

Sahaj Patel

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Education

Massachusetts Institute of Technology

Aug 2023 - Present

Doctor of Philosophy in Physics

- Advisor: Riccardo Comin

University of Illinois at Urbana-Champaign

Aug 2019 - Dec 2022

Bachelor of Science in Engineering Physics, Minor in Mathematics

GPA: 3.95/4.00

- Relevant Coursework: Classical Mechanics, Electrodynamics, Quantum Mechanics, Condensed Matter, Computational Physics, Optics Lab, Modern Experimental Physics Lab, Scientific and Technical Writing, Differential Equations, Linear Algebra, Real Analysis, Abstract Algebra, Data Structures

Experience

Mahmood Lab

Nov 2020 – Jun 2023

Undergraduate Research Assistant

- Investigated the metal-insulator transition in NdNiO_3 using time resolved terahertz spectroscopy to understand the mechanism behind the transition as a function of temperature, doping, and pump energy
- Developed a fast-oscillating delay stage for time resolved terahertz spectroscopies to drastically reduce data collection time
- Design custom 3D printed optical and mechanical mounts through Fusion 360
- Trained on and installed the XUUS 5 for high harmonic generation with ultrahigh vacuum beamline for a double photoemission experiment
- Designed and conducted an experiment to generate 7-eV light using SiO_2 nanomembranes

Presentations

- *Hollow-Fiber High Harmonic Generation from a Ytterbium Laser Source*; ISUR Research Expo Spring 2022
- *Hollow-Fiber High Harmonic Generation from a Ytterbium Laser Source*; UIUC Research Symposium Spring 2022
- *Investigating the IMT in Hole-Doped NdNiO_3 using Time-Domain THz Spectroscopy*; APS March Meeting 2023

Awards and Affiliations

- 2022 Physics Student Outreach Award
- 2022 Ralph O. Simmons Undergraduate Research Scholarship
- 2021 Phillip J. and Betty M. Anthony Undergraduate Summer Research Award
- Winner of the EFRC's Science in the Time of Covid Graphic Art Contest
- UIUC Dean's List: Aug 2019 – Dec 2022
- ISUR Scholar

Leadership and Activities

Physics Students Advisory Board

President

Jan 2020 – Dec 2022

- Lead a group of people to address student concerns in the physics department
- Oversee and plan a physics department town hall every semester
- In charge of planning and running the annual UIUC Physics Undergraduate Research Symposium
- Work with professors to standardize electricity and magnetism courses

Physics Van

Aug 2019 – Dec 2022

Lead Coordinator

- Travel around Illinois to explain challenging physics concepts through a science magic show for large audiences
- Responsible for planning, leading, and training for the shows

- Received NSF funding to develop a new outreach show to bring modern physics topics to middle schools
- Performed at 2022 APS March Meeting's Physics Fiesta

Technical Skills

Programming Languages: Python, C++, Java

Graphing Software: OriginPro

CAD Software: Autodesk Fusion 360