

# JYOTIRMAI SINGH

382 Via Pueblo Mall ♦ Stanford, CA 94305  
joesingh@stanford.edu ♦ (510) 589-5898

## EDUCATION

<b>Stanford University</b> Ph.D. Physics M.S. Physics	09/2019 – Present  06/2022
<b>University of California, Berkeley</b> 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

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

## 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<sup>3</sup>: A Search for the QCD Axion Below 1  $\mu$ 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. <b>LC Resonators in the DM Radio 50L Experiment</b><br>APS April Meeting 2021                 | 04/2021 |
| 2. <b>Precision Metrology with Radiofrequency Quantum Upconverters</b><br>APS March Meeting 2021 | 03/2021 |

## SKILLS

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

## SERVICE

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| <b>Councilor, Natural Sciences Representative</b><br><i>Stanford Graduate Student Council</i> | 05/2021 – 04/2022<br><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

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| <b>Teaching Assistant, Stanford University Department of Physics</b><br><i>PHYS 43: Electricity and Magnetism</i> | 03/2020 – 06/2020<br><i>Stanford, CA</i> |
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- Teaching Assistant for PHYS 43 taught by Prof. Mark Kasevich.
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| <b>Grader, UC Berkeley Department of Physics</b><br><i>PHYS 5B: Introductory Electromagnetism, Waves, and Optics</i> | 03/2018 – 05/2018<br><i>Berkeley, CA</i> |
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- Graded problem sets for Physics 5B, taught by Prof. Jonathan Wurtele.
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| <b>Tutor, Computer Science Mentors at Berkeley</b><br><i>CS 61B: Data Structures</i> | 02/2017 – 05/2017<br><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.