

Peer-Reviewed Papers

- (1) Thermal stability of non-collinear antiferromagnetic Mn₃Sn nanodot,
Y. Sato, Y. Takeuchi, Y. Yamane, J.-Y. Yoon, S. Kanai, [J. Ieda](#), H. Ohno, and S. Fukami,
[Appl. Phys. Lett. 122, 122404 \(2023\)](#). **Featured(注目論文)**
- (2) Magnonic Casimir effect in ferrimagnets,
[K. Nakata](#) and K. Suzuki,
[Phys. Rev. Lett. 130, 096702 \(2023\)](#).
- (3) Hybridized propagation of spin waves and surface acoustic waves in a multiferroic-ferromagnetic heterostructure,
J. Chen, [K. Yamamoto](#), J. Zhang, J. Ma, H. Wang, Y. Sun, M. Chen, J. Ma, S. Liu, P. Gao, D. Yu, J.-P. Ansermet, C.-W. Nan, S. Maekawa, and H. Yu,
[Phys. Rev. Applied 19, 024046 \(2023\)](#).
- (4) Nonlinear Magnon Polaritons,
O. Lee, [K. Yamamoto](#), [M. Umeda](#), C. W. Zollitsch, M. Elyasi, T. Kikkawa, E. Saitoh, G. E. W. Bauer, and H. Kurebayashi,
[Phys. Rev. Lett. 130, 046703 \(2023\)](#).
- (5) Shapiro steps in charge-density-wave states driven by ultrasound,
[M. Mori](#) and [S. Maekawa](#),
[Appl. Phys. Lett. 122, 042202 \(2023\)](#).
- (6) Finite-temperature properties of extended Nagaoka ferromagnetism: Ordering processes and precursor of a quantum phase transition between itinerant ferromagnetic and Mott antiferromagnetic states,
[H. Onishi](#), and S. Miyashita,
[Phys. Rev. B 106, 134436 \(2022\)](#).
- (7) The Damage Analysis for Irradiation Tolerant Spin-Driven Thermoelectric Device Based on Single-Crystalline Y₃Fe₅O₁₂/Pt Heterostructures,
[J. Ieda](#), S. Okayasu, K. Harii, M. Kobata, K. Yoshii, T. Fukuda, M. Ishida, and [E. Saitoh](#),
[IEEE Trans. Magn. 58, 1301106 \(2022\)](#).
- (8) Local bifurcation with spin-transfer torque in superparamagnetic tunnel junctions,
T. Funatsu, S. Kanai, [J. Ieda](#), S. Fukami, and H. Ohno,
[Nat. Commun. 13, 4079 \(2022\)](#).
- (9) Magnetic Orderings from Spin-Orbit Coupled Electrons on Kagome Lattice,
J. Watanabe, [Y. Araki](#), K. Kobayashi, A. Ozawa, and K. Nomura,
[J. Phys. Soc. Jpn. 91, 083702 \(2022\)](#). **Editors' Choice(注目論文)**
- (10) Large Antisymmetric Interlayer Exchange Coupling Enabling Perpendicular Magnetization Switching by an In-Plane Magnetic Field,
H. Masuda, T. Seki, Y. Yamane, R. Modak, K.-i. Uchida, [J. Ieda](#), Y.-C. Lau, S. Fukami, and K. Takahashi,

- [Phys. Rev. Appl. 17, 054036 \(2022\).](#)
- (11) Violation of the magnonic Wiedemann-Franz law in the strong nonlinear regime,
[K. Nakata](#), Y. Ohnuma, and S.-K. Kim,
[Phys. Rev. B 105, 184409 \(2022\).](#)
 - (12) Direct and alternating magnon spin currents across a junction interface irradiated by linearly polarized laser,
[K. Nakata](#), and Y. Ohnuma,
[Phys. Rev. B 105, 144436 \(2022\).](#)
 - (13) Heavy-quark spin polarization induced by the Kondo effect in a magnetic field,
D. Suenaga, [Y. Araki](#), K. Suzuki, and S. Yasui,
[Phys. Rev. D 105, 074028 \(2022\).](#)
 - (14) Observation of domain structure in non-collinear antiferromagnetic Mn₃Sn thin films by magneto-optical Kerr effect,
T. Uchimura, J.-Y. Yoon, Y. Sato, Y. Takeuchi, S. Kanai, R. Takechi, K. Kishi, Y. Yamane, S. DuttaGupta, [J. Ieda](#), H. Ohno, and S. Fukami
[Appl. Phys. Lett. 120, 172405 \(2022\).](#)
 - (15) Observation of topological Hall torque exerted on a domain wall in the ferromagnetic oxide SrRuO₃,
M. Yamanouchi, [Y. Araki](#), T. Sakai, T. Uemura, H. Ohta, and [J. Ieda](#),
[Science Advances 8, abl6192 \(2022\).](#)
 - (16) Theory of Emergent Inductance with Spin-Orbit Coupling Effects,
Y. Yamane, S. Fukami, and [J. Ieda](#),
[Phys. Rev. Lett. 128, 147201 \(2022\).](#)
 - (17) Acoustic spin transport by superconducting quasiparticles,
T. Funato, A. Yamakage, and [M. Matsuo](#),
[Phys. Rev. B 106, 214420 \(2022\).](#)
 - (18) Twisting an optomechanical cavity,
D. Oue and [M. Matsuo](#),
[Phys. Rev. A 106, L041501 \(2022\).](#)
 - (19) Spin pumping into anisotropic Dirac electrons,
T. Funato, T. Kato, and [M. Matsuo](#),
[Phys. Rev. B 106, 144418 \(2022\).](#)
 - (20) Multiparticle tunneling transport at strongly correlated interfaces,
H. Tajima, D. Oue, and [M. Matsuo](#),
[Phys. Rev. A 106, 033310 \(2022\).](#)
 - (21) Valley transport driven by dynamic lattice distortion,
Y. Ominato, D. Oue, and [M. Matsuo](#),
[Phys. Rev. B 105, 195409 \(2022\).](#)

- (22) Ferromagnetic resonance modulation in d-wave superconductor/ferromagnetic insulator bilayer systems,
Y. Ominato, A. Yamakage, T. Kato, and M. Matsuo,
[Phys. Rev. B **105**, 205406 \(2022\)](#).

Invited Talks at International Conferences

- (1) らせん系の創発電磁応答,
J. Ieda,
日本物理学会 2023 年春季大会 一般シンポジウム「らせん系の物理」2023 年 3 月 25 日
Online.
- (2) Basic Notions of Spintronics
J. Ieda,
第4回若手放談会:エキゾチック核物理の将来 2023 年 3 月 16 日, 理化学研究所, 神戸
- (3) Observation of the Angular Momentum Compensation by Barnett Effect and NMR,
M. Imai,
The 67th Annual Conference on Magnetism and Magnetic Materials(MMM 2022),
31 October - 4 November 2022, Virtual Platform.
- (4) トポロジカル物質とスピントロニクス
Y. Araki,
応用物理学会スピントロニクス研究会「第 21 回スピントロニクス入門セミナー」2022 年 11 月 18 日
- (5) Suhl instability in Spintronics
K. Yamamoto,
Spin Cavitronics IV
Max Planck Institute for the Science of Light, 7 - 9 December 2022, Erlangen, Germany

Books and Scientific Articles

- (1) Spin and Spin Current - From Fundamentals to Recent Progress,
S. Maekawa, T. Kikkawa, H. Chudo, J. Ieda, and E. Saitoh
[J. Appl. Phys. **133**, 020902 \(2023\)](#).

Patents

- (1) 薄膜インダクタ素子、薄膜可変インダクタ素子及び積層薄膜素子の使用方法, 特願 2022-183158 号. Y. Araki, J. Ieda, S. Fukami, and Y. Yamane

Awards

- (1) 2022 年理事長表彰・研究開発功績賞【特賞】，JAEA President Award 2022 トポロジカル電子物性に基づく低損失な磁気制御原理の発見 Discovery of low-loss magnetic control principle based on topological electronic properties. Y. Araki
- (2) 令和 4 年度(第 68 回)仁科記念賞 齊藤英治 「スピン流物理学の開拓」 令和 4 年 8 月 18 日 Nishina Prize, Eiji Saitoh, “Pioneering contribution to the physics of spin current”

Press Release

- (1) 磁気デバイスの小型化に重要な「磁気波の真空中に潜むエネルギー」を解明 – ナノスケールにまで薄くした磁石の基礎原理が理論計算から明らかに – 令和 5 年 2 月 28 日 Magnonic Casimir effect in ferrimagnets, K. Nakata and K. Suzuki, [Phys. Rev. Lett. 130, 096702 \(2023\)](#).
- (2) ナノ磁石の磁気エネルギー地形の測量に成功 ~ 高性能擬似量子コンピューター開発に向けた数学的基盤を確立 ~ 令和 4 年 8 月 18 日 Local bifurcation with spin-transfer torque in superparamagnetic tunnel junctions, T. Funatsu, S. Kanai, J. Ieda, S. Fukami, and H. Ohno, [Nat. Commun. 13, 4079 \(2022\)](#).
- (3) 磁化反転に応用可能な新原理トルクを世界で初めて実証 ~ 磁気メモリの大幅な省電力化が期待 ~ 令和 4 年 4 月 16 日 Observation of topological Hall torque exerted on a domain wall in the ferromagnetic oxide SrRuO₃, M. Yamanouchi, Y. Araki, T. Sakai, T. Uemura, H. Ohta, and J. Ieda, [Science Advances 8, ab16192 \(2022\)](#).
- (4) 電気回路の基本要素 – インダクター – の「ねじれ」をほどく – 電子スピンの量子相対論効果で電力制御研究に新展開 – 令和 4 年 4 月 14 日 Theory of Emergent Inductance with Spin-Orbit Coupling Effects, Y. Yamane, S. Fukami, and J. Ieda, [Phys. Rev. Lett. 128, 147201 \(2022\)](#).