



TOHOKU
UNIVERSITY

Tohoku Forum for Creativity

International Workshop: Spintronics and 13th RIEC International Workshop on Spintronics

Program & Abstracts

November 18-20, 2015

**Conference Room,
Laboratory for Nanoelectronics and Spintronics,
Research Institute of Electrical Communication,
Tohoku University**

Organized by

Tohoku Forum for Creativity (TFC)

Research Institute of Electrical Communication (RIEC)

WPI-Advanced Institute for Materials Research (WPI-AIMR)

Center for Spintronics Integrated Systems (CSIS)



Sponsors

Graduate Program in Spintronics, Tohoku University
Research Institute of Electrical Communication, Tohoku University

This workshop will be held as part of Tohoku Forum for Creativity Thematic Program
2015 “Spintronics: from Mathematics to Devices.”
<http://www.tfc.tohoku.ac.jp/program/2127.html>

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Tohoku Forum of Creativity

International Workshop: Spintronics (13th RIEC International Workshop on Spintronics)

November 18 (Wednesday) - 20 (Friday), 2015
Conference Room, Laboratory for Nanoelectronics and Spintronics, RIEC, Tohoku University

Nov. 18 (Wednesday)			Nov. 19 (Thursday)			Nov. 20 (Friday)		
8:15-9:00	Registration							
9:00-9:15	Opening		9:00-9:45	T-1	Awschalom	9:00-9:30	F-1	Beach
9:15-10:00	W-1	Parkin				9:30-9:50	F-2	Hayashi
10:00-10:20	W-2	Tatara	9:45-10:15	T-2	Weiss	9:50-10:20	Break	
10:20-10:50	Break		10:15-10:45	Break		10:20-10:50	F-3	Lambert
10:50-11:20	W-3	Manchon	10:45-11:15	T-3	Wang	10:50-11:20	F-4	Grollier
11:20-11:40	W-4	Oogane	11:15-11:35	T-4	Fukami	11:20-11:35	Closing	
11:40-11:50	Photo		11:35-11:55	T-5	Ono			
11:50-14:00	Lunch		11:55-14:00	Lunch				
14:00-14:30	W-5	Hillebrands	14:00-14:30	T-6	Slavin			
14:30-14:50	W-6	Mizukami	14:30-15:00	T-7	Dietl			
14:50-15:20	W-7	Åkerman	15:00-15:30	T-8	Kawasaki			
15:20-15:50	Break		15:30-17:30	Poster				
15:50-16:20	W-8	Felser						
16:20-16:40	W-9	Yamamoto						
16:40-17:00	W-10	Shirai						
			17:30-18:00	Transfer				
			18:00-20:00	Banquet				

Tohoku Forum for Creativity
International Workshop: Spintronics
(13th RIEC International Workshop on Spintronics)

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10:50-11:20	W-3	Manchon	10:45-11:15	T-3	Wang	10:50-11:20	F-4	Grollier			
11:20-12:05	W-4	Parkin	11:15-11:35	T-4	Fukami	11:20-11:35	Closing				
			11:35-11:55	T-5	Ono						
12:05-12:15	Photo		11:55-14:00	Lunch							
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November 18th (Wednesday)

8:15-9:00		Registration	
9:00-9:15		Opening Hideo Ohno (<i>Organizer, Tohoku University</i>)	
9:15-10:00	W-1	A.Barthélémy¹, M. Bibes¹, K. Bouzehouane¹, V.Cros¹, C. Deranlot¹, A. Fert¹, K. Garcia¹, J-M. George¹, H.Jaffres¹, E. Lesne¹, C Moreau-Luchaire¹, N. Reyren¹, J-C Rojas-Sánchez¹, J. Sampaio^{1,5}, N. Van Horne¹,J.-P. Attané², G. Desfond², Y. Fu², S. Gambarelli², M. Jamet², A. Marty², S. Oyarzun², L. Vila², F. Bertran³, P. LeFevre³, Y. Ohtsubo³, A. Taleb³, M. Chshiev⁴, H.Yang⁴, S. Rohart⁵, A. Thiaville⁵, C. Moutafis⁷ M. Weigand⁸ (¹CNRS/Thales, ²CEA Grenoble, ³Synchrotron SOLEIL, ⁴Spintec,CEA-CNRS Grenoble, ⁵LPS, CNRS-Univ. Paris Sud, ⁶University of Zaragoza, ⁷PSI Villeggen, ⁸MPI-IS,) Two dimensional spin-orbitronics with Rashba, topological insulator, oxide and DMI interfaces	1
10:00-10:20	W-2	Gen Tatara (<i>RIKEN Center for Emergent Matter Science</i>) Rashba-induced spin motive force	2
10:20-10:50		Break	
10:50-11:20	W-3	Aurelien Manchon (<i>King Abdullah University of Science and Technology</i>) Spin-Orbit Torques in Novel Materials	3
11:20-12:05	W-4	Stuart Parkin (<i>Max Planck Institute of Microstructure Physics, Martin Luther University Halle-Wittenberg</i>)	
12:05-12:15		Photo	
12:15-14:00		Lunch	

14:00-14:30	W-5	Burkard Hillebrands 4 <i>(Technische Universität Kaiserslautern)</i> Novel transport phenomena using magnonic Bose-Einstein condensates
14:30-14:50	W-6	Shigemi Mizukami and Satoshi Iihama 5 <i>(Tohoku University)</i> Laser-induced spin-wave propagation in magnetic films
14:50-15:20	W-7	Johan Åkerman 6 <i>(University of Gothenburg, KTH Royal Institute of Technology)</i> Topological and non-topological dynamical solitons in spin torque and spin hall effect driven nano-oscillators
15:20-15:50		Break
15:50-16:20	W-8	Claudia Felser 7 <i>(Max Planck Institute Chemical Physics of Solids)</i> Magnetism in Mn₂-Heusler compounds
16:20-16:40	W-9	Masafumi Yamamoto and Tetsuya Uemura 8 <i>(Hokkaido University)</i> Half-metallic Heusler alloys as spin sources of spintronic devices
16:40-17:00	W-10	Masafumi Shirai 9 <i>(Tohoku University)</i> Electronic Structure at Interfaces between Heusler alloys and MgO
17:00-17:20	W-11	M. Oogane, Y. Kurimoto, H. Saruyama, M. Hosoda, H. Naganuma and Y. Ando 10 <i>(Tohoku University)</i> Tunnel magneto resistance effect in MTJs with Mn-based ordered alloys

November 19th (Thursday)

9:00-9:45	T-1	David Awschalom 11 <i>(University of Chicago)</i> Quantum Technologies Based on Spins in Semiconductors
9:45-10:15	T-2	Dieter Weiss 12 <i>(University of Regensburg)</i> Transport and magnetocapacitance in HgTe-based topological insulators
10:15-10:45		Break
10:45-11:15	T-3	Kang L. Wang 13 <i>(University of California, Los Angeles)</i> Topological Insulators: Quantum Anomalous Hall and Spintronics
11:15-11:35	T-4	Shunsuke Fukami, Chaoliang Zhang, Samik DuttaGupta, Aleksandr Kurenkov, and Hideo Ohno 14 <i>(Tohoku University)</i> Spin-orbit torque switching for three-terminal spintronics devices
11:35-11:55	T-5	Teruo Ono 15 <i>(Kyoto University)</i> Orbital Magnetism on the Dzyaloshinskii-Moriya Interaction
11:55-14:00		Lunch

14:00-14:30	T-6	R. Khymyn¹, B. Ivanov², I. Lisenkov^{1,3}, V. Tyberkevych¹ and A. Slavin¹ <i>(¹Oakland University, ²Institute of Magnetism, NASU and MESYSU ³Kotelnikov Institute of Radioengineering and Electronics)</i> Transfer of a pure spin through an antiferromagnetic insulator	16
14:30-15:00	T-7	Tomasz Dietl <i>(Polish Academy of Sciences, University of Warsaw, Tohoku University)</i> Spin-spin interactions in topological materials doped with transition metals	17
15:00-15:30	T-8	Masashi Kawasaki^{1,2} <i>(¹University of Tokyo, ²RIKEN Center for Emergent Matter Science)</i> Quantum Anomalous Hall Effect in Topological Insulator Heterostructures	18
15:30-17:30		Poster Session	
17:30-18:00		Transfer	
18:00-20:00		Banquet	

November 20th (Friday)

9:00-9:30	F-1	Geoffrey Beach 19 (<i>Massachusetts Institute of Technology</i>) Spin orbit torques and chiral spin textures in ultrathin magnetic films
9:30-9:50	F-2	Masamitsu Hayashi 20 (<i>National Institute for Materials Science</i>) Electrically and thermally generated spin current in heavy metals
9:50-10:20		Break
10:20-10:50	F-3	C.-H. Lambert¹, M. S. El Hadri¹, P. Pirro¹, N. Bergeard¹, G. Malinowski¹, S. Petit-Watelot¹, M. Hehn¹, E. E. Fullerton² and S. Mangin¹ 21 (¹ <i>Université de Lorraine</i> , ² <i>University of California San Diego</i>) All-optical helicity-dependent switching in magnetic nano- structures and devices
10:50-11:20	F-4	Julie Grollier 23 (<i>Universite Paris Sud</i>) Spin-torque nanodevices for bio-inspired computing
11:20-11:35		Closing

Poster Session, November 19th (Thursday) 15:30-17:30(Room A401)

P-1	Dae-Yun Kim, Duck-Ho Kim, Joon Moon and Sug-Bong Choe 25 (<i>Seoul National University</i>) Determination of magnetic domain-wall types by observing Dzyaloshinskii-Moriya-interaction-induced domain expansion patterns
P-2	S. DuttaGupta, S. Fukami, C. Zhang, H. Sato, M. Yamanouchi, 26 F. Matsukura, and H. Ohno (<i>Tohoku University</i>) Different universality classes for current and field driven domain wall creep in a magnetic metal
P-3	Matthias Noske, Hermann Stoll and Gisela Schütz 27 (<i>Max Planck Institute for Intelligent Systems</i>) Ultrafast Vortex Core Reversal: Fundamentals and applications
P-4	Radek Jesko¹, Robin Silber¹, Ondrej Stejskal¹, Dominik Legut¹, 28 Martin Zahradnik², Lukas Beran², Martin Veis² and Jaroslav Hamrle¹ (¹ <i>VSB-Technical University of Ostrava</i> , ² <i>Charles University</i>) Magneto-optic properties of Heusler Co₂Fe(Al_{0.5}Si_{0.5})
P-5	Ryo Hiramatsu, Hitoshi Kubota, Sumito Tsunegi, Shingo Tamaru, 29 Kay Yakushiji, Akio Fukushima, Rie Matsumoto, Hiroshi Imamura, and Shinji Yuasa (<i>National Institute of Advanced Industrial Science and Technology</i>) Bias voltage and magnetic field angle dependence of out-of-plane precession in magnetic tunnel junctions having a planar free layer and perpendicularly magnetized polarizer
P-6	Kyota Watanabe, Hideo. Sato, Shunsuke Fukami, Fumihiro Matsukura, and 30 Hideo Ohno (<i>Tohoku University</i>) Layer Thicknesses and Annealing Condition Dependence of Magnetic Properties of CoFeB-MgO Structure
P-7	T. Nakano¹, M. Oogane¹, T. Furuichi², K. Ao², H. Naganuma¹ and Y. Ando¹ 31 (¹ <i>Tohoku University</i> , ² <i>DENSO CORP.</i>) Effect of Co/Ta insertion layer in magnetic tunnel junctions with [Co/Pd]-based reference layer for magnetic sensor

P-8	Q. T. Zhang^{1,2}, L. You², X. Shen¹, C. H. Wan¹, R. C. Yu¹, J. Wang², and X. F. Han¹ (¹ <i>Chinese Academy of Sciences</i> , ² <i>Nanyang Technological University</i>) Polarization-Mediated Thermal Stability of Metal/Oxide Heterointerface 32
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