Anjali Nambrath

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Education

University of California, Berkeley (currently)
Ph.D. student in Physics. GPA: 4.0/4.0

Massachusetts Institute of Technology June 2021
S.B. in Physics & Mathematics with minor in French, Phi Beta Kappa. GPA: 4.9/5.0

Research experience

Jacak Group @ UC Berkeley NSF Fellow Sep. 2021 - present

Studying jet substructure by measuring energy correlators in heavy-ion jets.

Tata Institute of Fundamental Research Fulbright-Nehru Student Researcher Apr. 2022 - Dec. 2022

Modeled collective neutrino oscillations in core-collapse supernovae.

MIT Center for Theoretical Physics Undergrad researcher Jan. 2021 - Aug. 2021

Worked with Dr. Katelin Schutz to understand axion gegenschein in the dark matter halo.

Hen Lab – MIT Hadronic Physics Group Undergrad researcher Nov. 2017 - May 2021

Analyzed electron-deuterium scattering data from CLAS to test energy reconstruction methods.

Fermi National Accelerator Laboratory SULI research intern June 2019 - Aug. 2019

Explored and verified the efficacy of reconstruction smearing matrices with electron data from CLAS.

Teaching

MIT Educational Studies Program Teacher (Spark, Splash, HSSP) 2018 - 2021

Taught 25 hours of classes to 300+ local middle and high school students on popular physics topics.

MIT Physics Department Teaching assistant Jan. 2021

Teaching assistant for Computational Data Science in Physics, taught by Prof. Philip Harris. Taught and developed material for recitations twice a week and provided support on weekly data science projects.

MIT Mathematics Department Undergraduate teaching assistant Fall 2020

Teaching assistant for Quantum Computing, taught by Prof. Peter Shor. Assembled lecture notes, moderated online lectures, conducted weekly office hours, and graded weekly problem sets.

Selected awards

MIT Physics Malcolm Cotton Brown Award (excellence in experimental physics) ..... June 2021

Finalist for Fulbright-Nehru Student Research award 2021-22

National Science Foundation Graduate Research Fellowship 2021-26

Berkeley Fellowship for incoming graduate students at UC Berkeley 2021-23

Publications

Axion dark matter-induced echo of supernova remnants Phys. Rev. D 105, 063007 (2022)
Y. Sun, K. Schutz, **A. Nambrath**, et al.

Electron Beam Energy Reconstruction for Neutrino Oscillation Measurements Nature 599 (2021)
M. Khachatryan, A. Papadopoulou, A. Ashkenazi, F. Hauenstein, **A. Nambrath**, et al.

Laser Calibration System for Time of Flight Scintillator Arrays Nucl. Inst. Methods A 973 (2020)
A. Denniston et al.

The CLAS12 Backward Angle Neutron Detector (BAND) Nucl. Inst. Methods A 978 (2020)
E.P. Segarra et al.

Presentations and posters

Quark Matter September 2023
Energy-energy correlator measurements in pp and pPb collisions at 5.02 TeV with ALICE

Fulbright Conference November 2022
Flavor conversions in supernova neutrinos

CLAS Collaboration Meeting March 2022
Benchmarking neutrino energy reconstruction with electron-deuterium scattering

IAIFI Internal Seminar (invited) February 2021
Open Data Science in Physics Courses (with P. Harris, K. Morey, M. Szurek, J. Chongsathapornpong)

APS Divison of Nuclear Physics yearly meeting October 2020
Benchmarking neutrino energy reconstruction with electron-deuterium scattering (abstract)

MIT PRISM (departmental undergraduate conference) August 2020
Benchmarking neutrino energy reconstruction with electron-deuterium scattering

MIT Family Weekend Physics Open House (invited) October 2018
Neutrons, Nuclei, and Neutrinos: BAND and Electrons for Neutrinos

Fermilab and Argonne National Lab summer undergraduate poster session August 2019
Studying the use of e- data for DUNE energy reconstruction (poster)

APS Divison of Nuclear Physics yearly meeting October 2018
Testing and constructing BAND, a backward angle neutron detector (poster)

Community involvement

Member of MIT OpenCourseWare Advisory Committee ..... Fall 2020 - Spring 2021
Member of MIT Physics Dept.'s Values Committee ..... Spring 2020 - Spring 2021
Board member of MIT Undergraduate Womxn in Physics ..... Spring 2019 - Spring 2021
President and Outreach Chair of MIT Society of Physics Students ..... Spring 2018 - Spring 2021
Editor of MIT Undergraduate Research Journal ..... Fall 2017 - Spring 2019

Languages

- **Programming/markup:** LaTeX, Python, C++/ROOT, numpy/PyTorch
- **Written/spoken:** English (fluent), French (advanced), Malayalam (advanced)