Peer-Reviewed Papers

(1) Intrinsic Torques Emerging from Anomalous Velocity in Magnetic Textures
Y. Araki and J. Ieda
Phys. Rev. Lett. **127**, 277205 (2021).

(2) Long decay length of magnon-polarons in $BiFeO_3/La_{0.67}Sr_{0.33}MnO_3$ heterostructures
J. Zhang, M. Chen, J. Chen, K. Yamamoto, H. Wang, M. Hamdi, Y. Sun, K. Wagner, W. He, Y. Zhang, J. Ma, P. Gao, X. Han, D. Yu, P. Maletinsky, J.-P. Ansermet, S. Maekawa, D. Grudler, C.-W. Nan, H. Yu
Nature Commun. **12**, 7258 (2021).

(3) Hybridization of Bogoliubov-quasiparticles between adjacent CuO_2 layers in the triple-layer cuprate $Bi_2Sr_2Ca_2Cu_3O_{10+\delta}$ studied by ARPES
S. Ideta, S. Johnston, T. Yoshida, K. Tanaka, M. Mori, H. Anzai, A. Ino, M. Arita, H. Namatame, M. Taniguchi, S. Ishida, K. Takashima, K. M. Kojima, T. P. Devereaux, S. Uchida, A. Fujimori
Phys. Rev. Lett. **127**, 217004 (2021).

(4) Magnon-Photon Coupling in a Spinel Ferrite with Large Gilbert Damping
H. Kosaki, M. Umeda, E. Saitoh, and Y. Shiomi
J. Phys. Soc. Jpn. **90**, 083702 (2021).

(5) Half-integer Shapiro Steps in Strong Ferromagnetic Josephson junctions
Y. Yao, R. Cai, S.H. Yang, W. Xing, Y. Ma, M. Mori, Y. Ji, S. Maekawa, X.C. Xie, and W. Han
Phys. Rev. B **104**, 104414 (2021)

(6) Half-integer Shapiro-steps in superconducting qubit with a pi-Josephson junction
M. Mori and S. Maekawa
Appl. Phys. Express **14**, 103001 (2021).

(7) Optomagnonic Josephson effect in antiferromagnets
K. Nakata
Phys. Rev. B **104**, 104402 (2021).

(8) Magnonic thermal transport using the quantum Boltzmann equation
K. Nakata and Y. Ohnuma
Phys. Rev. B **104**, 064408 (2021).

(9) Nodal Lines and Boundary Modes in Topological Dirac Semimetals with Magnetism
Y. Araki, J. Watanabe, and K. Nomura
J. Phys. Soc. Jpn. **90**, 094702 (2021). **JPS Hot Topics**

(10) Microscopic Theory of Electrically Induced Spin Torques in Magnetic Weyl Semimetals
D. Kurebayashi, Y. Araki, and K. Nomura
J. Phys. Soc. Jpn. **90**, 084702 (2021). **Editors' Choice**

(11) Topological Hall Effects of Magnons in Ferrimagnets
K. Nakata and S.-K. Kim
J. Phys. Soc. Jpn. **90**, 081004 (2021).

(12) Long-range spin transport on the surface of topological Dirac semimetal
Y. Araki, T. Misawa, and K. Nomura
Phys. Rev. Research **3**, 023219 (2021).

(13) Correlation of anomalous Hall effect with structural parameters and magnetic ordering in $Mn_{3+x}Sn_{1-x}$ thin films
J.-Y. Yoon, Y. Takeuchi, S. DuttaGupta, Y. Yamane, S. Kanai, J. Ieda, H. Ohno, and S. Fukami
AIP Advances **11**, 065318 (2021).

(14) Observation of the Angular Momentum Compensation by Barnett Effect and NMR
H. Chudo, M. Imai, M. Matsuo, S. Maekawa, and E. Saitoh
J. Phys. Soc. Jpn. **90**, 081003 (2021).

(15) Zeeman coupling and Dzyaloshinskii-Moriya interaction driven by electric current vorticity
J. Fujimoto, W. Koshibae, M. Matsuo, and S. Maekawa
Phys. Rev. B **103**, L220402 (2021).

(16) Barnett field, rotational Doppler effect, and Berry phase studied by nuclear quadrupole resonance with rotation
H. Chudo, M. Matsuo, S. Maekawa, and E. Saitoh
Phys. Rev. B **103**, 174308 (2021).

(17) Chiral-spin rotation of non-collinear antiferromagnet by spin-orbit torque
Y. Takeuchi, Y. Yamane, J-Y. Yoon, R. Itoh, B. Jinnai, S. Kanai, J. Ieda, S. Fukami & H. Ohno
Nature Mater. **20**, 1364 (2021).

(18) Spin-orbital magnetic response of relativistic fermions with band hybridization
Y. Araki, D. Suenaga, K. Suzuki, and S. Yasui
Phys. Rev. Research **3**, 023098 (2021).

(19) Magnetization energy current in the axial magnetic effect
A. Shitade and Y. Araki
Phys. Rev. B **103**, 155202 (2021).

(20) Magnetic Bragg peak enhancement under ultrasound injection
S. Shamoto, M. Akatsu, M. Matsuura, S. Ohira-Kawamura, K. Harii, M. Ono, L.-J. Chang, T. U. Ito, Y. Nemoto, and J. Ieda
Phys. Rev. Research **4**, 013245 (2022).

(21) Excitation and transport of bound magnon clusters in frustrated ferromagnetic chain
Hiroaki Onishi
J. Phys.: Conf. Ser. **2207**, 012045 (2022).

(22) Optical selection rules of the magnetic excitation in the S=1/2 one-dimensional Ising-like antiferromagnet $BaCo_2V_2O_8$
Shojiro Kimura, Hiroaki Onishi, Akira Okutani, Mitsuru Akaki, Yasuo Narumi, Masayuki Hagiwara, Kouichi Okunishi, Koichi Kindo, Zhangzhen He, Tomoyasu Taniyama, and Mitsuru Itoh
Phys. Rev. B **105**, 014417 (2022).

(23) Einstein-de Haas Nanorotor

W. Izumida, R. Okuyama, K. Sato, T. Kato, and M. Matsuo

Phys. Rev. Lett. **128**, 017701 (2022).

(24) Interaction between surface acoustic waves and spin waves in a ferromagnetic thin film

K. Yamamoto, M. Xu, J. Puebla, Y. Otani, S. Maekawa

J. Magn. Magn. Mater. **545**, 168672 (2022).

Invited Talks at International Conferences

(1) Nuclear Barnett effect and nuclear Einstein-de Haas effect

H. Chudo

SPIN2021 The 24th International Spin Symposium

Online/Matsue Japan (hybrid), 19 October 2021

(2) Observation of the angular momentum compensation by Barnett effect and NMR

H. Chudo

The 5th Symposium for the Core Research Clusters for Materials Science and Spintronics, and the 4th Symposium on International Joint Graduate Program in Materials Science

Online Zoom meeting, 27 October 2021

(3) Three-magnon instability in a cavity

K. Yamamoto and H. Kurebayashi

The 5th Symposium for The Core Research Clusters for Materials Science and Spintronics

Online Zoom meeting, 28 October 2021

(4) Theory of Spin Torques Emerging from Band Topology

Y. Araki

Joint MMM-Intermag Conference

Online Zoom meeting/New Orleans, USA (hybrid), 10 January 2022

Books and Scientific Articles

(1) MLF でスピントロニクス研究に挑戦

Challenge spintronics research with MLF

S. Shamoto, J. Ieda

CROSS T&T No.69, 34 (2021) (in Japanese).

(2) Electronic Structure Transformation in a Magnetized Topological Semimetal

Y. Araki

JPS Hot Topics **1**, 058 (2021).

(3) マグノン Wiedemann-Franz 則

Magnonic Wiedemann-Franz law

K. Nakata

固体物理 Vol.56, No.8 35 (2021) (in Japanese).

Patents

(1) Electronic devices, their manufacturing methods and usage methods
Y. Takaeuchi, S. Fukami, Y. Yamane, J. Ieda, J.-Y. Yoon, B. Jinnai, S. Kanai, H. Ohno
Japanese Patent Application No. 2021-071582, 21 April 2021

Awards

(1) 第 112 回日本学士院賞, 112th Japan Academy Prize
スピン流物理学の先駆的研究
Pioneering study of spin current physics.
Eiji Saitoh

Press Release

(1) 電気で操る磁石の研究で新発見～電子スピンで「沈黙の磁石」に GHz のモーター回転～
A new spintronic phenomenon, chiral-spin rotation, found in non-collinear antiferromagnet
14 May 2021
https://www.jaea.go.jp/02/press2021/p21051402/

(2) スピントロニクスの大幅な省電力化につながる新原理を発見ー「電気的な磁気制御」を可能にする物質開発に新たなアプローチー
New principle for significant reduction of power consumption in spintronics-Approach to material development for "electric manipulation of magnetism"-
24 December 2021
https://www.jaea.go.jp/02/press2021/p21122402/

(3) スピンの響き、超音波で奏でて中性子で聴くー超音波と中性子を組み合わせた新手法でスピンによる発電の効率因子を特定ー
The sound of spin, played with ultrasonic waves and listened with neutrons- Identify the efficiency factor of spin-driven power generation –
29 March 2022
https://www.jaea.go.jp/02/press2021/p22032901/