Hee Son, Haigun Lee  
*Korea University, Korea*
- G6-0456** A Progress Report on Design and Fabrication of 0.5-T/300-mm MRI Magnet Using MgB<sub>2</sub> Superconducting Wires  
Young-Gyun Kim<sup>1</sup>, Jong Cheol Kim<sup>1</sup>, Jiman Kim<sup>1,2</sup>, Byeongha Yoo<sup>1</sup>, Jihoon Lee<sup>1</sup>, Duck Young Hwang<sup>2</sup>, Haigun Lee<sup>1</sup>  
<sup>1</sup>Korea University, Korea, <sup>2</sup>Kiswire Advanced Technology Co., Ltd., Korea
- G6-0459** Study on Partial Insulation REBCO Superconducting Magnet for Protection-free HTS AC Power Applications  
Hyun Hee Son, Young-Gyun Kim, Jimin Kim, Jihoon Lee, Haigun Lee  
*Korea University, Korea*
- G6-0464** Investigation on Thermal and Electrical Stabilities of GdBCO Superconducting Magnets Impregnated with Epoxy Composites Using Surface-treated Carbon Nanotube Fillers  
Hyun Hee Son<sup>1</sup>, Jong Cheol Kim<sup>1</sup>, Young-Gyun Kim<sup>1</sup>, Jihoon Lee<sup>1</sup>, Yeon Suk Choi<sup>2</sup>, Haigun Lee<sup>1</sup>  
<sup>1</sup>Korea University, Korea, <sup>2</sup>Korea Basic Science Institute, Korea
- G6-0896** Understanding the Two-dimensional Spin Glass Behavior in Van der Waals Mn<sub>0.5</sub>Fe<sub>0.5</sub>PS<sub>3</sub>  
Suhan Son<sup>1,2</sup>, Sungmin Lee<sup>1,2</sup>, Haeri Kim<sup>1,2</sup>, Soo Yeon Lim<sup>3</sup>, Hyeonsik Cheong<sup>3</sup>, Je-Geun Park<sup>1,2</sup>  
<sup>1</sup>Seoul National University, Korea, <sup>2</sup>Institute for Basic Science, Korea, <sup>3</sup>Sogang University, Korea
- G6-1462** Effect of Size on Multiferroic SmMn<sub>2</sub>O<sub>5</sub> Nanorods  
Ting-Wei Hsu<sup>1</sup>, Chun-Chuen Yang<sup>1</sup>, Chuen-Yang Chu<sup>1</sup>, Yung-Hsiang Tung<sup>1</sup>, Cheng-Wei Kao<sup>1</sup>, Wei-Chun Wu<sup>1</sup>, Kuen-Song Lin<sup>2</sup>  
<sup>1</sup>Chung Yuan Christian University, Taiwan, <sup>2</sup>Yuan Ze University, Taiwan
- G6-1558** Voltage-controllable Colossal Magnetocrystalline Anisotropy in Single-layer Transition Metal Dichalcogenides  
Xuelei Sui<sup>1,2</sup>, Jianfeng Wang<sup>1,2</sup>, Wenhui Duan<sup>2</sup>, Mao-Sheng Miao<sup>1,3</sup>  
<sup>1</sup>Beijing Computational Science Research Center, China, <sup>2</sup>Tsinghua University, China, <sup>3</sup>California State University Northridge, USA

**G6-2008** Structural and Magnetic Properties of Epitaxial  $\text{FeMn}_2\text{O}_{4.26}$  Film on  $\text{MgO}(100)$

Duong Van Thiet<sup>1</sup>, Dang Duc Dung<sup>2</sup>, Duong Anh Tuan<sup>1</sup>, Sunglae Cho<sup>1</sup>

<sup>1</sup>University of Ulsan, Korea, <sup>2</sup>Ha Noi University of Science and Technology, Vietnam

## G7-1. Soft/Hard Magnetic Materials and Their Applications

17:00-18:30, June 6 (Wed.)

Lobby (8F)

**Chair** Hyojun Kim (JAHWA Electronics Co. Ltd, Korea)

**G7-0830** The Effect of Ce-Mn Substitution on the Hard Magnetic Properties of M-type Sr-hexaferrites

Young-Min Kang

Korea National University of Transportation, Korea

**G7-0833** Synthesis and Magnetic Properties of Z-type  $\text{Sr}_3\text{Co}_2\text{-xZnFe}_{24}\text{O}_{41}$  Hexaferrites

Min-Hyeok Park, Young-Min Kang

Korea National University of Transportation, Korea

**G7-1165** Electronic Structure and Magnetic Property of Ni-doped  $\text{ZnFe}_2\text{O}_4$  Nanoparticles

Ngo Tran, Deok Hyeon Kim, Hyun Sung Kim, The-Long Phan, Bo Wha Lee

Hankuk University of Foreign Studies, Korea

**G7-1167** Exchange Coupled Fe-Ni/ $\text{Fe}_{22}\text{Ni}_{78}$  Multilayered Films Prepared by an Electroplating Method

Junichi Kaji, Hideyuki Aramaki, Kazuki Kouda, Kazuki Eguchi, Keisuke Takashima, Takeshi Yanai, Masaki Nakano, Hirotochi Fukunaga

Nagasaki University, Japan

**G7-1246** Effect of Copper Contents on the Magnetic Properties of Cu-substituted  $\text{SmCo}_5$  Nanofiber: A Novel Structure Based on Electrospinning

Jimin Lee, Tae-yeon Hwang, Min Kyu Kang, Jongryoul Kim, Yong-Ho Choa

Hanyang University, Korea

**G7-1294** Influence of Rare Earth Elements on Phase Formation and Magnetocaloric Effect of Fe-Zr Alloys

Dan Nguyen<sup>1</sup>, Yen Nguyen<sup>1</sup>, Ha Nguyen<sup>2</sup>, Thanh Pham<sup>1</sup>, Ngoc Nguyen<sup>1</sup>, Thanh Tran<sup>1</sup>, Hau Kieu<sup>3</sup>, Dong Huyn Kim<sup>3</sup>, Seong Cho Yu<sup>3</sup>

<sup>1</sup>Vietnamese Academy of Science and Technology, Vietnam, <sup>2</sup>Hong Duc University, Vietnam,

<sup>3</sup>Chungbuk National University, Korea

**G7-1456** Effects of Nitrogen Partial Pressure on Magnetism in Annealed (110) Fe Films

Gowoon Kim<sup>1</sup>, Eunyoung Ahn<sup>1</sup>, Hyeonjun Kong<sup>1</sup>, Jaekwang Lee<sup>1</sup>, Youn-Kyoung Baek<sup>2</sup>, Hyoungjeen Jeon<sup>1</sup>

<sup>1</sup>Pusan National University, Korea, <sup>2</sup>Korea Institute of Materials Science, Korea

**G7-1490** High-speed Plating of Fe Films Using DES-based Plating Baths

Takeshi Yanai, Tomoki Yamaguchi, Masaki Nakano, Hirotochi Fukunaga

Nagasaki University, Japan

- G7-1494** **Fe-Ni Thin Ribbons Prepared Using an Electroplating Method**  
Takeshi Yanai, Kazuki Koda, Junichi Kaji, Hideyuki Aramaki, Masaki Nakano, Hirotooshi Fukunaga  
*Nagasaki University, Japan*
- G7-1669** **Influence of Pr-Co Substitution on the Structural and Dielectric Properties of Barium Hexaferrite**  
Zubida Habib, Mohd IKram  
*National Institute of Technology, India*
- G7-1723** **Synthesis of High Purity Iron Nitride Particles with Tunable Sphere Structures**  
 Youn-Kyoung Baek, Su Gyeong Kim, Jung-Goo Lee  
*Korea Institute of Materials Science, Korea*
- G7-1733** **Mössbauer Studies of BaCoZnFe<sub>16</sub>O<sub>27</sub> W-type Hexaferrite**  
Jeonghun Kim, Jung Tae Lim, Hyunkyu Kim, Chul Sung Kim  
*Kookmin University, Korea*
- G7-1753** **Magnetic and Thermal Properties of Fe<sub>3</sub>O<sub>4</sub>@MFe<sub>2</sub>O<sub>4</sub> (M=Zn, Al) Nanoparticles Investigated by Mössbauer Spectroscopy**  
Hyunkyung Choi, Sam Jin Kim, Chul Sung Kim  
*Kookmin University, Korea*
- G7-1768** **Magnetization-reversal Process for Various Distributions of Different Grain Orientations in Granular Nd-Fe-B Magnets: A Finite-element Micromagnetic Simulation Study**  
Shinwon Hwang, Jae-Hyeok Lee, Sang-Koog Kim  
*Seoul National University, Korea*
- G7-1784** **Synthesis and Magnetic Properties of  $\alpha$ "-(Fe,Co)<sub>16</sub>N<sub>2</sub> Nanoparticles Obtained Hydrogen Reduction of  $\alpha$ -(Fe,Co)OOH and Subsequent Nitrogenation**  
Masahiro Tobise, Shin Saito  
*Tohoku University, Japan*
- G7-1994** **Effects of Defects on Magnetism and Magnetocrystalline Anisotropy of L1<sub>0</sub>-MnAl**  
Gi-Beom Cha, Soon Cheol Hong  
*University of Ulsan, Korea*
- G7-1995** **Magnetism and Magnetocrystalline Anisotropy of L1<sub>0</sub>-MnAl(001) Film**  
Gi-Beom Cha, Soon Cheol Hong  
*University of Ulsan, Korea*
- G7-2004** **Tuning Transport and Magnetic Properties of Co<sub>x</sub>Fe<sub>3-x</sub>O<sub>4</sub> Thin Films by Co Content**  
Nguyen Van Quang<sup>1</sup>, Shin Yooleemi<sup>2</sup>, Duong Anh Tuan<sup>1</sup>, Cho Sunglae<sup>1</sup>, Christian Meny<sup>2</sup>  
<sup>1</sup>University of Ulsan, Korea, <sup>2</sup>Institute of Physics and Chemistry for Materials of Strasbourg, France
- G7-2037** **Variation of the Magnetic and Thermal Properties of Fe-Co-Zr-Ta-B Amorphous Alloy System by Changing the Ratio of Fe to Co**  
Haerin Yim  
*Sookmyung Women's University, Korea*

## G8-1. Energy Applications of Magnetic Materials

17:00-18:30, June 6 (Wed.)

Lobby (8F)

**Chair** Gwan Soo Park (Pusan National University, Korea)

**G8-0158 Rotor Open-rib Design for Power Density Improvement in Synchronous Reluctance Motor**

Jae-Kwang Lee, Jongsuk Lim, Dong-Hoon Jung, Ju Lee  
Hanyang University, Korea

**G8-0410 Magnetic Flux Estimation for Interior Permanent Magnet Synchronous Motor by Using MRAC**

Hanwoong Ahn, Hyun-jong Park  
Korea Aerospace Research Institute, Korea

**G8-1270 A Study on the Optimal Design of Slot-less Permanent Magnet Motor Using Response Surface Method**

Dong-Hoon Jung, Jae-Kwang Lee, Gang Seok Lee, Ju Lee  
Hanyang University, Korea

**G8-1420 Design and Optimization of Axial Magnetic Field Coreless Permanent Magnet Motor**

Xue Li, Fugui Liu, Shaopeng Wang, Bo Li  
Hebei University of Technology, China

**G8-1452 Analysis of Eddy Current Braking System Used in High-speed Maglev Train**

Chuntao Chen<sup>1</sup>, Jie Xu<sup>2</sup>, Xiaoqin Zheng<sup>1</sup>, Xinzheng Wu<sup>1</sup>  
<sup>1</sup>Qingdao University, China, <sup>2</sup>Naval University of Engineering, China

**G8-1528 Electromagnetic Analysis of Magnetic Polarity Distribution for a Dual-rotor Switched Reluctance Machine**

Xing Wang, Rui Nie, Hao Chen, Haiying Wang  
China University of Mining and Technology, China

**G8-1529 Multi Objective Optimization Design of Dual-stator Switched Reluctance Motor**

Xing Wang, Rui Nie, Hao Chen  
China University of Mining and Technology, China

**G8-1581 Analysis of Torque Characteristics According to Non-uniform Air Gaps of Coaxial Magnetic Gear**

Eui-Jong Park<sup>1</sup>, Chan-Seung Kim<sup>1</sup>, Sang-Yong Jung<sup>2</sup>, Yong-Jae Kim<sup>1</sup>  
<sup>1</sup>Chosun University, Korea, <sup>2</sup>Sungkyunkwan University, Korea

**G8-1584 Vibration Analysis, Calculation, and Reduction in Surface-mounted Permanent Magnet Motor**

Jianfeng Hong, Shanming Wang, Yuguang Sun, Haixiang Cao  
Tsinghua University, China

**G8-1597 Development of a Database of Soft Magnetic Material for Computational Electromagnetics**

Junquan Chen, Dong Wang, Yapeng Jiang, Xuan Teng, Siwei Cheng, Xiaoqin Zheng  
PLA Naval University of Engineering, China

- G8-1628** Torque Maximization Method of Radial Magnetized Surface-mounted PM Machine Having Sinusoidal Shaped Pole  
Pengfei Hu<sup>1</sup>, Dong Wang<sup>1</sup>, Shuangjiang Zhuang<sup>1</sup>, Nan Lin<sup>1</sup>, Shuanbao Jin<sup>1</sup>, Yingsan Wei<sup>1</sup>, Hao Zhu<sup>1</sup>, Xingyu Wu<sup>1</sup>, [Xiaoqin Zheng](#)<sup>2</sup>  
<sup>1</sup>PLA Naval University of Engineering, China, <sup>2</sup>Qingdao University, China
- G8-1702** Study of Impact of Poloidal Coil Current Disturbance on Tokamak Plasma Shape  
Yuanyang Chen<sup>1</sup>, Xiaohua Bao<sup>1</sup>, [Wei Xu](#)<sup>1</sup>, Ge Gao<sup>2</sup>  
<sup>1</sup>Hefei University of Technology, China, <sup>2</sup>Institute of Plasma Physics, Chinese Academy of Sciences, China
- G8-1743** Design of Dual Skewed Rotor in Induction Motors for Reducing Synchronous Parasitic Torque  
[Wei Xu](#), Xiaohua Bao, Jinlong Fang, Chunyu Wang  
Hefei University of Technology, China
- G8-1798** Analysis of Core Loss for Three-phase Induction Machines with Single-double Layer Star-delta Winding  
Zechen Li, Xiaohua Bao, [Wei Xu](#)  
Hefei University of Technology, China
- G8-1803** Investigation of Starting Torque of Submersible Motor with Rotor's Fan-shaped Slices Connected by Stainless Steel Weldment  
Shuai Cheng, Xiaohua Bao, [Wei Xu](#)  
Hefei University of Technology, China
- G8-1812** Development and Experimental Study on Agile Frequency Electromagnetic Anti-scaling Device  
[Ye Zhang](#), Tianyi Sun, Shengxian Cao, Gong Wang, Zhenhao Tang  
Northeast Electric Power University, China
- G8-1857** Performance Comparison of Amorphous and Silicon-steel Permanent Magnet Synchronous Motors Used in Steering Pump of Electric Vehicle  
[Ruifang Liu](#), Xin Ma, Junci Cao, Zhigang Wu  
Beijing Jiaotong University, China
- G8-1935** Comparison of Electromagnetic Vibration and Noise of Amorphous Alloy PMSMs and Silicon Steel PMSMs  
[Shengnan Wu](#), Wenming Tong, Ruolan Sun, Renyuan Tang  
Shenyang University of Technology, China
- G8-1941** A Transverse Flux Single-phase Tubular Switched Reluctance Linear Motor with Two Stator Poles  
[Hao Chen](#), Haiying Wang, Rui Nie  
China University of Mining and Technology, China
- G8-2108** Dependence of Stator Inductance on Temperature Variation in AQDM Based Induction Motor Drive  
[Chun-Ki Kwon](#)  
Soonchunhyang University, Korea

## G4. Magnetization Dynamics

13:30-14:30, June 7 (Thur.)

Lobby (8F)

Chair

Ki-Suk Lee (Ulsan National Institute of Science and Technology, Korea)

**G4-0203** The Influence of "Injected" and "Thermal" Magnons on Magnon-magnon Drag in Pt/Yig/Pt StructuresIgor Lyapilin*Institute of Metal Physic, Russian Academy of Sciences, Russia***G4-0763** Distinct Stochasticities between Ferromagnetic Domain-wall Motions Driven by Magnetic Field and Electric CurrentYune-Seok Nam<sup>1</sup>, Dae-Yun Kim<sup>1</sup>, Min-Ho Park<sup>1</sup>, Yong-Keun Park<sup>1</sup>, Joo-Sung Kim<sup>1</sup>, Duck-Ho Kim<sup>2</sup>,  
Byoung-Chul Min<sup>3</sup>, Sug-Bong Choe<sup>1</sup><sup>1</sup>Seoul National University, Korea, <sup>2</sup>Kyoto University, Japan, <sup>3</sup>Korea Institute of Science and Technology, Korea**G4-0809** Spin Accumulation on Cu Driven by Ultrafast Demagnetization of Fe, Co, and NiIm Hyuk Shin<sup>1</sup>, Gyung Min Choi<sup>2</sup><sup>1</sup>Korea Institute of Science and Technology, Korea, <sup>2</sup>Sungkyunkwan University, Korea**G4-1258** Domain Wall Ratchet Effect by Out-of-plane AC Magnetic Field in Sawtooth-shaped Ferromagnetic NanowiresXiaoPing Ma<sup>1</sup>, Hong-Guang Piao<sup>2</sup>, Dong-Hyun Kim<sup>2</sup><sup>1</sup>Chungbuk National University, Korea, <sup>2</sup>China Three Gorges University, China**G4-1477** Vortex-chirality Induced Standing Spin-wave Modes in Soft Magnetic NanotubesJaehak Yang, Junhoe Kim, Bosung Kim, Young-Jun Cho, Jae-Hyeok Lee, Sang-Koog Kim*Seoul National University, Korea***G4-1480** Vortex-polarity Switching in Magnetic-dot Arrays by Gyration SignalsYoung-Jun Cho, Junhoe Kim, Jae-Hyeok Lee, Jaehak Yang, Bosung Kim, Sang-Koog Kim*Seoul National University, Korea***G4-1489** Temperature Dependence of Magnetic Properties on GdFe NanoparticlesJaegun Sim, Jae-Hyeok Lee, Sang-Koog Kim*Seoul National University, Korea***G4-1771** Spin Dynamics Analysis Using Coplanar Waveguide for Magnetic Garnet Thin Film Fabricated by Metal Organic Decomposition MethodTakanori Akazawa, Hina Saito, Yuya Hironaka, Yoshito Ashizawa, Katsuji Nakagawa*Nihon University, Japan***G4-2033** Non-monotonic After-effect Measurements in Perpendicular Synthetic FerrimagnetsGalina L'vova<sup>1</sup>, Roman Morgunov<sup>1</sup>, Thibaud Fache<sup>2</sup>, Stephane Mangin<sup>2</sup><sup>1</sup>Institute of Problems of Chemical Physics of Russian Academy of Sciences, Russia, <sup>2</sup>University de Lorraine, France

## G7-2. Soft/Hard Magnetic Materials and Their Applications

13:30-14:30, June 7 (Thur.)

Lobby (8F)

**Chair** Jung-Goo Lee (Korea Institute of Materials Science, Korea)

**G7-0195** **Synthesis and Magnetorheology of Zinc-doped Spinel Ferrite Nanoparticles with Controlled Morphology and Magnetic Property**

Jae Kyeong Han, Hyoung Jin Choi  
Inha University, Korea

**G7-0197** **PDPA Coated Carbonyl Iron Composite Magnetic Particles and Their Viscoelastic Characteristics under Magnetic Field**

Jin Hee Lee, Hyoung Jin Choi  
Inha University, Korea

**G7-0216** **Polyindole Coated Soft-magnetic Particles and Their Viscoelastic Behaviors under Applied Magnetic Field**

In Hye Park<sup>1</sup>, Seung Hyuk Kwon<sup>1</sup>, Hyoung Jin Choi<sup>1</sup>, Nam Hui Kim<sup>2</sup>, Chun Yeol You<sup>2</sup>  
<sup>1</sup>Inha University, Korea, <sup>2</sup>Daegu Gyeongbuk Institute of Science & Technology, Korea

**G7-0223** **Fabrication of Magnetite Nanoparticle-embedded Polystyrene Composites and Their Additive Role on Dynamic Properties of Carbonyl Iron-based Magnetorheological Fluid**

Qi Lu<sup>1</sup>, Chun Yan Gao<sup>1</sup>, Hyoung Jin Choi<sup>1</sup>, Nam Hui Kim<sup>2</sup>, Chun Yeol You<sup>2</sup>  
<sup>1</sup>Inha University, Korea, <sup>2</sup>Daegu Gyeongbuk Institute of Science & Technology, Korea

**G7-0240** **Characterization of Ca-La M-type Hexaferrites in Iron Deficiency**

KnagHyuk Lee, Wei Yan, Sang-Im Yoo  
Seoul National University, Korea

**G7-0247** **The Effect of Alumina Insulation Coating on the Magnetic Properties of Fe Powder**

SungJoon Choi, Sunwoo Lee, Jae-Hyoung Yoo, Sang-Im Yoo  
Seoul National University, Korea

**G7-0260** **Controllable Electrical Conduction Characteristics in Amorphous Ferromagnetic Alloys**

Cheng Chen<sup>1</sup>, Sumin Kim<sup>2</sup>, Hong-Guang Piao<sup>1</sup>, Haein Yim<sup>2</sup>, Dong-Hyun Kim<sup>3</sup>  
<sup>1</sup>China Three Gorges University, China, <sup>2</sup>Sookmyung Women's University, Korea, <sup>3</sup>Chungbuk National University, Korea

**G7-0262** **Magnetocaloric Effect in Ni-doped LaFeCoSiB Alloys**

Zhihao Wang<sup>1</sup>, Yingde Zhang<sup>2</sup>, Cheng Chen<sup>1</sup>, Guangduo Lu<sup>1</sup>, Hong-Guang Piao<sup>1</sup>, Seong-Cho Yu<sup>3</sup>  
<sup>1</sup>China Three Gorges University, China, <sup>2</sup>Baotou Research Institute of Rare Earths, China, <sup>3</sup>Chungbuk National University, Korea

**G7-0489** **Performance Analysis of High Speed Motor for Electric Turbo Charger Considering Several Cores**

Do-Kwan Hong<sup>1,2</sup>, Yeon-Ho Jeong<sup>1</sup>, Min-Hyuk Ahn<sup>1</sup>, Ji-Won Kim<sup>1,2</sup>, Byung-Chul Woo<sup>1</sup>  
<sup>1</sup>Korea Electrotechnology Research Institute, Korea, <sup>2</sup>University of Science & Technology, Korea

- G7-0512** Characterization of Rare-earth Element Substitution in M-type Hexagonal Ca-La-Co Substituted Strontium Ferrites by the Ceramic Process  
Namji Oh<sup>1,2</sup>, Seungyeon Park<sup>1</sup>, Yongwan Kim<sup>3</sup>, Hyukmin Kwon<sup>3</sup>, Sangsub Kim<sup>2</sup>, Kyoungmook Lim<sup>1</sup>  
<sup>1</sup>Korea Institute of Industrial Technology, Korea, <sup>2</sup>Inha University, Korea, <sup>3</sup>Ugimac Korea, Korea
- G7-0514** Effect of Zr and Nb on the Electrical and Magnetic Properties of Fe-Zr-Nb-B-Cu Alloy  
Junghyun Noh<sup>1,2</sup>, Seungyeon Park<sup>1</sup>, Haejin Hwang<sup>2</sup>, Kyoungmook Lim<sup>1</sup>  
<sup>1</sup>Korea Instituted of Industrial Technology, Korea, <sup>2</sup>Inha University, Korea
- G7-0750** Preparation of Sm<sub>2</sub>Fe<sub>17</sub>Nx by High Pressure N<sub>2</sub> Nitridation and Sm<sub>2</sub>Fe<sub>17</sub> by Diffusion Process  
Xiaofei Xiao<sup>1</sup>, Pingzhan Si<sup>1</sup>, Hongliang Ge<sup>1</sup>, Chul-Jin Choi<sup>2</sup>  
<sup>1</sup>China Jiliang University, China, <sup>2</sup>Korea Institute of Materials Science, Korea
- G7-0870** Magnetic Properties of MnAlC Magnetic Materials  
Sumin Kim<sup>1</sup>, Minyeong Choi<sup>2</sup>, Yang-Ki Hong<sup>2</sup>, Hyun-Sook Lee<sup>1</sup>, Wooyoung Lee<sup>1</sup>  
<sup>1</sup>Yonsei University, Korea, <sup>2</sup>The University of Alabama, USA
- G7-0886** Fe-Hf-B-P-Nb-C Amorphous Soft Magnetic Powders Fabricated through High-pressure Gas Atomization  
Jae Won Jeong<sup>1</sup>, Dong-Yeol Yang<sup>1</sup>, Ki Bong Kim<sup>1</sup>, Tae-Soo Lim<sup>1</sup>, Sangsun Yang<sup>1</sup>, Min Ha Lee<sup>2</sup>, HwiJun Kim<sup>2</sup>, Yong-Jin Kim<sup>1</sup>  
<sup>1</sup>Korea Institute of Materials Science, Korea, <sup>2</sup>Korea Institute of Industrial Technology, Korea
- G7-0980** Coercivity Enhancement of Nd-Fe-B Powders by the Grain Boundary Diffusion of Tb Plus Cu Mixture  
Sang Hyup Lee, Hyo Jun Kim  
 JAHWA Electronics Co. Ltd, Korea
- G7-0986** Synthesis and Magnetic Properties of Samarium Cobalt Particles Using Modified Spray Pyrolysis–calcination and Reduction–diffusion Process  
Tae-yeon Hwang, Jimin Lee, Gwang-myeong Go, Yong-Ho Choa  
 Hanyang University, Korea
- G7-1033** The Mechanical and Hydrogen Absorption Properties Response in Melt-Spun Ti-Zr-Ni-Cr Amorphous Ribbons  
Jianxin Wang, Xiaochen Wang, Bing Jiang, Chengyuan Qian, Lingfeng Xu, Guangqing Wang, Xueling Hou  
 Shanghai University, China
- G7-1047** Effect of RE Substitution on Magnetic Properties of Nd<sub>2</sub>Fe<sub>14</sub>B Particles Produced by Spray Drying Followed by Reduction–diffusion Process  
Vitalii Galkin<sup>1,3</sup>, Kamran Haider<sup>1,4</sup>, Jongbin Ahn<sup>1,2</sup>, Oleg Tolochko<sup>3</sup>, Dongsoo Kim<sup>1,2</sup>  
<sup>1</sup>Korea Institute of Geoscience and Mineral Resources, Korea, <sup>2</sup>Korea Institute of Materials Science, Korea, <sup>3</sup>Peter the Great St. Petersburg Polytechnic University, Russia, <sup>4</sup>Sogang University, Korea
- G7-1054** Effect of Na Ion Concentration on Coercivity of Electroplated Fe-Pt Film-magnets  
Junya Honda, Ryo Hamamura, Yuya Omagari, Keisuke Takashima, Takeshi Yanai, Masaki Nakano, Hirotooshi Fukunaga  
 Nagasaki University, Japan



- G7-1065**    **Electroplated Fe-Pt Film-magnets with Smooth Surface and High Coercivity**  
Yuya Omagari, Junya Honda, Ryo Hamamura, Keisuke Takashima, Takeshi Yanai, Masaki Nakano,  
 Hirotooshi Fukunaga  
*Nagasaki University, Japan*
- G7-1083**    **Rare-Earth-Free Permanent Magnets : MnBi Bulks and Thin Films**  
Sumin Kim<sup>1</sup>, Hongjae Moon<sup>1</sup>, Hwaebong Jung<sup>1</sup>, Sumin Kim<sup>2</sup>, Haein Kim<sup>2</sup>, Hyun-Sook Lee<sup>1</sup>,  
 Wooyoung Lee<sup>1</sup>  
<sup>1</sup>*Yonsei University, Korea*, <sup>2</sup>*Sookmyung Women's University, Korea*
- G7-1115**    **Effect of Target Materials on Various Properties of PLD-fabricated Isotropic Nd-Fe-B Thick-film Magnets**  
Kazuyuki Uchida, Akihiro Yamashita, Takeshi Yanai, Masaki Nakano, Hiritoshi Fukunaga  
*Nagasaki University, Japan*
- G7-1135**    **Tunable Magnetocaloric Properties of Ti-Zr-Ni-Cr Amorphous Ribbons via V Additions**  
Bing Jiang, Xiaochen Wang, Jianxin Wang, Lingfeng Xu, Chengyuan Qian, Guangqing Wang, Xuelling Hou  
*Shanghai University, China*
- G7-1141**    **Effect of Ge Addition on the Magnetic Properties of FePCGe Amorphous Alloys**  
Sumin Kim<sup>1</sup>, Lin Huang<sup>2</sup>, Dong-Hyun Kim<sup>2</sup>, Haein Yim<sup>1</sup>  
<sup>1</sup>*Sookmyung Women's University, Korea*, <sup>2</sup>*Chungbuk National University, Korea*
- G7-2101**    **Fabrication of Anisotropic Bulk Magnet from HDDR Powder**  
Ga-Yeong Kim<sup>1,2</sup>, Jae-Kyeong Yoo<sup>1,2</sup>, Hee-Ryoung Cha<sup>3</sup>, Youn-Kyoung Baek<sup>1</sup>, Hae-Woong Kwon<sup>4</sup>,  
 Yang-Do Kim<sup>2</sup>, Jung-Goo Lee<sup>1</sup>  
<sup>1</sup>*Korea Institute of Materials Science, Korea*, <sup>2</sup>*Pusan National University, Korea*, <sup>3</sup>*National Institute of Advanced Industrial Science and Technology, Japan*, <sup>4</sup>*Pukyong National University, Korea*
- G7-2113**    **Magnetic and Microwave Properties of Hydrothermal Mg-Zn Spinel Ferrite Nanoparticles**  
 Yi-Chun Chiu, Chien-Yie Tsay  
*Feng Chia University, Taiwan*
- G7-2126**    **Fe-based Soft Magnetic Amorphous Alloys**  
Haein Yim  
*Sookmyung Women's University, Korea*

## G8-2. Energy Applications of Magnetic Materials

13:30-14:30, June 7 (Thur.)

Lobby (8F)

**Chair**    Haein Yim (Sookmyung Women's University, Korea)

- G8-0184**    **Development of Gd-Co-based Amorphous and Nanocrystalline Alloys Used as Magnetic Refrigeration Materials**  
 Yeabin Moon<sup>1</sup>, Jin Kyu Lee<sup>2</sup>, Hyo-Soo Lee<sup>3</sup>, Ki Buem Kim<sup>1</sup>  
<sup>1</sup>*Sejong University, Korea*, <sup>2</sup>*Kongju National University, Korea*, <sup>3</sup>*Korea Institute of Industrial Technology, Korea*

- G8-0196** A Torque Compensation Control Scheme of PMSM Considering Wide Variation of Permanent Magnet Temperature  
Suyeon Cho  
*Korea Automotive Research Institute, Korea*
- G8-0244** A Study on the Design of IPMSM for Reliability of Demagnetization Characteristics-based Rotor  
 Geochul Jeong<sup>1</sup>, Gang-Seok Lee<sup>1</sup>, Chang Sung Jin<sup>2</sup>, Sung Chul Go<sup>3</sup>, Ju Lee<sup>1</sup>  
<sup>1</sup>Hanyang University, Korea, <sup>2</sup>Hanwha Techwin, Korea, <sup>3</sup>Samsung Electronics Co., Ltd., Korea
- G8-0273** Design Strategy of Magnetizer for Post-assembly Magnetization of Spoke-type Ferrite Magnet Motor  
 Hyun-Soo Seol<sup>1</sup>, Hyun-Woo Jun<sup>1</sup>, Gang Seok Lee<sup>1</sup>, SangJun Ko<sup>1</sup>, Dong-Woo Kang<sup>2</sup>, Ju Lee<sup>1</sup>  
<sup>1</sup>Hanyang University, Korea, <sup>2</sup>Keimyung University, Korea
- G8-0304** Characteristics of Novel Outer Rotor Fan-type PMSM for Improving Power Density and Efficiency  
 Sooyoung Cho<sup>1</sup>, Gang Seok Lee<sup>1</sup>, Sang-hwan Ham<sup>2</sup>, Ju Lee<sup>1</sup>  
<sup>1</sup>Hanyang University, Korea, <sup>2</sup>Kyungil University, Korea
- G8-0523** Comparison of Concentrated and Distributed Winding for Stator Positioned Permanent Magnet Vernier Machine  
Jung-Woo Kwon, Byung-il Kwon  
*Hanyang University, Korea*
- G8-0550** Tilting Force Control Method Using Lateral Displacement Force of Permanent Magnet Synchronous Motor for Independent Driving Railway Vehicle  
JunHui Won, SangJun Ko  
*Hanyang University, Korea*
- G8-0554** Restoring Control of Independently Rotating Permanent Magnet Synchronous Motor Considering Disturbance Force by Wheelset Removal  
JunHui Won<sup>1</sup>, Gang Seok Lee<sup>1</sup>, Hongyun So<sup>1</sup>, Wonkyung Park<sup>1</sup>, Joon Sung Park<sup>2</sup>, Ki Deok Lee<sup>2</sup>  
<sup>1</sup>Hanyang University, Korea, <sup>2</sup>Korea Electronics Technology Institute, Korea
- G8-0672** The Equivalent Magnetic Circuit Model for Dual Consequent Hybrid Excitation Synchronous Machine with AC Flux Control Technology  
 Jie Wu, Jing Yin, Jitao Zhang  
*Zhengzhou University of Light Industry, China*
- G8-0713** The Effect of Material Characteristics According to the Grade of Electrical Steel Sheet on PMDC Motor  
Jun-Young Kim<sup>1</sup>, Han Kim<sup>1</sup>, Dong-Woo Kang<sup>2</sup>, Jae-Yong Lee<sup>2</sup>, Ju Lee<sup>1</sup>  
<sup>1</sup>Seoul Hanyoung University, Korea, <sup>2</sup>Keimyung University, Korea
- G8-0721** Spin Seebeck Effect of Solution Processed Ferrimagnet Insulator Thin Film, Yttrium Iron Garnet  
Inseon Oh, Jungmin Park, Jung-Woo Yoo, Junhyeon Jo, Mi-jin Jin  
*Ulsan National Institute of Science and Technology, Korea*

- G8-0730**    **Mathematical Model and Simulation of a Slope-stage Saturable Magnetically Controlled Reactor**  
Mengsen Liu<sup>1,2</sup>, Shanming Wang<sup>2</sup>, [Jingsong Li](#)<sup>2</sup>, Yongjian Li<sup>1</sup>  
<sup>1</sup>Hebei University of Technology, China, <sup>2</sup>Tsinghua University, China
- G8-0984**    **Variation of Magnetic Field Distribution using Asymmetric Rotor Shape of Interior Permanent Magnet Synchronous Motor**  
Jung-Pyo Hong, [Soo-Gyung Lee](#), Jin-Cheol Park, Myung-Hwan Yoon  
Hanyang University, Korea
- G8-0989**    **Characteristics Analysis of Linear Actuator Type Vehicle Horn Considering Magnetic Saturation and Eddy Current Loss**  
[Kyung Tae Jung](#), Jae Han Sim, Jung Pyo Hong  
Hanyang University, Korea
- G8-0994**    **Novel All-in-one(Propulsion, Levitation, Guidance) System for Hyperloop**  
[WooYoung Ji](#)<sup>1</sup>, Ikhyun Jo<sup>1</sup>, Geochul Jeong<sup>2</sup>, Hyung-Woo Lee<sup>1</sup>  
<sup>1</sup>Korea National University of Transportation, Korea, <sup>2</sup>Hanyang University, Korea
- G8-1002**    **Design and Characteristic Comparison of 3-phase and 5-phase Interior Permanent Magnet Synchronous Motors for Train Propulsion**  
[Ikhyun Jo](#)<sup>1</sup>, Geochul Jeong<sup>2</sup>, Hyungwoo Lee<sup>1</sup>, Wooyoung Ji<sup>1</sup>  
<sup>1</sup>Korea National University of Transportation, Korea, <sup>2</sup>Hanyang University, Korea
- G8-1132**    **A Study on Analysis of Load Torque Ripple Reduction by Changing the Magnet and Stator Teeth Shape of 5kW Permanent Magnet Generator**  
[Seung-Hwan Lee](#), Dong-Woo Kang  
Keimyung University, Korea
- G8-1149**    **A Study on Optimal Step Skew for Reducing Cogging Torque of IPM Motor by Using Numerical Analysis Method and Analytical Method in Parallel**  
[Sung Gu Lee](#)<sup>1</sup>, Won-Ho Kim<sup>2</sup>  
<sup>1</sup>Busan University of Foreign Studies, Korea, <sup>2</sup>Gachon University, Korea
- G8-1184**    **Methodology of Rotor Skew by Cross-stacking Two Cores for the Spoke-type Ferrite Magnet Motors**  
Sung-Gu Lee<sup>1</sup>, [Won-Ho Kim](#)<sup>2</sup>  
<sup>1</sup>Busan University of Foreign Studies, Korea, <sup>2</sup>Gachon University, Korea
- G8-1188**    **Field Winding Claw-pole type Motor Characteristics Analysis in No-Load and Load Condition using Additional Ferrite Magnet**  
[Jin-Seok Kim](#)<sup>1</sup>, Dae-Woo Kim<sup>1</sup>, Yong-Jae Kim<sup>2</sup>, Sang-Yong Jung<sup>1</sup>  
<sup>1</sup>Sungkyunkwan University, Korea, <sup>2</sup>Chosun University, Korea, Korea
- G8-1199**    **Magnetic Properties and Core Loss Behaviors of FeBCuP Based Amorphous Magnetic Ribbons**  
[Minsung Kim](#)<sup>1</sup>, Jinu Kim<sup>1</sup>, Wonkyu Jang<sup>1</sup>, Yongsul Song<sup>2</sup>, Jongryoul Kim<sup>3</sup>, Ki Hyeon Kim<sup>1</sup>  
<sup>1</sup>Yeungnam University, Korea, <sup>2</sup>Research Institute of Amogreentech Co. Ltd., Korea, <sup>3</sup>Hanyang University, Korea

**G8-1201** Optimal Design of Inverse-V Type Rare Earth Permanent Magnet Motor for Power Density and Control Simplicity

Gang Seok Lee<sup>1</sup>, Won Ho Kim<sup>2</sup>, Gwang Chul Go<sup>1</sup>, Seung-Bin Lim<sup>3</sup>, Ju Lee<sup>1</sup>

<sup>1</sup>Hanyang University, Korea, <sup>2</sup>Gachon University, Korea, <sup>3</sup>Korea Institute of Energy Research, Korea

**G8-1205** Magnetic Field Analysis of Notched SPMSM Using Conformal Mapping

Youngh-Yoon Ko<sup>1</sup>, Jun-Young Song<sup>1</sup>, Myung-Ki Seo<sup>1</sup>, Wonseok Han<sup>1</sup>, Yong-Jae Kim<sup>2</sup>, Sang-Yong Jung<sup>1</sup>

<sup>1</sup>Sungkyunkwan University, Korea, <sup>2</sup>Chosun University, Korea

**G8-1207** Design of Flux Modulation Pole Type Vernier Motor Considering Irreversible Demagnetization in Permanent Magnet

Dae-Woo Kim<sup>1</sup>, Jin-Seok Kim<sup>1</sup>, Yong-Jae Kim<sup>2</sup>, Sang-Yong Jung<sup>1</sup>

<sup>1</sup>Sungkyunkwan University, Korea, <sup>2</sup>Chosun University, Korea

**G8-1257** Improved Maximum Torque Per Ampere(MTPA) Drives for BSG System of Asymmetrical Six-Phase WFSM Considering Start up

JunHui Won, Gang Seok Lee

Hanyang University, Korea

**G8-1613** Copper Loss Analysis of High Speed Motors with Multi-strands Considering the End Leakage and Temperature Effect

Yapeng Jiang<sup>1</sup>, Dong Wang<sup>1</sup>, Junquan Chen<sup>1</sup>, Xuan Teng<sup>1</sup>, Xiaoqin Zheng<sup>2</sup>

<sup>1</sup>Naval University of Engineering, China, <sup>2</sup>Qingdao University, China

**G8-1822** A Novel Semi-inserted Dual Stator Low-speed and High-torque Permanent Magnet Drive Motor

Jiwei Liu, Xiaohua Bao, Wei Xu

Hefei University of Technology, China

**G8-1829** Novel Multi-slots Rotor Investigation for Reduction of Air Gap Harmonics in Inverter-driven Induction Motor

Yang Zhou, Xiaohua Bao, Wei Xu

Hefei University of Technology, China

**G8-1853** Study of Machine/Drive Models for Traction Application

Zhen Zhang, Wenying Jiang, Jiamin Zhang, Shuo Feng, Zhuoran Zhang, Yu Wang

Nanjing University of Aeronautics and Astronautics, China

**G8-1855** Analysis of Magnetic Flux Leakage in Lamination of Transformer Core under DC Bias

Mingji Zou, Xiaohua Bao, Wei Xu

Hefei University of Technology, China

**G8-2080** Investigation on Optimal Third-order Harmonic Shaping Method for Parallel Magnetized Surface-mounted PM Machine

Pengfei Hu<sup>1</sup>, Dong Wang<sup>1</sup>, Shuangjiang Zhuang<sup>1</sup>, Shuanbao Jin<sup>1</sup>, YingSan Wei<sup>1</sup>, Hao Zhu<sup>1</sup>, Xingyu Wu,

Xiaoqin Zheng<sup>2</sup>

<sup>1</sup>Naval University of Engineering, China, <sup>2</sup>Qingdao University, China

# DIRECTORY OF EXHIBITORS



## Center for Core Research Facilities

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Launched in 2004 as an institute for national policy, DIGIST has become a university focusing on the fusion researches having the functions of research and education at the same time by establishing the master and doctor's course and aims to become No.1 university of the fusion researches in the world.

By the completion of Hyeonpung Campus in Decemeber, 2012, Center for Research Facilities and Fab Supporting Center was established and as a central operating unit, Central Research Facility Center was established in May, 2011.

For the purpose of establishing the excellence in the education and research infrastructures to support the 'MIREBrain'(Which Stands for M of Materials, I of Information & Communication, R of Robotics, E of Energy, B of Brain, and N of New Biology), Central Research Facility Center is promoting the planning and introduction of the equipments of education and research, the operation and the management of public research equipments and facilities, acceleration of public use of equipments and internal and external service. In addition, we will introduce and operate the systematic and efficient management system to improve user's convenience/accessibility to the educational infrastructures established.

Central Research Facility Center is willing to provide the service supporting the researches by securing the best condition of the infrastructures in possession and hopes that the researchers would make the world class researches by using it actively.

In addition, as we would like to promote the efficiency in operating equipments at national level and to contribute to the advancement of research infrastructures in Youngnam region and the regional industry by providing the opportunity to use world class infrastructures of DIGIST not only to the in-house researchers but also to the external institution and the corporations, we expect that they would be use actively by the external institutions and the corporations.

# LDJIM

LBNL-DGIST JOINT INSTITUTE FOR MICROSCOPY

## LBNL-DGIST Joint Research Center

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Daegu Gyeongbuk Institute of Science and Technology (DGIST) and Lawrence Berkeley National Laboratory (LBNL) have launched a joint research center based on the agreement of international cooperation between the two institutes in December 2012. By establishing a highly cooperative joint research center, we pursue the development of multi-functional hybrid materials including quantum materials, energy harvesting nanomaterials, and nanomagnetic materials for the next generation technologies. The vision of DGIST-LBNL Joint Research Center is the establishment of a new global hub for emerging materials science in South Korea. To accomplish the goal, researchers at DGIST and LBNL are working together in design and fabrication of functional hybrid materials, and the collaborative efforts are being made for complete material analyses in LBNL using the state-of-the art facilities with extreme spatial and temporal resolutions. Since the establishment in December 2012, DGIST-LBNL Joint Research Center have hosted 8 domestic and 6 international academic conferences. The research center has published more than 103 SCI papers in the high profile journals including nature communication, physical review letters, nano letters, etc.

# DGIST

대구경북과학기술원

## Center for Bio-Convergence Spin System

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Center for Bio-Convergence Spin System (BiC Spin) is developing a new spin-based devices using spintronics technology. Spintronic technology is a technology that can overcome the functional limitations of existing devices considering electron charge and quantum mechanical characteristics. BiC Spin research center is a new paradigm research center that links to life sciences. This research center will develop bio-spintronics field for the diagnosis and treatment of several diseases. And, neuro-spintronics field to mimic human brain. In addition, BiC Spin is conducting research on the growth, physical properties and theoretical studies of new spin based materials, conducting fusion and convergence research through the combination of spin based materials and devices with life science.

The Korea Institute of Science and Technology (KIST) is a science and technology institute working to bring better quality of life to all people by preparing for the future. KIST was founded as the first science and technology research institute of Korea in 1966 and since then, it has continually played a leading role in national development.

KIST's Post-Silicon Semiconductor(PSI) is working to develop advanced semiconductors using new materials and exhibiting superior performance to silicon-based technology. Research is focused on oxide semiconductors, spin electronic devices, opto-electronic convergence devices and attachable electronic devices for health monitoring.

PSI aims to explain the experimentally observed phenomena in both the industry-relevant technology and the quantum physics. The institute aims to develop new technologies beyond Si-electronics technology and bridge the lab sector to the industry sector

As a government funded research institute, our objective at KIMS is to comprehensively facilitate R&D, test and evaluation and provide technical support related to materials technology in order to promote innovative technology and industrial development. In this exhibition, we will show research outcomes related with metal 3D printing.



**Korea Research Institute of  
Standards and Science**

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The Quantum Technology Institute aims to develop technologies for measuring and controlling quantized physical quantities such as photons, phonons, and spins, as well as technologies utilizing quantum coherence such as qubit.

These quantum technologies can be applied to various fields such as new measurement standards (Josephson voltage standard, quantum Hall resistance standard, optical lattice clock, etc.), new computers (quantum computers), unencumbered cryptosystems(quantum cryptography), and new electronic device(spin device).

The institute is trying to contribute to securing national competitiveness for the next-generation by developing key technologies in the field of quantum technologies and achieving research excellence.

## Effucell

**Effucell**

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**SWITECH**  
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**SWITECH**

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Custom Design Inserts
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Custom design sample holders for Quantum Design's PPMS and MPMS



**Quantum Design Korea**

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### OptiCool™ – 7 Tesla Optical Cryostat

The OptiCool by Quantum Design is a new magneto-optical cryostat using an innovative design that puts the sample volume in the heart of your optical environment. A custom 3.8 inch bore, split-coil, conical magnet offers fields perpendicular to the optical table up to  $\pm 7$  tesla. The highly integrated design means, even with a magnet, your sample isn't buried inside a large cryostat, far away from the optics. Seven side optical ports and one top optical port allow for optical access to your sample from a wide array of directions. The OptiCool optical cryostat is a cryogen-free system with automated software to control temperature and magnetic field. At the push of a button you can change your sample temperature from 1.7 K to 350 K, with or without an applied magnetic field. A generous 89 mm diameter by 84 mm tall sample volume provides exciting possibilities in experiment design. OptiCool's Sample Pod provides a place to build and customize your experiment on the bench. When you are ready to make a measurement, the Sample Pod easily plugs into the pre-wired temperature control column. When your measurement is finished, the pod is easily swapped with another pod already wired up with your next experiment. The cryostat comes pre-wired with 16 wires, routed and thermally anchored from the outer User Wiring Ports to the sample volume. Additional wires can be installed for up to 80 wires total.

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