# JYOTIRMAI SINGH

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

## EDUCATION

**Stanford University** September 2019-Present
Ph.D. Physics

**University of California, Berkeley** May 2019
B.A. Physics GPA 3.99/4.00
*Highest Honors in Physics, Highest Distinction in General Scholarship*

## RESEARCH EXPERIENCE

**Graduate Student Researcher, Stanford University** 2019-Present
*Advisor: Kent Irwin* *Stanford, CA*

- Developing high Q ($\sim 10^6$) LC resonators in the MHz range for the DM Radio Experiment.
- Fabricating novel quantum sensors for electromagetic signals below 300 MHz.

**Undergraduate Researcher, Lawrence Berkeley National Laboratory** November 2015-May 2019
*Advisor: Gabriel Orebi Gann* *Berkeley, CA*

- 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** June 2018-May 2019
*Advisor: Matt Pyle* *Berkeley, CA*

- 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

Phi Beta Kappa - UC Berkeley May 2018
Isidore Pomerantz Scholarship - Department of Physics, UC Berkeley October 2018
Berkeley Physics Undergraduate Research Scholar - Department of Physics, UC Berkeley February 2017
Dean's Honours List - UC Berkeley December 2015–May 2018
Kraft Award for Freshmen - UC Berkeley December 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)

## SCIENTIFIC TALKS

1. **LC Resonators in the DM Radio 50L Experiment** April 2021
   APS April Meeting 2021

2. **Precision Metrology with Radiofrequency Quantum Upconverters** March 2021
   APS March Meeting 2021

## SKILLS

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

## TEACHING EXPERIENCE

**Teaching Assistant, Stanford University Department of Physics** March 2020-June 2020
*PHYS 43: Electricity and Magnetism* *Stanford, CA*

- Teaching Assistant for PHYS 43 taught by Prof. Mark Kasevich.

**Grader, UC Berkeley Department of Physics** March 2018-May 2018
*PHYS 5B: Introductory Electromagnetism, Waves, and Optics* *Berkeley, CA*

- Graded problem sets for Physics 5B, taught by Prof. Jonathan Wurtele.

**Tutor, Computer Science Mentors at Berkeley** February 2017-May 2017
*CS 61B: Data Structures* *Berkeley, CA*

- 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.