

JYOTIRMAI SINGH

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EDUCATION

Stanford University Ph.D. Physics M.S. Physics	09/2019 – Present <i>expected</i> 06/2022
University of California, Berkeley B.A. Physics <i>Highest Honors in Physics, Highest Distinction in General Scholarship</i>	08/2015 – 05/2019 GPA 3.99/4.00

RESEARCH EXPERIENCE

Graduate Student Researcher, Stanford University <i>Advisor: Kent Irwin</i>	09/2019 – Present Stanford, CA
<ul style="list-style-type: none">· Developing high Q ($\sim 10^6$) LC resonators in the MHz range for the DM Radio Experiment.· Fabricating novel quantum sensors for electromagnetic signals below 300 MHz.	
Undergraduate Researcher, Lawrence Berkeley National Laboratory <i>Advisor: Gabriel Orebi Gann</i>	11/2015 – 05/2019 Berkeley, CA
<ul style="list-style-type: none">· Studied the optical properties of Tetraphenyl Butadiene (TPB) in the VUV spectrum in liquid argon (LAr) scintillator for future LArTPC experiments in Honours Thesis.· Measured neutron production from atmospheric neutrino interactions at the Sudbury Neutrino Observatory.· Produced new analysis code that enabled simultaneous propagation of uncertainties in position/energy resolutions for low and high energy regimes.	
Undergraduate Researcher, SuperCDMS Collaboration, UC Berkeley <i>Advisor: Matt Pyle</i>	06/2018 – 05/2019 Berkeley, CA
<ul style="list-style-type: none">· Developed algorithms to simulate new phonon physics in the SuperCDMS Monte Carlo, such as surface reflection downconversion.· Optimised SuperCDMS Monte Carlo by implementing diffusive propagation of phonons to achieve substantial speedup.	

AWARDS/HONOURS

Student Presentation Award - APS Group on Instrument & Measurement Science	2021
Phi Beta Kappa - UC Berkeley	2018
Isidore Pomerantz Scholarship - Department of Physics, UC Berkeley	2018
Berkeley Physics Undergraduate Research Scholar - Department of Physics, UC Berkeley	2017
Dean's Honours List - UC Berkeley	2015 – 2018
Kraft Award for Freshmen - UC Berkeley	2015

PUBLICATIONS

1. **Measurement of neutron production in atmospheric neutrino interactions at the Sudbury Neutrino Observatory**
B. Aharmim *et al.* (SNO Collaboration), Phys. Rev. D 99 112007 (2019)
2. **DMRadio- m^3 : A Search for the QCD Axion Below $1\ \mu\text{eV}$**
L. Brouwer *et al.* (DMRadio Collaboration), arXiv:2204.13781 (2022)
3. **Introducing DMRadio-GUT, a search for GUT-scale QCD axions**
L. Brouwer *et al.* (DMRadio Collaboration), arXiv:2203.11246 (2022)

SCIENTIFIC TALKS

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| 1. LC Resonators in the DM Radio 50L Experiment
APS April Meeting 2021 | 04/2021 |
| 2. Precision Metrology with Radiofrequency Quantum Upconverters
APS March Meeting 2021 | 03/2021 |

SKILLS

Programming Languages	Python, Java, C++, HTML/CSS
Natural Languages	Native: English, Hindi Intermediate Proficiency: French
Tools	Git, Vim, ROOT, Mathematica, LabVIEW, \LaTeX , SolidWorks

SERVICE

Councilor, Natural Sciences Representative <i>Stanford Graduate Student Council</i>	05/2021 – 04/2022 <i>Stanford, CA</i>
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- Advocated for the interests of natural sciences and international graduate students.
- Achieved significant concessions on affordability, including fully subsidised health insurance for PhD students across all departments.

TEACHING EXPERIENCE

Teaching Assistant, Stanford University Department of Physics <i>PHYS 43: Electricity and Magnetism</i>	03/2020 – 06/2020 <i>Stanford, CA</i>
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- Teaching Assistant for PHYS 43 taught by Prof. Mark Kasevich.

Grader, UC Berkeley Department of Physics <i>PHYS 5B: Introductory Electromagnetism, Waves, and Optics</i>	03/2018 – 05/2018 <i>Berkeley, CA</i>
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- Graded problem sets for Physics 5B, taught by Prof. Jonathan Wurtele.

Tutor, Computer Science Mentors at Berkeley <i>CS 61B: Data Structures</i>	02/2017 – 05/2017 <i>Berkeley, CA</i>
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- Tutor for UC Berkeley's introductory Data Structures class, taught by Prof. Josh Hug.
- Held weekly sessions which involved presenting course topics and helping students with problems and conceptual questions.