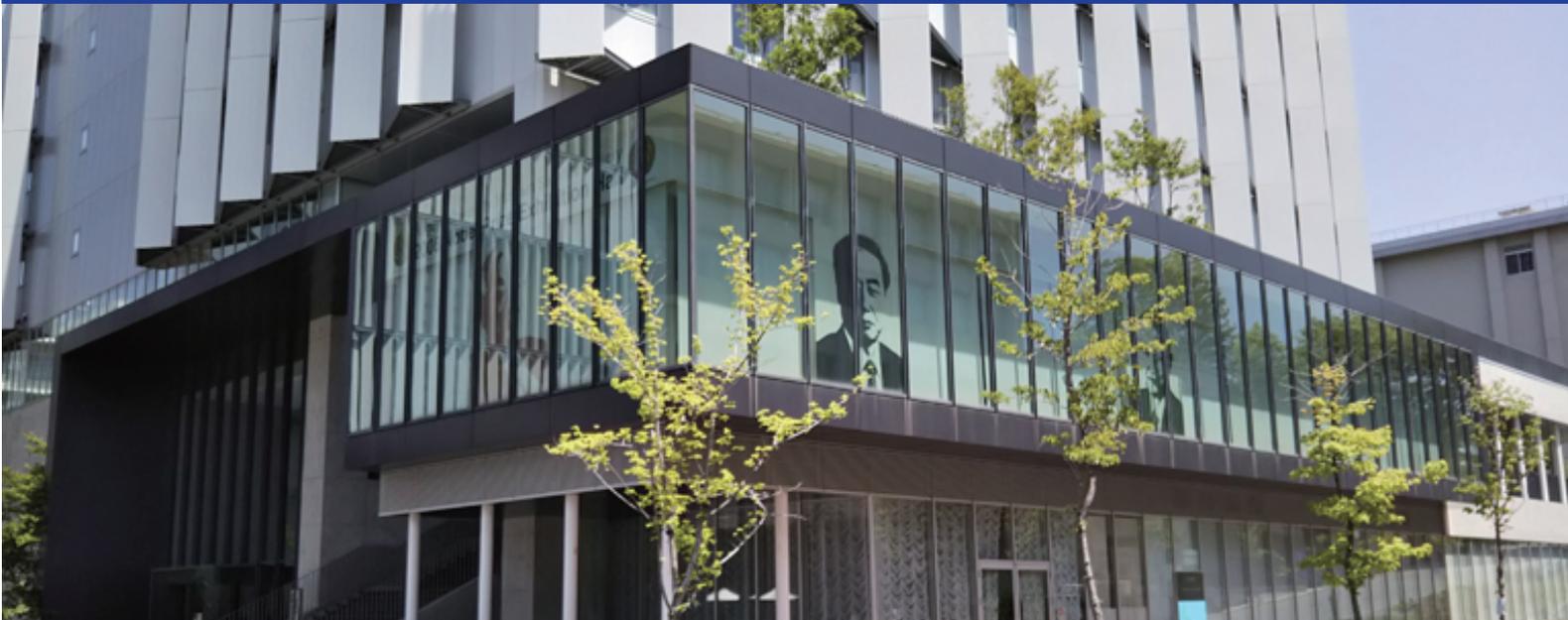


International School on Spintronics and Korea-Japan Spintronics Workshop - Topological Phenomena in Magnetism -

21-22 January 2019, Noyori Conference Hall,
Nagoya University, Nagoya, Japan



**International School on Spintronics and
Korea-Japan Spintronics Workshop
–Topological Phenomena in Magnetism–**

PROGRAM BOOK

**January 21-22, 2019
Noyori Conference Hall,
Nagoya University, Nagoya, Japan**

SCOPE & OBJECTIVES

Spintronics initiated by the discovery of spin-dependent transports has been considered as the core domain in the next generation of nano-electronics. In addition, microwave devices based on the fast-speed spin dynamic properties and spin manipulation using electric field are also another prospective applications. Moreover, numerous intriguing spin-related phenomena in metals and semiconductors have been predicted and/or demonstrated recently with various potential applications.

In this International School and Workshop on Spintronics, the world's top scientists in this research field provide special lectures. The aim of this school is to introduce the graduate students and young researchers to this emerging field and its application. On the other hand, the Workshop this time focuses, in particular, on several novel topological phenomena in magnetism including theoretical and experimental work on skyrmion, spin-orbit interaction, etc. Based on the discussions with all school and workshop participants not only from the field of spintronics but also from general solid state physics, we will understand the novel phenomena deeply and seek the subject for future scientific collaboration between Korean and Japan.

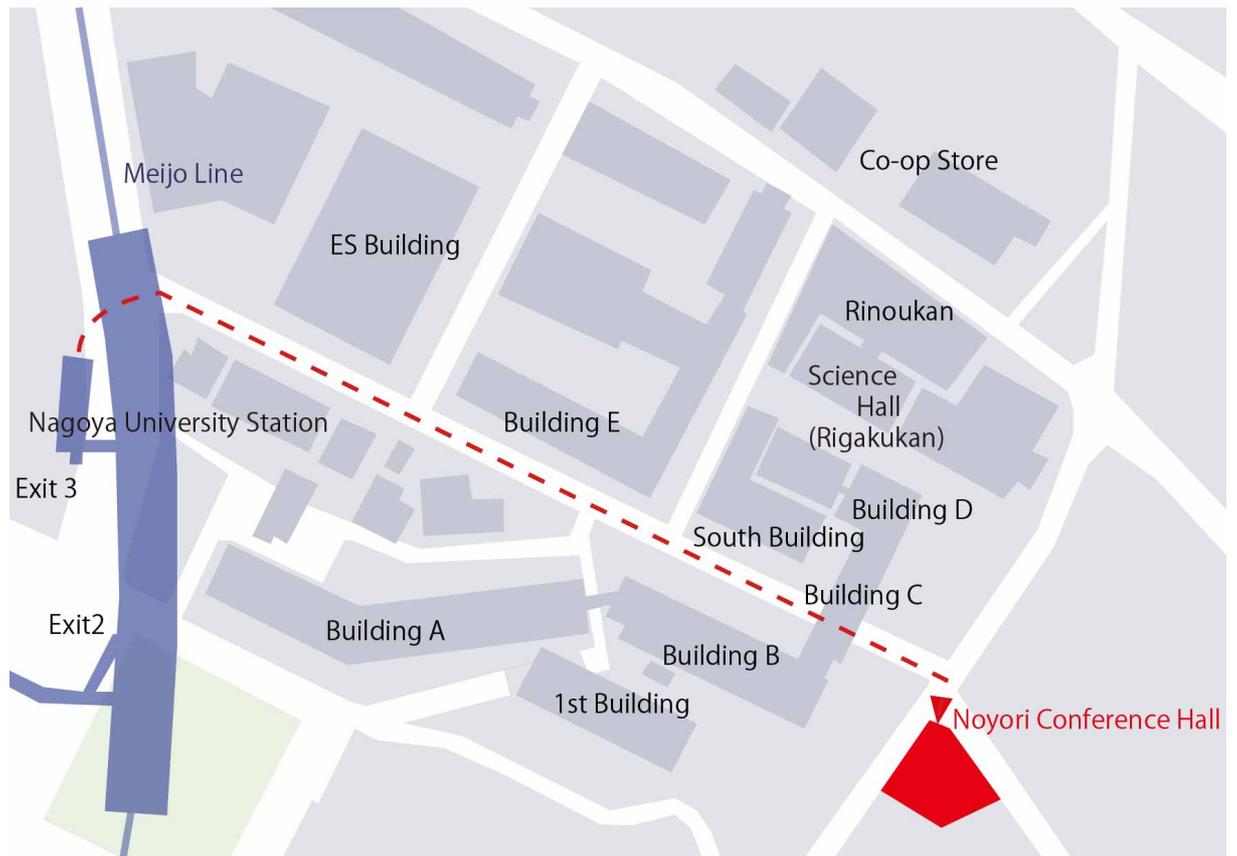
GENERAL INFORMATION

PRESENTATION INSTRUCTION

Official conference language is English. The technical part of the conference will consist of invited lectures, invited talks and poster presentations. Invited lectures and Invited talks will be in the conventional format. The hours of the Poster Sessions are 15:50 - 17:50 on 21st January. Authors should set up their materials at least half-an-hour before session start times, and are reminded to remove all of their materials promptly at the end of their session.

VENUE

Noyori Conference Hall, Higashiyama Campus, Nagoya University
Furo-cho, Chikusa-ku, Nagoya 464-8602, JAPAN
5 minutes walk from Nagoya-Daigaku Station (Subway Meijo Line)



Shinkansen Super Express, JR lines, Meitetsu lines, Kintetsu lines

Nagoya station-(Higashiyama line)-Motoyama Station-(Meijo ine)-Nagoya University Station
(approximately 25 min.)

Chubu Centrair International Airport

Chubu Centrair International Airport-Central Japan International Airport Station-(Tokoname line)-Kanaya Station-(Meijo Line)-Nagoya University Station (approximately 60 min.)

Prefectural Nagoya Airport

Prefectural Nagoya Airport-(Bus)-Kurokawa-(Walk)-Kurokawa Station-(Meijo Line)-Nagoya University Station

For the entire Higashiyama Campus map, visit

<http://en.nagoya-u.ac.jp/map/index.html>

To get to Noyori Conference Hall, take either Exit No. 2 or Exit No. 3 at the Nagoya Daigaku Subway Station.

SOCIAL DINNER

Social dinner party will be held on 21st January, 18:00-20:00

FEE

Registration (Standard) : 3,000 JPY

Registration (Student) : 2,000 JPY

Social Dinner (Standard) : 5,000 JPY

Social Dinner (Student) : 2,000 JPY

Please pay by cash on the registration desk. On registration, only cash in JPY is accepted. Personal checks, traveler's checks and credit cards are NOT acceptable.

INVITED SPEAKERS & ORGANIZATION

INVITED LECTURERS FOR SCHOOL

- **Teruo Ono (Kyoto Univ.)**
Dynamics of topological spin structures
- **Seigo Tarucha (RIKEN)**
Si platform for spin-based quantum computing
- **Kungwon Rhie (Korea Univ.)**
Extended Stoner-Wohlfarth model when spin torque is considered
- **Junsaku Nitta (Tohoku Univ.)**
Physics and applications of spin-orbit interactions

INVITED SPEAKERS FOR KOREA-JAPAN WORKSHOP

- **Yasuo Ando (Tohoku Univ.)**
Recent progress of bio-magnetic field sensors with magnetic tunnel junctions
- **Sug-Bong Choe (Seoul National Univ.)**
Drastic emergence of huge negative spin-transfer torque in atomically thin Co layers
- **Gyung Min Choi, (SKKU Univ.)**
Explaining the ultrafast demagnetization by the bulk spin pumping
- **Hiroshi Kohno (Nagoya Univ.)**
Topological Hall effect in nonadiabatic regime
- **Hyun-Woo Lee (POSTECH)**
Interplay between spin and orbital in spintronics
- **Shigemi Mizukami (Tohoku Univ.)**
Exploring antiferromagnetic resonance in metallic ferrimagnets
- **Byong-Guk Park (KAIST)**
Electric field control of spin-orbit torque and its logic applications
- **Shinichiro Seki (RIKEN)**
Coherent signal transfer through skyrmion strings
- **Yoshishige Suzuki (Osaka Univ.)**
Toward skyrmion Brownian computing
- **Nam Hai Pham (Tokyo Tech.)**
Topological insulator for ultralow power SOT-MRAM
- **Chun-Yeol You (DGIST)**
Eigen damping constant for spin wave propagation in the nano-structure

CHAIR

Prof. Tomoyasu Taniyama (Nagoya University)

Prof. Chun-Yeol You (Department of Emerging Materials Science, DGIST)

LOCAL COMMITTEE

Prof. Hiroshi Kono (Nagoya University)

Prof. Takeshi Kato (Nagoya University)

SPONSORS

Japan Society of Applied Physics



COSPONSORS

Nano Spin Conversion Science

Center for Spintronics Research Network (CSRN), Graduate School of Engineering Science, Osaka University, Osaka, Japan

Center for Spintronics Research Network (CSRN), Graduate School of Engineering, The University of Tokyo, Tokyo, Japan

Center for Spintronics Research Network (CSRN), Keio University, Yokohama, Japan

Center for Spintronics Research Network (CSRN), Tohoku University, Sendai, Japan

Nanomagnetism and Spintronics Group, Nagoya University, Nagoya, Japan



SUPPORTER

IEEE Magnetics Society Nagoya Chapter



PROGRAM TIME TABLE

21 January 2019

Korea-Japan Workshop	
9:30-9:35	Opening: Y. Suzuki
Chair: T. Taniyama	
9:35-10:00	Byong-Guk Park
10:00-10:25	Shinichiro Seki
10:25-10:50	Hyun-Woo Lee
10:50-11:10	Coffee Break
Chair: K. Rhie	
11:10-11:35	Yoshishige Suzuki
11:35-12:00	Hiroshi Kohno

12:00-13:25	Lunch
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School	
13:25-13:30	Opening: T. Taniyama
Chair: J. Nitta	
13:30-14:30	Teruo Ono
14:30-15:30	Seigo Tarucha
15:30-15:50	Coffee Break

15:50-17:50	Poster Session
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18:00-20:00	Social Dinner
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22 January 2019

School	
Chair: C.-Y. You	
10:00-11:00	Kungwon Rhie
11:00-12:00	Junsaku Nitta
12:00-12:05	Closing: C.-Y. You

12:05-13:30	Lunch
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Korea-Japan Workshop	
Chair: S.-B. Choe	
13:30-13:55	Chun-Yeol You
13:55-14:20	Shigemi Mizukami
14:20-14:45	Gyung Min Choi
14:45-15:05	Coffee Break
Chair: S. Mizukami	
15:05-15:30	Sug-Bong Choe
15:30-15:55	Yasuo Ando
15:55-16:20	Nam Hai Pham
16:20-16:25	Closing

POSTER SESSION

P-1. Spin orbit torques in ferrimagnetic GdFeCo / Ta bilayers

Keisuke Kawakami¹⁾, Daiki Oshima²⁾, Takeshi Kato¹⁾, Satoshi Iwata²⁾

1)Department of Electronics, Nagoya University, 2)Institute of Materials and Systems for Sustainability, Nagoya University

P-2. Lateral spin valve with memristive switching interface

Daiki Ito¹⁾, Taisei Arikawa¹⁾, Towfiq Hossain¹⁾, Kohei Ohnishi¹⁾²⁾, Takashi Kimura¹⁾²⁾

1)Department of Physics, Kyushu University, 2)Research Center for Quantum Nano-Spin Sciences

P-3. Gilbert damping in Fe_xRh_{1-x} thin films

Takamasa Usami¹⁾²⁾, Mitsuru Itoh²⁾, Tomoyasu Taniyama¹⁾²⁾

1)Department of Physics, Nagoya University, 2)Laboratory for Materials and Structures, Tokyo Institute of Technology

P-4. Magnetic anisotropy and spin dynamics in [Co/Ni] multilayers/BaTiO₃

Ikuya Kokawa¹⁾²⁾, Takamasa Usami¹⁾²⁾, Mitsuru Itoh²⁾, Tomoyasu Taniyama¹⁾²⁾

1)Department of Physics, Nagoya University, 2)Laboratory for Materials and Structures, Tokyo Institute of Technology

P-5. Capping effect of 4d,5d metal layers on magnetism of FeRh thin films

Taiki Noda¹⁾²⁾, Takamasa Usami¹⁾²⁾, Mitsuru Itoh²⁾, Tomoyasu Taniyama¹⁾²⁾

1)Department of Physics, Nagoya University, 2)Laboratory for Materials and Structures, Tokyo Institute of Technology

P-6. Asymmetric spin signal due to heat transport phenomena in a lateral spin valve

Taisei Arikawa¹⁾, Nagarjuna Asam¹⁾, Kohei Ohnishi¹⁾²⁾, Takashi Kimura¹⁾²⁾

1)Department of Physics, Kyushu University, 2)Research Center for Quantum Nano-Spin Sciences

P-7. Dzyaloshinskii-Moriya interaction in [Co/Pt], [Co/Pd], and [Co/Pd/Pt] superlattice

Woo Seung Ham¹⁾, Kay. Yakushiji²⁾, Sanghoon Kim³⁾, Yoichi Shiota¹⁾, Takahiro Moriyama¹⁾, Teruo Ono¹⁾

1)Institute of Chemical Research, Kyoto University, 2) National Institute of Advanced Industrial Science and Technology (AIST), 3) Department of Physics, University of Ulsan

P-8. Ferrimagnetic Domain Wall Motion Induced by Damping-like Spin-Orbit Torque

Se-Hyeok Oh¹⁾, Kyung-Jin Lee^{1,2,3)}

1)Department of Nano-Semiconductor and Engineering, Korea University, 2)Department of Materials Science and Engineering, Korea University, 3) KU-KIST Graduate School of Converging Science and Technology

P-9. Spin wave propagation in synthetic antiferromagnets

Mio Ishibashi¹⁾, Yoichi Shiota¹⁾, Tian Li¹⁾, Shinsaku Funada¹⁾, Takahiro Moriyama¹⁾, Teruo Ono¹⁾

1)Institute for Chemical Research, Kyoto University

P-10. Manipulation of magnetic properties of giant magnetoresistance spin valves by inserting non-magnetic spacers

Si Nyeon Kim¹⁾, Jun Woo Choi²⁾, Sang Ho Lim¹⁾

1)Department of Materials Science and Engineering, Korea University, 2)Center for Spintronics Research, Korea Institute of Science and Technology

P-11. Influence of MgO sputtering power and post-annealing on spin-orbit torque properties in Pt/Co/MgO structures

Hyung Keun Gweon¹⁾, Kyung-Jin Lee²⁾, Sang Ho Lim³⁾

1)Department of Materials Science and Engineering, Korea University, 2)KU-KIST Graduate School of Converging Science and Technology

P-12. Fokker-Planck Equation for Probabilistic Switching of STT-MRAM with second order iniaxial anisotropy

Eunchong Baek¹⁾, Chul-Yeol You¹⁾

1)Department of Emerging Materials Science, Daegu Gyeongbuk Institute of Science and Technology

P-13. Multi-level anomalous Hall resistance changes due to DW motion in a single Hall cross for the application of neuromorphic device

Yoonui Kim¹⁾, Jaesuk Kwon¹⁾, Hee-Kyeong Hwang¹⁾, Chun-Yeol You¹⁾

1)Department of Emerging Materials Science, Dqegu Gyeongbuk Institute of Science & Technology

P-14. Bias dependence of spin accumulation voltage in a non-degenerate Si spin valve

S. Lee¹⁾, R. Fabien¹⁾, R. Ohshima¹⁾, Y. Ando¹⁾, S. Miwa²⁾, Y. Suzuki²⁾, H. Koike³⁾, M. Shiraishi¹⁾

1)Dept. of Electronic Science and Engineering Kyoto Univ., 2) Dept. of Engineering Science Osaka Univ., 3)Advanced Products Development Center, TDK Corporation.

P-15. Inter-dot coupling of nanomagnets array reservoir computing

Taishi Furuta¹⁾, hikaru Nomura^{1,2)}, Eiiti Tamura¹⁾, Minoru Goto^{1,2)}, Shinji Miwa^{1,2,3)}, Yuki Kuwabiraki¹⁾, Kazuki Tsujimoto¹⁾, Ryoichi Nakatani¹⁾, Yoshishige Suzuki^{1,2)}

1)Osaka Univ., 2)CSRN-Osaka, 3)Univ. of Tokyo

P-16. Interface generated spin currents and spin-orbit-torques in ferromagnet/normal metal structure

Jaimin Kang¹⁾, Young-Wan Oh¹⁾, Seung-heon C. Baek^{1,2)}, Vivek P. Amin^{3,4)}, Gyungchoon Go⁵⁾, Seung-Jae Lee⁶⁾, M. D. Stiles⁴⁾, Byong-Guk Park¹⁾, and Kyung-Jin Lee^{5,6)}

1)Department of Materials Science and Engineering, KAIST 2)School of Electrical Engineering, KAIST 3)Maryland Nanocenter, University of Maryland 4)Center for Nanoscale Science and Technology, National Institute of Standards and Technology 5)Department of Materials Science and Engineering, Korea University 6)KU-KIST Graduate School of Converging Science and Technology, Korea University

P-17. Spin logic device based on spin-orbit torque

Jimin Jeong¹⁾ Seung-heon Chris Baek¹⁾, Mingu Kang¹⁾, Kyung-Woong Park¹⁾, Kyung-Jin Lee²⁾, Byong-Guk Park¹⁾

1)Department of Materials science & Engineering, KAIST

P-18. Thermal spin-orbit torque in W/CoFeB/MgO structures

Jeong-MoK Kim¹⁾, Dong-Jun Kim¹⁾, Byong-Guk Park¹⁾

1)Department of Material Science and Engineering, KAIST

P-19. S-d scattering by THz-TDS

Ji-Ho Park¹⁾, Kab-jin Kim¹⁾

1)Department of Physics, KAIST

P-20. Development of all spinel magnetic tunnel junctions: epitaxial Fe₃O₄/MgAl₂O₄/Fe₃O₄(001) structure

Takeshi Tainosho¹⁾, Hideto Yanagihara¹⁾, Hiroaki Sukegawa²⁾

1)Division of Applied Physics, University of Tsukuba, 2)National Institute of Material Science

P-21. Structural and magnetic properties of CoMnO₃ (0001) orbital ferrimagnet epitaxial thin films

Hiroki Koizumi¹⁾, Jun-Ichiro Inoue¹⁾, Sonia Sharmin¹⁾, Hideto Yanagihara¹⁾

1)Department of Applied Physics, University of Tsukuba

P-22. Construction of Novel Scanning Probe Magnetometer based on Diamond NV Centers

Myeongwon Lee¹⁾, Jungbae Yoon¹⁾, Alec Jenkins²⁾, Ania Jayich²⁾, Donghun Lee¹⁾

1)Department of Physics, Korea University, 2)Department of Physics, University of California Santa Barbara

P-23. Control of spin wave propagation using phased array antenna

Moojune Song¹⁾, Kyoung-Woong Moon²⁾, Chanyong Hwang²⁾, Kab-Jin Kim¹⁾

1)Department of Physics, Korea Advanced Institute of Science and Technology, Korea 2)Spin Convergence Research Team, Korea Research Institute of Standards and Science

P-24. Experimental observation of the correlation between the interfacial Dzyaloshinskii-Moriya interaction and work function in metallic magnetic trilayers

Yong-Keun Park^{1,2)}, Dae-Yun Kim¹⁾, Joo-Sung Kim¹⁾, Yune-Seok Nam¹⁾, Min-Ho Park¹⁾, Hyeok-Cheol Choi¹⁾, Byoung-Chul Min²⁾, Sug-Bong Choe¹⁾

1)Department of Physics and Astronomy, Seoul National University, 2) Korea Institute of Science and Technology

P-25. Gigantic intrinsic orbital Hall effects in weakly spin-orbit coupled materials

Daegun Jo¹⁾, Dongwook Go¹⁾, Hyun-Woo Lee¹⁾

1)Department of Physics, Pohang University of Science and Technology

P-26. Spin-dependent diode performance in fully epitaxial magnetic tunnel junctions with rock-salt type ZnO/MgO bilayer tunnel barrier

Hidekazu Saito¹⁾, Shintaro Kon^{1,2)}, Narayananellore Sai Krishna³⁾, Noriahiro Matuo^{1,2)}, Naoki Doko^{1,2)}, Yukiko Yasukawa²⁾, Hitosih Imamura¹⁾, Shinji Yuasa¹⁾

1)Spintronics Research Center, AIST, 2)Chiba Institute of Technology, 3)Research Center for Magnetic and Spintronic Materials, NIMS

P-27. Spin-flip Scattering at Ferromagnet/Non-magnetic Metal Interface: Atomic Orbital Effect

Mijin Lim¹⁾, Hyun-Woo Lee¹⁾

1)Department of Physics, Pohang university of science and technology

P-28. Anatomy of Rashba spin momentum coupling

Jeonghun Sohn¹⁾, Dongwook Go²⁾, Hyun-woo Lee³⁾

1)Department of physics, Pohang university of science and technology

P-29. MOKE spectroscopy study on ferrimagnet

Junho Kang¹⁾, Kabjin Kim¹⁾

1)Department of Physics, KAIST

P-30. Orbital Torque: Spin Torque by Orbital Injection

Dongwook Go¹⁾, Hyun-Woo Lee¹⁾

1)Department of Physics, Pohang University of Science and Technology

P-31. Spin Hall Effect in Inhomogeneous Systems

Takumi Funato¹⁾, Hiroshi Kohno¹⁾

1)Department of Physics, Nagoya University

P-32. Cross-correlated electron-magnon transport phenomena on the surface of magnetic topological insulators

Yusuke Imai¹⁾, Hiroshi Kohno¹⁾

1)Department of Physics, Nagoya University

P-33. Classification theory of Z₂ topological invariants in topological crystalline superconductors and magnetic response of Majorana particles

Yuki Yamazaki¹⁾, Ai Yamakage¹⁾

1)Department of Physics, Nagoya University

P-34. Magnon Spin Transport Phenomena in Ferromagnetic Metals

Terufumi Yamaguchi¹⁾, Hiroshi Kohno¹⁾

1)Department of Physics, Nagoya University

P-35. Topological Hall effect in antiferromagnets

Jotaro Nakane¹⁾, Kazuki Nakazawa²⁾, Hiroshi Kohno¹⁾

1)Department of Physics, Nagoya University, 2)Department of Earth and Space Science, Osaka University

P-36. Low magnetic damping of ferrimagnetic GdFeCo alloys

Duck-Ho Kim¹⁾, Takaya Okuno¹⁾, Se Kwon Kim^{2,3)}, Se-Hyeok Oh⁴⁾, Tomoe Nishimura¹⁾, Yuushou Hirata¹⁾, Yasuhiro Futakawa⁵⁾, Hiroki Yoshikawa⁵⁾, Arata Tsukamoto⁵⁾, Yaroslav Tserkovnyak²⁾, Yoichi Shiota¹⁾, Takahiro Moriyama¹⁾, Kab-Jin Kim⁶⁾, Kyung-Jin Lee^{3,7,8)}, Teruo Ono^{1,9)}

1)Institute for Chemical Research, Kyoto University, 2)Department of Physics and Astronomy, University of California Los Angeles, 3)Department of Physics and Astronomy, University of Missouri, 4)Department of Nano-Semiconductor and Engineering, Korea University, 5)College of Science and Technology, Nihon University, 6)Department of Physics, Korea Advanced Institute of Science and Technology, 7)Department of Materials Science & Engineering, Korea University, 8)KU-KIST Graduate School of Converging Science and Technology, Korea University, 9)Center for Spintronics Research Network (CSRN), Graduate School of Engineering Science, Osaka University

P-37. Domain structure of CoFeB/Pd multilayers at various temperatures

Lin Huang¹⁾, Yunxiu Zhao¹⁾, Duy-Truong Quach^{1),2),3)}, The-Long Phan⁴⁾, Dong-Hyun Kim¹⁾

1)Department of Physics, Chungbuk National University, 2)Max Planck Center for Attosecond Science, Max Planck POSTECH/KOREA Research Initiative, 3)Faculty of Engineering Physics and Nanotechnology, VNU University of Engineering and Technology, 4)Department of Physics and Oxide Research Center, Hankuk University of Foreign Studies

P-38. Preparation and magnetic properties of cylindrical permalloy nanowires

Yunxiu Zhao¹⁾, Lin Xie²⁾, Hongyu Sun³⁾, Hong-Guang Piao⁴⁾, Dong-Hyun Kim¹⁾

1)College of Science, Chungbuk National University, 2)Department of Physics, Southern University of Science and Technology, 3)Department of Micro- and Nanotechnology, Technical University of Denmark, 4)Research Institute for Magnetoelectronics & Nano-Magnetic Field Detection, College of Science, China Three Gorges University

P-39. Spin-orbit torque and anomalous Nernst effect in ferrimagnet/heavy-metal bilayer structure

Soogil Lee¹⁾, Jae-Wook Lee²⁾, Jeong-Mok Kim²⁾, Sanghoon Kim³⁾, Nyun Jong Lee⁴⁾, Seung-Young Park⁴⁾, Byong-Guk Park²⁾, and Kab-Jin Kim¹⁾

1)College of Science, Chungbuk National University, 2)Department of Physics, Southern University of Science and Technology, 3)Department of Micro- and Nanotechnology, Technical University of Denmark, 4)Research Institute for Magnetoelectronics & Nano-Magnetic Field Detection, College of Science, China Three Gorges University