

Koichiro Takahashi

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Department of Physics and Astronomy

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Project and Publication:

1. Yibo Zhang, Suman Itani, Kamal Khanal, Emmanuel Okyere, Gavin Smith, **Koichiro Takahashi**, Jiadong Zang, "GPTArticleExtractor: An automated workflow for magnetic material database construction", Journal of Magnetism and Magnetic Materials, 2024, 172001, ISSN 0304-8853, <https://doi.org/10.1016/j.jmmm.2024.172001> .
2. **Koichiro Takahashi**, Sergey S. Pershoguba, and Jiadong Zang. "Inertia in skyrmions confined to one-dimensional geometries." arXiv preprint arXiv:2409.17461 (2024). <https://doi.org/10.48550/arXiv.2409.17461>
Supervisor: Sergey Pershoguba, Jiadong Zang
Partially funded by Summer Undergraduate Research Fellowships (SURF)
Presented preliminary results at Undergraduate Research Conference (URC) at UNH
3. "Symmetry and Tight-binding modeling of Altermagnet candidate MnTe"
Supervisor: Jiadong Zang

Research and Experience:

05/2023-Present	Research Assistant in the Theoretical Condensed Matter Physics Group at UNH Supervisor: Jiadong Zang, Sergey Pershoguba
07/2024	2024 US Quantum Information Science Summer School (USQIS) At Oak Ridge National Laboratory (ORNL) July 14-26 Elective lectures and keynote presentations were given at advanced graduate levels Topics: Quantum computing, quantum sensing, quantum simulations, topological quantum algorithm, topological superconductors, quantum spin liquids, DMRG, measurement-induced phenomena, etc.

Research Interests:

Condensed Matter Theory, Quantum Field Theory, Topological Quantum Matter, Strongly Correlated Electrons System, Altermagnetism, Quantum Hall Effects, Superconductivity, Magnetism, Skyrmionics, Quantum Information, Machine Learning, Complexity, Information Theory, Non-Equilibrium Dynamics

Computational Skills:

Languages: Python, Mathematica, (Julia)

Independent Seminars:

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| 01/2024-04/2024 | UNH Graduate Theoretical Physics Seminar Spring 2024
Presentation, Title: “Dynamics of Magnetic Skyrmion” |
| 01/2024-03/2024 | Group Theory and Algebraic Geometry Seminar
with Michael Lathwood, PhD student at UNH
Weekly Seminar of Group Theory and Algebraic Geometry |
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Education:

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|-----------------|---|
| 08/2023-Present | Transfer Undergraduate Physics Student (4th-year), Class of 2025
Department of Physics, University of New Hampshire, USA
GPA: 4.0 |
| 08/2022-05/2023 | Exchange Student in Physics at UNH
Located in Durham, New Hampshire, USA
Stayed for 2 semesters, GPA: 4.0 |
| 04/2021-08/2022 | BSc in Physics at Saitama University (SU) (Transferred to UNH)
Located in Sakura-ku, Saitama, Japan
Class of 2025, Earned 73 Credits
GPA: 3.71 (Top of my class) |
| 04/2018-03/2021 | High School Diploma in General Course at Shinjuku High School
Located in Shinjuku, Tokyo, Japan |
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Scholarships:

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|-----------------|---|
| 05/2024-08/2024 | Summer Undergraduate Research Fellowships (SURF)
Received: \$4,000
For 10 weeks of summer research on campus at UNH |
| 05/2024 | Karsten Pohl Scholarship
Received: \$4,660
From the College of Engineering & Physical Sciences at UNH
“For academic excellence and for advancing the University’s goal
of enhancing the educational experience through enrollment of a
diverse student body” |
| 08/2023-Present | Transfer Excellence Scholarship |

Received: \$2,500 (per semester) × 4 semesters
From the Admission Committee of UNH

08/2022-05/2023	Gyomu Super Japan Dream Foundation Scholarship Received: ¥1,200,000 (9 months) During study exchange at UNH
10/2022-08/2023	Exemption of Tuition Fee at Saitama University Applies for students who has outstanding academic performance
04/2022-08/2023	Japan Student Services Organization (JASSO) Scholarship

Awards:

Dean's list in Highest Honors at UNH for outstanding academic performance
Received Semesters: 2022 Fall, 2023 Spring, 2023 Fall, 2024 Spring

Outstanding Grade Award from the Physics Department of Saitama University
Received Years: 2021, 2022; the award given to the top of my class

Teaching Experience:

08/2024-Present	Teaching Assistant in Thermodynamics and Statistical Mechanics (Undergraduate) https://courses.unh.edu/class/202410/11465 Teach recitations, 50 mins per week Homework help office hours, 1 hour, twice a week Grading homework and quizzes
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Extracurricular Activities:

08/2022-Present	UNH Men's Volleyball Club; Position: Outside Hitter/Libero Played in tournaments held at Boston College, UMass Lowell etc.
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Leadership Experience:

08/2024	Office of the International Students and Scholars (OISS) Orientation Leader (OL) in 2024 Fall Worked as one of the OLs for new international students at UNH
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Personal Information:

Date and Place of Birth:	January 10, 2003; Tokyo, Japan
Citizenship:	Japan
Language Skills:	Japanese (Native), English (Fluent)