

Tsuyoshi Omi

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Professor Arima & Tokunaga group

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Education

- B. En. Department of Applied Physics, The University of Tokyo, 2016.
- M. Sc. Department of Advanced Materials Science, The University of Tokyo, 2018.

Research Interests

Multiferroics, Nonreciprocal flow of quasi-particles, Magneto-elastic coupling

Research Experience

Single Crystal Growth

- Floating Zone Melting Method
- Flux Method

Macroscopic measurement

- Magnetization
- Electric polarization
- AC permittivity
- Elastic constant by ultrasonic measurement

Quantum beam measurement

- Neutron magnetic scattering
- X-ray scattering

Electron Spin Resonance

Fellowships

Program for Leading Graduate Schools (MERIT), The University of Tokyo (2016/10~)

Awards

Best Poster Award

- J-Physics International Workshop on Multipole Physics and Related Phenomena, Iwate Japan, 2017.
 - Novel Phenomena in Quantum Materials driven by Multipoles and Topology, Japan, 2018.
- ### Master Thesis and Presentation Award
- Department of Advanced Materials Science, The University of Tokyo, 2018.

Publications & Presentations

Paper

Element selectivity in second-harmonic generation of GaFeO₃
by a soft-x-ray free-electron laser

Sh. Yamamoto, T. Omi, H. Akai, Y. Kubota, Y. Takahashi, Y. Suzuki, Y. Hirata, K. Yamamoto, R. Yukawa, K. Horiba, H. Yumoto, T. Koyama, H. Ohashi, S. Owada, K. Tono, M. Yabashi, E. Shigemasa, S. Yamamoto, M. Kotsugi, H. Wadati, H. Kumigashira, T. Arima, S. Shin, and I. Matsuda.
Phys. Rev. Lett., **120**, 223902 (2018).

Presentations (International conference)

1. Magnetic phase diagram of an orthorhombic Kagomé cobaltite CaBaCo₄O₇ (poster)
Tsuyoshi Omi, Nobuyuki Abe, Yusuke Tokunaga and Taka-hisa Arima
Topological Phases and Functionality of Correlated Electron Systems (2019/02).
2. Nonreciprocal spin-wave damping in multiferroic GaFeO₃ (poster)
T. Omi, M. Akaki, N. Abe, Y. Tokunaga, S. Kimura, M. Hagiwara and T. Arima
International Conference on Magnetism, San Francisco (2018).
3. Magnetoelastic coupling in multiferroic CaBaCo₄O₇ (poster)
Tsuyoshi Omi, Nobuyuki Abe, Yusuke Tokunaga, Taka-hisa Arima
J-Physics 2018, June 27–30, Japan (2018).
4. Observation of a nonreciprocal signal in ferromagnetic resonance in multiferroic GaFeO₃
T. Omi, M. Akaki, N. Abe, Y. Tokunaga, S. Kimura, M. Hagiwara and T. Arima
(poster) The 9th APCTP Workshop on Multiferroics, Japan (2017).

Presentations (Domestic conference)

1. Antiferromagnetic-to-ferrimagnetic transition in polar magnet $\text{CaBaCo}_4\text{O}_7$ (oral).
T. Omi, Y. Watanabe, N. Abe, A. Nakao, K. Munakata, H. Sagayama, Y. Tokunaga, T. Arima
Japan Physical Society Spring Meeting, 14pS303-9, Kyushu University, (2019/03).
2. Magnetic anisotropy of a detwinned single crystal of $\text{CaBaCo}_4\text{O}_7$ (oral).
T. Omi, N. Abe, Y. Tokunaga, T. Arima
Japan Physical Society Autumn Meeting, 9pB202-14, Doshisya University, (2018/09).
3. Magneto-elastic response in polar ferrimagnet $\text{CaBaCo}_4\text{O}_7$ (oral).
T. Omi, K. Matsuura, N. Abe, Y. Tokunaga, T. Arima
Japan Physical Society Spring Meeting, 25aK404-7, Tokyo University of Science, (2018/03).
4. Observation of nonreciprocal signal in polarized ferromagnetic resonance of polar ferrimagnet GaFeO_3 (oral).
T. Omi, M. Akaki, N. Abe, Y. Tokunaga, S. Kimura, M. Hagiwara and T. Arima
Japan Physical Society Autumn Meeting, 18pH11-4, Iwate University, (2017/09).

Thesis

1. Master thesis, Department of Advanced Materials Science, The University of Tokyo
The nonreciprocal response with excitations of quasi-particles in polar ferrimagnets
(In Japanese)
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