

16th RIEC International Workshop on Spintronics

and

8th JSPS Core-to-Core Workshop on “New-Concept Spintronic Devices”

Agenda & Abstracts

Date: January 9(Wed.) -12(Sat.)

Venue: Laboratory for Nanoelectronics and Spintronics,
Conference Room (4F),
Research Institute of Electrical Communication,
Tohoku University



**16th RIEC International Workshop on Spintronics
and
8th JSPS Core-to -Core Workshop on “New -Concept Spintronic Devices”**

● **Organized by**

Laboratory for Nanoelectronics and Spintronics,
Research Institute of Electrical Communication (RIEC), Tohoku University
Center for Spintronics Integrated Systems (CSIS), Tohoku University
Center for Spintronics Research Network (CSRN), Tohoku University
WPI-Advanced Institute for Materials Research (WPI-AIMR), Tohoku University
Graduate Program in Spintronics, Tohoku University

● **Committee and Secretariat**

- RIEC Workshop -

Chair: S. Fukami

Local staff: S. Kanai, J. Llandro, B. Jinnai, S. DuttaGupta, C. Zhang

Secretariat: N. Sato, Y. Jidai, M. Abe, Y. Takahashi

Advisor: H. Ohno

- Core-to-Core Workshop -

Committee: M. Shirai, K. Takanashi, K. O’Grady, A. Hirohata, B. Hillebrands

Local Staff: M. Tsujikawa, S. Fukami, S. Kanai

Advisor: H. Ohno

Timetable for 16th RIEC International Workshop on Spintronics and 8th JSPS Core-to-Core Workshop on “New-Concept Spintronic Devices”

Date: January 9 (Wed.) – 12 (Sat.), 2019
Venue: Laboratory for Nanoelectronics and Spintronics, Conference Room (4F),
Research Institute of Electrical Communication (RIEC), Tohoku University

	Jan. 9 (Wed)	Jan. 10 (Thu)	Jan. 11 (Fri)	Jan. 12 (Sat)	
9:10	9:10-9:15	Opening			
9:15	9:15-10:00	9:10-9:55	Th-1	G.S.D. Beach	
9:20	We-1	T. Jungwirth			
9:25	10:00-10:30	9:55-10:25	Th-2	J. Matsuno	
9:30	We-2	T. Moriyama			
9:35	10:30-10:50	10:25-10:45	Break		
9:40	Break				
9:45	10:50-11:20	10:45-11:15	Th-4	D. Querlioz	
9:50	We-3	C. Song			
9:55	11:20-11:50	11:15-11:45	Th-5	K. Camsari	
10:00	We-4	M. Meinert			
10:05	11:50-13:50	11:45-14:00	Lunch		
10:10			Lunch		
10:15			Lunch		
10:20			Lunch		
10:25			Lunch		
10:30			Lunch		
10:35			Lunch		
10:40			Lunch		
10:45			Lunch		
10:50			Lunch		
10:55	13:50-14:00	Group Photo			
11:00	14:00-14:45	14:00-15:30	Poster		
11:05	We-5	P. Gambardella			
11:10	14:45-15:15	15:30-16:00	Th-3	C. Back	
11:15	We-6	K. Ando			
11:20	15:15-15:40	16:00-16:30	Th-7	H.-W. Lee	
11:25	Break				
11:30	15:40-16:10	16:30-17:00	Th-8	S. Fukami	
11:35	We-7	J. Åkerman			
11:40	16:10-16:40	17:00-17:05	Closing		
11:45	We-8	17:05-18:00	Transfer		
11:50	16:40-17:10	18:00-19:30	Banquet		
11:55	We-9	J. Nitta			
12:00					
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RIEC International Workshop on Spintronics

RIEC International Workshop on Spintronics

Tohoku-York-Kaiserslautern Core-to-Core

Tohoku-York-Kaiserslautern Core-to-Core

16th RIEC International Workshop on Spintronics
8th JSPS Core-to -Core Workshop on “New -Concept Spintronic Devices”

Program

16th RIEC International Workshop on Spintronics

● **January 9 (Wednesday)**

page

9:10-9:15

Opening

9:15-10:00

We-1 **T. Jungwirth (ASCR)**

15

[Invited Lecture] *Crystal symmetries and transport phenomena in antiferromagnets*

10:00-10:30

We-2 **T. Moriyama (Kyoto University)**

16

Spin torque control of antiferromagnetic NiO

10:30-10:50

Break

10:50-11:20

We-3 **C. Song (Tsinghua University)**

17

Electrical switching of antiferromagnetic moments

11:20-11:50

We-4 **M. Meinert (Bielefeld University)**

18

Key role of thermal activation in the electrical switching of antiferromagnetic Mn₂Au and CuMnAs

11:50-13:50

Lunch

13:50-14:00

Group Photo

	page
14:00-14:45	
We-5 P. Gambardella (ETH Zürich)	19
[Invited Lecture] <i>Spatially-resolved magnetization dynamics induced by spin-orbit torques</i>	
14:45-15:15	
We-6 K. Ando (Keio University)	20
<i>Spin-orbit torques in metal-oxide heterostructures</i>	
15:15-15:40	
Break	
15:40-16:10	
We-7 J. Åkerman (University of Gothenburg)	21
<i>Spin transfer torque driven higher-order propagating spin waves in nano-contact magnetic tunnel junctions</i>	
16:10-16:40	
We-8 E. Sagasta (CIC nanoGUNE)	22
<i>Tuning the spin Hall effect in heavy metals</i>	
16:40-17:10	
We-9 J. Nitta (Tohoku University)	23
<i>Spin-orbit torque efficiency in epitaxial Pt/Co bilayer systems</i>	

● January 10 (Thursday)

page

9:10-9:55

Th-1 **G. S. D. Beach (MIT)** 24

[Invited Lecture] *Magnetic Skyrmions: From Topology to Technology*

9:55-10:25

Th-2 **J. Matsuno (Osaka University)** 25

Spin-orbitronics at transition-metal oxide interfaces

10:25-10:45

Break

10:45-11:15

Th-4 **D. Querlioz (Univ. Paris-Sud)** 26

Bioinspired Computing Leveraging the Physics of Magnetic Nano-Oscillators

11:15-11:45

Th-5 **K. Camsari (Purdue University)** 27

p-bits for Probabilistic Spin Logic

11:45-14:00

Lunch

14:00-15:30

Poster Session: Room A401 (4F)

15:30-16:00

Th-3 **C. Back (Technische Universität München)** 28

Magnetization dynamics driven by spin-orbit torques

	page
16:00-16:30	
Th -7 H.-W. Lee (POSTECH)	29
<i>Intrinsic spin and orbital Hall effects from orbital texture</i>	
16:30-17:00	
Th -8 S. Fukami (Tohoku University)	30
<i>Spin-Orbit Torque Switching in Nanoscale Devices: Material and Device Engineering</i>	
17:00-17:05	
Closing	
17:05-18:00	
Free time	
18:00-19:30	
Banquet (Joint RIEC/Core to Core)	

8th JSPS Core-to-Core Workshop on “New-Concept Spintornic Devices”

● January 11 (Friday)

page

9:10-9:15

Opening

9:15-9:45

Fr-1 **B. Hillebrands (Technische Universität Kaiserslautern)** 33

Implementation of the Stimulated-Raman-Adiabatic-Passage mechanism in magnonics

9:45-10:15

Fr-2 **A. Hirohata (University of York)** 34

Development of Antiferromagnetic Mn-Based Heusler Alloy Films

10:15-10:45

Fr-3 **T. Kubota (Tohoku University)** 35

Half-metallic Heusler alloys for giant magnetoresistance effects

10:45-11:00

Break

11:00-11:30

Fr-4 **A. Aeschlimann (University of Kaiserslautern)** 36

Light Induced Magnetization Dynamics in Ferromagnetic Alloys

11:30-12:00

Fr-5 **A. Pratt (University of York)** 37

Surface spin polarisation mapping using spin-polarised metastable emission electron microscopy (SPMEEM)

12:00-12:30

Fr-6 **S. Mitani (National Institute for Materials Science)** 39

Spin polarized quantum well states in atomically controlled Cr/Fe/MgAl₂O₄ structures

	page
12:30-12:35 Group Photo	
12:35-14:00 Lunch	
14:00-14:30 Fr-7 J. Ieda (JAEA)	40
<i>Theory of spin-transfer torques in antiferromagnetic textures</i>	
14:30-14:50 Fr-8 M. Samiepour (University of York)	41
<i>Study of spin-current operation in patterned IrMn₃</i>	
14:50-15:10 Fr-9 L. Scheuer (Technische Universität Kaiserslautern)	42
<i>Roadmap of Spintronic THz Emitters</i>	
15:10-15:30 Fr-10 M. A-Mahdawi (Tohoku University)	43
<i>Non-volatile modulation of surface anisotropy in CoPt by ZnO ferroelectric polarization in magnetic tunnel junctions</i>	
15:30-15:45 Free time	
15:45-17:15 Poster Session: Room A401 (4F)	

● **January 12 (Saturday)**

page

9:10-9:55

Sa-1 **T. Dietl (Polish Academy of Sciences)** 45

Nematicity of spin systems driven by anisotropic chemical phase separation

9:55-10:10

Break

10:10-10:55

Sa-2 **G. von Freymann (Technische Universität Kaiserslautern)** 46

Topological protection and time-periodic driving in model systems

10:55-11:10

Break

11:10-11:55

Sa-3 **K. O'Grady (University of York)** 47

Anomalous Effects in Exchange Bias Systems

11:55-12:00

Closing

16th RIEC International Workshop on Spintronics
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Poster Program

		page
P-1	L. Chen, M. Gmitra, M. Vogel, R. Islinger, M. Kronseder, D. Schuh, D. Bougeard, J. Fabian, D. Weiss and C. H. Back (University of Regensburg)	49
	<i>Electric-field control of interfacial spin-orbit fields</i>	
P-2	D-H. Kim, T. Okuno, S. K. Kim, S-H. Oh, T. Nishimura, Y. Hirata, Y. Futakawa, H. Yoshikawa, A. Tsukamoto, Y. Tserkovnyak, Y. Shiota, T. Moriyama, K-J. Kim, K-J. Lee and T Ono (Kyoto University)	50
	<i>Low magnetic damping of ferrimagnetic GdFeCo alloys</i>	
P-3	J. Lu, S. Li and J. Zhao (Chinese Academy of Science)	51
	<i>Spin-orbit Torque Switching of a Synthetic Antiferromagnet Co₂MnSi/MnGa bilayer</i>	
P-4	X. P. Zhao, J. Lu, D. H. Wei and J. H. Zhao (Chinese Academy of Sciences)	52
	<i>Spin-orbit torque induced magnetic switching in ferrimagnetic Heusler alloy DO₂₂-Mn₃Ga</i>	
P-5	B. Jinnai, H. Sato, S. Fukami and H. Ohno (Tohoku University)	53
	<i>Wide-temperature spin-orbit torque switching operation in high-thermal-stability Co/Pt-multilayer nanowire device</i>	
P-6	C. Shen and Y. Wu (Chinese Academy of Sciences)	54
	<i>magnetic circular dichroism spectroscopy study of layer materials</i>	
P-7	P. K. Muduli, M. Kimata, Y. Omori, T. Wakamura, S. P. Dash and Y. Otani (University of Tokyo)	55
	<i>Detection of the interfacial exchange field at a ferromagnetic insulator-nonmagnetic metal interface with pure spin currents</i>	

		page
P-8	R. Ješko, O. Stejskal, R. Silber, S. Cichoň, M. Mihálik and J. Hamrle (VSB-Technical University of Ostrava)	56
	<i>Magneto-optical and optical spectroscopy of perovskites, ferrites, and Heusler compounds to determine features of their electronic structure</i>	
P-9	T. Dohi, S. DuttaGupta, S. Fukami and H. Ohno (Tohoku University)	57
	<i>Ferromagnet thickness dependence of effective Dzyaloshinskii-Moriya field in W/(Co)FeB/MgO systems</i>	
P-10	T. B. Noack, V. I. Vasyuchka, D. A. Bozhko, B. Heinz, P. Frey, D. V. Slobodianiuk, O. V. Prokopenko, G. A. Melkov, P. Kopietz, B. Hillebrands and A. A. Serga (Technische Universität Kaiserslautern)	58
	<i>Enhancement of the Spin Pumping Effect by Magnon Confluence Process in YIG-Pt Bilayers</i>	
P-11	I. J.E. Kreil, D. A. Bozhko, A. A. Serga and B. Hillebrands (Technische Universität Kaiserslautern)	59
	<i>Long-distance supercurrent transport in a magnon Bose-Einstein condensate</i>	
P-12	R. Itoh, Y. Takeuchi, S. DuttaGupta, S. Fukami and H. Ohno (Tohoku University)	60
	<i>Antiferromagnet layer thickness dependence of spin-orbit torque in PtMn/CoFeB structures</i>	
P-13	S. Ranjbar, M. Tsunoda, M. Oogane and Y. Ando (Tohoku University)	61
	<i>Investigation of the exchange anisotropy in $Pt_xMn_{1-x}/Co_{70}Fe_{30}$ Films</i>	
P-14	J. Igarashi, M. Shinozaki, J. Llandro, H. Sato, S. Fukami and H. Ohno (Tohoku University)	62
	<i>Effects of free layer size on magnetic properties and current induced magnetization switching in nanoscale CoFeB/MgO magnetic tunnel junctions</i>	

		page
P-15	Y. Takahashi, Y. Takeuchi, C. Zhang, B. Jinnai, S. Fukami and H. Ohno (Tohoku University)	63
	<i>Spin-orbit torque-induced switching of in-plane magnetized elliptic nanodots detected using planar Hall effect</i>	
P-16	T. V. A. Nguyen, Y. Shiratsuchi, H. Sato, S. Ikeda, T. Endoh and Y. Endo (Tohoku University)	64
	<i>Magnetization dynamics in Pt/FM/AFM stack films</i>	
P-17	R. Thompson, J. Ryu, Y. Du, S. Karube, M. Kohda and J. Nitta (Tohoku University)	65
	<i>Current direction-dependent spin Hall magnetoresistance in epitaxial Pt/Co bilayers on MgO (110)</i>	
P-18	P. Frey, D. A. Bozhko, A. A. Serga and B. Hillebrands (Technische Universität Kaiserslautern)	67
	<i>Two-dimensional wave vector resolved transport measurements of magneto-elastic bosons</i>	
P-19	C. Zhang, S. Fukami, S. DuttaGupta, H. Sato and H. Ohno (Tohoku University)	68
	<i>Time and spatial evolution of spin-orbit torque-induced switching in W/CoFeB/MgO</i>	
P-20	M. Schneider, T. Brächer, V. Lauer, P. Pirro, D. A. Bozhko, A. A. Serga, H. Yu. Musiienko-Shmarova, B. Heinz, Q. Wang, T. Meyer, F. Heussner, S. Keller, E. Th. Papaioannou, B. Lägel, T. Löber, V. S. Tiberkevich, A. N. Slavin, C. Dubs, B. Hillebrands and A. V. Chumak (Technische Universität Kaiserslautern)	69
	<i>Magnon Chemical Potential Evolution during the BEC Formation by Rapid Cooling</i>	
P-21	S. Karube, N. Tezuka, M. Kohda and J. Nitta (Tohoku University)	70
	<i>Anomalous spin-orbit torques on Py layer via Edelstein effect at W/Pt interface</i>	
P-22	K. Sato and R. Tanaka (Tohoku University)	71
	<i>Solitons in one-dimensional mechanical linkage</i>	

		page
P-23	K. Watanabe, B. Jinnai, S. Fukami, H. Sato and H. Ohno (Tohoku University)	72
	<i>Magnetization Reversal of a 1X/X nm Perpendicular Shape-Anisotropy MTJ</i>	
P-24	W. A. Borders, S. Fukami and H. Ohno (Tohoku University)	73
	<i>Analogue Spin-Orbit Torque Devices for Artificial Neural Network Applications</i>	
P-25	S. DuttaGupta, R. Itoh, S. Fukami and H. Ohno (Tohoku University)	74
	<i>Angular dependence of longitudinal and transverse magnetoresistance in antiferromagnet/nonmagnet metallic heterostructures</i>	