

Yusuke Iguchi, PhD

Senior Research Scientist-Physical | Co-Founder, JASS | Co-Founder, GW CJ | Green card holder

Geballe Laboratory for Advanced Materials, Stanford University
476 Lomita Mall, McCullough Room 137, Stanford, CA 94305, USA

EDUCATION

- 2018 **Ph.D. & M.S.** Basic Science, University of Tokyo, Tokyo (Supervisor: **Yoshinori Onose**)
 2013 **Teaching certificate** for Science in middle & high schools, Tokyo University of Science
 2013 **B.S.** Physics, Tokyo University of Science, Japan (Supervisor: **Setsuo Mitsuda**)

WORK EXPERIENCE

- 2020–current **Senior Research Scientist-Physical**, Geballe Laboratory for Advanced Materials, Stanford University, CA
 2018–2020 **JSPS Overseas Postdoctoral Research Fellow**, Applied Physics, Stanford University, CA (Mentor: **Kathryn Ann Moler**)
 2016–2018 **JSPS Research Fellow (DC2)**

FELLOWSHIPS AND AWARDS

- 2018/4 Overseas Research **Fellowship** of Japan Society for the Promotion of Science
 2017/1 Journal of Physics Society of Japan **Papers of Editors' choice**
 2016/4 Research **Fellowship** (DC2) of Japan Society for the Promotion of Science
 2015/3 **Outstanding Graduate Student Award**, Arts and Sciences, University of Tokyo

MENTORING EXPERIENCE

- 2022/1–current Mentoring Logan Bishop-Van Horn (Ph.D. student, Stanford University)
 2019/9–current Mentoring Eli Muller (Ph.D. student, Stanford University)
 2019/11–2023/6 Mentoring Ruby A. Shi (Ph.D. student, Stanford University)
 2018/4–2022/6 Mentoring Irene P. Zhang (Ph.D. student, Stanford University)

TEACHING EXPERIENCE

- 2022–current Girls Who Code in Japanese, **Teacher**, Japan
 2022/5 nano@stanford, **Guest Teacher** at Greenleaf TK-8 School, CA
 2021/12 Skype a Scientist, **Guest Teacher** at Chardon Primary School, NE
 2013–2014 Material Science Exp. II/III, **Teaching Assistant** at University of Tokyo, Japan
 Summer 2012 Physics I, **Guest Teacher** at Kumagaya High school, Japan

PROFESSIONAL AND LEADERSHIP ACTIVITIES

- 2022/6–current **Co-Founder & Organizer**, Japanese Academic Seminars at Stanford, Stanford, CA
 2022/7–current **Co-Founder & Organizer**, Girls Who Code in Japanese, Japan
 2022/8 **Session chair**, 29th Inter. Conf. on Low Temperature Physics (LT29), Sapporo
 2020/5–2021/7 **Organizer**, TED circle at Bechtel International center, Stanford university, CA
 2019/12 **Session chair**, 32nd International Symposium on Superconductivity, Kyoto
Reviewers for npj Quantum Materials, Scientific Reports, Science Progress

PUBLICATIONS

(ORCID ID: [0000-0001-9695-4586](https://orcid.org/0000-0001-9695-4586), [Google Scholar](#))

- [13] E. Mueller, **Y. Iguchi**, C. Watson, C. Hicks, Y. Maeno, and K. A. Moler, Constraints on a split superconducting transition under uniaxial strain in Sr_2RuO_4 from scanning SQUID microscopy, [arXiv:2306.13737](#) (2023).
- [12] **Y. Iguchi**, R.A. Shi, K. Kihou, C.-H. Lee, M. Barkman, A. L. Benfenati, V. Grinenko, E. Babaev, and K. A. Moler, Superconducting vortices carrying a temperature-dependent fraction of the flux quantum, **Science** 380, 1244-1247 (2023).
- [11] **Y. Iguchi**, H. Man, S.M. Thomas, F. Ronning, P. Rosa, and K.A. Moler, Microscopic imaging homogeneous and single phase superfluid density in UTe_2 , **Physical Review Letters** 130, 196003 (2023).
- [10] S. Hirose, **Y. Iguchi**, Y. Nii, T. Kimura, and Y. Onose, Nonreciprocal microwave response at room temperature in multiferroic Y-type hexaferrite $\text{BaSrCo}_2\text{Fe}_{11}\text{AlO}_{22}$, **Applied Physics Letters** 121, 222401 (2022). **Editor's picks**
- [9] **Y. Iguchi**, I. P. Zhang, E. D. Bauer, F. Ronning, J. R. Kirtley, and K. A. Moler, Local observation of linear- T superfluid density and anomalous vortex dynamics in URu_2Si_2 , **Physical Review B (Letter)** 103, L220503 (2021).
- [8] I. P. Zhang, J. C. Palmstrom, H. Noad, L. B.-V. Horn, **Y. Iguchi**, Z. Cui, E. Mueller, J. R. Kirtley, I. R. Fisher, and K. A. Moler, Imaging anisotropic vortex dynamics in FeSe , **Physical Review B** 100, 024514 (2019).
- [7] **Y. Iguchi**, Y. Nii, M. Kawano, H. Murakawa, N. Hanasaki, and Y. Onose, Microwave non-reciprocity of magnon excitations in a non-centrosymmetric antiferromagnet $\text{Ba}_2\text{MnGe}_2\text{O}_7$, **Physical Review B** 98, 064416 (2018).
- [6] **Y. Iguchi**, Y. Nii, and Y. Onose, Magnetoelectrical control of nonreciprocal microwave response in a multiferroic helimagnet, **Nature Communications** 8, 15252 (2017).
- [5] Y. Nii, R. Sasaki, **Y. Iguchi**, and Y. Onose, Microwave Magneto-Chiral Effect in a Noncentrosymmetric Magnet CuB_2O_4 , **Journal of the Physical Society of Japan** 86, 024707 (2017). **Editors' choice**
- [4] R. Sasaki, Y. Nii, **Y. Iguchi**, and Y. Onose, Nonreciprocal propagation of surface acoustic wave in Ni/LiNbO_3 , **Physical Review B (Rapid Communications)** 95, 020407(R) (2017).
- [3] Y. Kinoshita, N. Kida, M. Sotome, T. Miyamoto, **Y. Iguchi**, Y. Onose, and H. Okamoto, Terahertz Radiation by Subpicosecond Magnetization Modulation in the Ferrimagnet LiFe_5O_8 , **ACS photonics** 3, 1170 (2016).
- [2] **Y. Iguchi**, S. Uemura, K. Ueno, and Y. Onose, Nonreciprocal magnon propagation in a noncentrosymmetric ferromagnet LiFe_5O_8 , **Physical Review B** 92, 184419 (2015).
- [1] T. Nakajima, **Y. Iguchi**, H. Tamatsukuri, S. Mitsuda, Y. Yamasaki, H. Nakao, and N. Terada, Uniaxial-Pressure Effects on Spin-Driven Lattice Distortions in Geometrically Frustrated Magnets $\text{CuFe}_{1-x}\text{Ga}_x\text{O}_2$ ($x=0, 0.035$), **Journal of the Physical Society of Japan** 82, 114711 (2013).

COMPETITIVE RESEARCH FUNDING

2016/4 – 2018/3 Japan Society for the Promotion of Science Fellows (PI: \$13K for two years)

INVITED TALKS

- 2023 12th Japanese Academic Seminars at Stanford, Stanford University, CA
- 2022 UTe₂ seminar, Tohoku University, Japan and University of Grenoble Alpes, France (online)
- 2022 Onose Lab seminar, Tohoku University, Japan
- 2022 Matsueda Lab seminar, Tohoku University, Japan
- 2021 59th Risou Doctoral group, Tokyo University of Science, Tokyo(online)
- 2021 73rd Berkeley Japanese Academic Network, UC Berkeley, CA(online)
- 2019 32nd International Symposium on Superconductivity, Kyoto
- 2019 11th Stanford Visitors Meetup, Stanford University, CA
- 2019 56th Berkeley Japanese Academic Network, UC Berkeley, CA
- 2019 JSPS Researcher Gatherings, Berkeley, CA
- 2017 NTT Basic Research Laboratories, Japan
- 2016 Komaba Condensed Matter Meeting, University of Tokyo, Tokyo

SELECTED ORAL PRESENTATIONS (2021–current)

- [6] **Y. Iguchi**, R.A. Shi, K. Kihou, C.-H. Lee, M. Barkman, A. Benfenati, V. Grinenko, E. Babaev, and K. A. Moler, Observation of superconducting vortices carrying a temperature-dependent fraction of the flux quantum, **American Physical Society March Meeting 2023** (Las Vegas), Session Y28.00004
- [5] **Y. Iguchi**, H. Man, S.M. Thomas, F. Ronning, J. Ishizuka, M. Sigrist, P.F.S. Rosa, and K.A. Moler, Scanning SQUID microscopy study of local superconducting state of chiral superconductor candidate UTe₂, **The Physical Society of Japan, Autumn Meeting 2022** (Tokyo Tech), Div. 8, 12pW521-5
- [4] **Y. Iguchi**, Imaging edge fields on chiral superconductor candidate UTe₂, **29th International Conference on Low Temperature Physics (LT29) at Sapporo**, Session 22A-SF2A-03
- [3] **Y. Iguchi**, H. Man, S.M. Thomas, F. Ronning, P. Rosa, K. Moler, Microscopic imaging of UTe₂ by scanning SQUID microscopy, **American Physical Society March Meeting 2022**(Chicago), Session Y65.00002
- [2] **Y. Iguchi**, J.A. Straquadine, J.R. Kirtley, A. Singh, I.R. Fisher, and K.A. Moler, Non BCS-like superfluid density in a disordered charge density wave material: Pd-intercalated ErTe₃, **American Physical Society March Meeting 2021**(Online), Session A47.00008
- [1] **Y. Iguchi**, J.A. Straquadine, J.R. Kirtley, A. Singh, I.R. Fisher, and K.A. Moler, Non BCS-like superfluid density in a disordered charge density wave material: Pd-intercalated ErTe₃, **The Physical Society of Japan 76th Annual Meeting**(Online), Div. 6, 14aF1-1