

Sami Hakani

Website: <https://shakani.github.io>

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EDUCATION

-
- **Georgia Institute of Technology** Atlanta, GA
PhD - Physics 2019 - present
Advisor: Itamar Kimchi
 - **Georgia Institute of Technology** Atlanta, GA
Master of Science - Physics. GPA: 4.0 2019 - present
 - **Yale College** New Haven, CT
Bachelor of Science - Physics, Electrical Engineering 2014 - 2018
Advisor: Nir Navon

EMPLOYMENT HISTORY

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- **Graduate Student Researcher** Atlanta, GA
School of Physics, Georgia Institute of Technology 2019 - present
 - **Graduate Teaching Assistant** Atlanta, GA
School of Physics, Georgia Institute of Technology 2019 - present
 - **Postgraduate Research Assistant** New Haven, CT
Physics Department, Yale University 2018 - 2019
Advisor: Nir Navon

FELLOWSHIPS AND AWARDS

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- Amelio Endowment and the Weatherly Fund Graduate Student Travel Grant (GaTech, \$500) - 2023
 - Amelio Endowment and the Weatherly Fund Graduate Student Travel Grant (GaTech, \$1000) - 2022
 - Bonnie B. and Charles K. Rice Jr. Fellowship (GaTech, \$2500) - 2022
 - Amelio Endowment and the Weatherly Fund Graduate Student Travel Grant (GaTech, \$500) - 2022
 - H.G. Bessent Scholarship (Yale College) - 2014-2018
 - QuestBridge Scholar (Yale College) - 2014-2018
 - Distinction in the Major (Yale College) - 2018

PUBLICATIONS

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- ¹A. Sokolik, **S. Hakani**, S. Roy, N. Pellatz, H. Zhao, G. Cao, I. Kimchi, and D. Reznik, “Spinons and damped phonons in the spin- $\frac{1}{2}$ quantum liquid Ba₄Ir₃O₁₀ observed by Raman scattering”, *Phys. Rev. B* **106**, 075108 (2022).
- ²Y. Zhang, Y. Ni, H. Zhao, **S. Hakani**, F. Ye, L. DeLong, I. Kimchi, and G. Cao, “Control of chiral orbital currents in a colossal magnetoresistance material”, *en, Nature*, Publisher: Nature Publishing Group, 1–6 (2022).
- ³**S. Hakani** and I. Kimchi, “Topological defects in a response theory”, (in preparation) (2023).

TEACHING EXPERIENCE

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- PHYS 2211 (Intro Physics I) - GaTech, Summer 2023
30 students; calculus-based physics laboratory course for engineers and scientists.
 - Invited Guest Lecture, PHYS 6106 (Quantum Mechanics II) - GaTech, Spring 2023
Delivered guest lecture to GaTech physics PhD students on using perturbation theory on to obtain effective Hamiltonians
 - PHYS 6106 (Quantum Mechanics II) - GaTech, Spring 2023
34 students; core graduate curriculum course for physics students.
 - PHYS 2211 (Intro Physics I) - GaTech, Summer 2021
60 students; calculus-based physics laboratory course for engineers and scientists.
 - PHYS 6105 (Quantum Mechanics I) - GaTech, Fall 2021
33 students; core graduate curriculum course for physics students.
 - PHYS 6106 (Quantum Mechanics II) - GaTech, Spring 2021
34 students; core graduate curriculum course for physics students.
 - PHYS 6101 (Classical Mechanics) - GaTech, Fall 2020
8 students; core graduate curriculum course for physics students.
 - PHYS 2211 (Intro Physics I) - GaTech, Summer 2020
60 students; calculus-based physics laboratory course for engineers and scientists.
 - PHYS 2211 (Intro Physics I) - GaTech, Fall 2019
60 students; calculus-based physics laboratory course for engineers and scientists.

PRESENTATIONS

- **“Topological Defects in a Response Theory”** Minneapolis, MN
Dynamics and Quantum Information in Many-body Systems, University of Minnesota 2023
- **“Topological Defects in a Response Theory”** Columbus, OH
Topology and Fractionalization in Magnetic Materials (TopoMag23), The Ohio State University 2023
- **“Raman Responses With and Without Topological Defects”** Rehovot, Israel
A Quantum Many-Body Handshake, Weizmann Institute of Science 2022
- **“Optical Signatures for Fractional Excitations in Quantum Liquid Candidate $\text{Ba}_4\text{Ir}_3\text{O}_{10}$ ”** Atlanta, GA
Georgia Tech Quantum Alliance Workshop 2022
- **“Raman Response via 4-Spinon Continuum in Spin-1/2 Quantum Liquid $\text{Ba}_4\text{Ir}_3\text{O}_{10}$ ”** Chicago, IL
American Physical Society March Meeting 2022
- **“Spinons and damped phonons in ... $\text{Ba}_4\text{Ir}_3\text{O}_{10}$ observed by Raman Scattering”** Tallahassee, FL
Poster talk at MagLab Theory Winter School (Virtual) 2022

CONFERENCES AND SCHOOLS ATTENDED

- Dynamics and Quantum Information in Many-body Systems - Minneapolis, MN, 2023
University of Minnesota
- Topology and Fractionalization in Magnetic Materials (TopoMag23) - Columbus, OH, 2023
The Ohio State University
- A Quantum Many-Body Handshake: Theory and Simulation meet Experiment - Rehovot, Israel, 2022
Weizman Institute of Science
- APS March Meeting - Chicago, IL, 2022
- MagLab Winter Theory School - (Virtual) 2022
National High Magnetic Field Laboratory
- International conference on theoretical physics - (Virtual) 2021
“From quasi-classics to Bose condensation and everything in between” dedicated to Valery Pokrovsky’s 90th anniversary
- Bad Honnef School on Ultracold Quantum Gases - (Virtual) 2021
- APS March Meeting - (Virtual) 2021
- APS Division of Atomic, Molecular & Optical Physics (DAMOP) - (Virtual) 2020

LEADERSHIP EXPERIENCE

- President, Graduate Association of Physicists (GAP) (2022-2023)
GAP is a graduate student organization in the GaTech School of Physics that aims to provide mentoring, networking and career development opportunities to physics PhD students. Our plans include bringing in speakers who earned PhDs in physics and ended up within and outside of academia, organizing physics community outreach events, mentoring for first year physics PhD students and more. (+100 members)
- GaTech College of Sciences (CoS) Dean’s Graduate Advisory Council (2022-2023)
Discussing and advising deans on decisions affecting CoS graduate students; bridging graduate students and CoS administration
- Equity in Graduate Education Consortium (2022-2023)
Building capacity for equitable practices in PhD programs via innovative professional development; facilitating the development of sustainable infrastructure for faculty learning & institutional change; conducting and translating research that is inspired by community needs
- Student Organizer, Quantum Materials Cookies & Coffee (2021-2023)
International speaker series focusing on quantum materials (20 members).
- Student Organizer, Quantum Journal Club (2021)
Student-led journal club focusing on condensed matter and atomic, molecular, optical physics for undergraduates, graduate students, and faculty (40 members).

MENTORSHIP AND SERVICE

- GAP Graduate Student Panel (April 2023)
Collaborative panel between GaTech Graduate Association of Physicists and GaTech Society of Physics Students (SPS) to answer questions about applying to physics PhD programs for current undergraduates.
- Atlanta Science Festival (February 2023)
Organized public demonstrations of magnetic levitation and superconductivity for GaTech’s Science and Engineering Day.
- GAP Graduate Student Panel (October 2022)
Collaborative panel between GaTech Graduate Association of Physicists and GaTech Society of Physics Students (SPS) to answer questions about applying to physics PhD programs for current undergraduates.
- Research Mentor, Gwinnett School of Mathematics, Science, and Technology (2020-2021)
Research mentor for high school internship program. Advised student research for Samad Hakani who won the Regional (Georgia) and National Junior Science and Humanities Symposium (2021).

PROFESSIONAL MEMBERSHIPS

- American Physical Society

SKILLS SUMMARY

- Languages:** English (fluent), Urdu (native), Spanish (conversational)
- Programming Languages:** Python (proficient), MATLAB, Mathematica, C++ (novice), \LaTeX
- Frameworks:** TensorFlow, Scikit-learn, Pandas, NumPy, Seaborn, Matplotlib, BeautifulSoup, TeNPy
- Platforms:** Linux, Windows, Arduino