

Biographical Sketch

Murchhana Roy

Professional Preparation

St. Xavier's College, Kolkata, India, BSc in Physics, June 2014.
Indian Institute of Technology, Madras, India, MSc in Physics, July 2016.
University of Kentucky, Lexington, Kentucky, MS in Physics, August 2019.
University of Kentucky, Lexington, Kentucky, PhD in Physics, August 2016 – present.

Professional Appointments

Graduate Research Assistant, University of Kentucky, May 2017 – present.
Graduate Teaching Assistant, University of Kentucky, August 2016 – May 2017.

Publications and Presentations

i) Publications:

1. J. Abney, M. Broering, M. Roy, W. Korsch, “Limits on Magnetically Induced Faraday Rotation from Polarized ^3He Atoms”, *Phys. Rev. A* **99**, 2019 (023831).
2. M. Roy et al., “Development and Construction of a Precision Compass”, in preparation.
3. M. Broering et al., “The Behavior of Charged Particles on Insulating Surfaces in Cryogenic Fluids within (Strong) Electric Fields”, in preparation.

ii) Oral Presentations:

1. M. Roy, W. Korsch, “Exploring the spin structure of Neutron by the measurement of Neutron g_2 and d_2 ”, APS April Meeting, 2021.
2. M. Roy, W. Korsch, “Probing Nucleon Spin Structure with Deep Inelastic Scattering, Neutron g_2 and d_2 ”, APS DNP, 2020.
3. M. Roy, “Probing Nucleon Spin Structure Using Deep Inelastic Scattering, E12-06-121: Neutron g_2 and d_2 ”, Hall A/C Collaboration Meeting, Jefferson Lab, July, 2020.
4. M. Roy, “Probing Nucleon Spin Structure Using Deep Inelastic Scattering”, Hall A/C Collaboration Meeting, Jefferson Lab, January, 2020.
5. M. Roy, S. Kandur, W. Korsch, “Target Field Direction Measurement”, A_1^n/d_2^n Collaboration Meeting, Jefferson Lab, July, 2019.
6. M. Roy, W. Korsch, “Magnetic Field Direction Measurement and Compasses”, A_1^n/d_2^n Collaboration Meeting, Jefferson Lab, December, 2018.

iii) Poster Presentations:

1. M. Roy, W. Korsch, “Precision Magnetic Field Direction Measurements for Neutron Spin Structure Studies, Department of Physics and Astronomy, University of Kentucky, 2020.

2. M. Roy, S. Kandu, J. He, W. Korsch, “Magnetic field direction measurement for neutron spin structure studies, Department of Physics and Astronomy, University of Kentucky, 2019.
3. A. Timsina, S. Meredith, M. Roy, M. Broering, W. Korsch, “Laser intensity noise studies using different modulation techniques, Department of Physics and Astronomy, University of Kentucky, 2019.

Synergistic Activities

1. Graduate Student for the Experiment E12-06-121 at Thomas Jefferson National Accelerator Facility 2019 – 2020.
2. JSA Virtual Student Poster Competition, 2nd Place, 2020.
3. Teaching, Laboratory Instructor, PHY 211/241, University of Kentucky, Lexington, Fall 2016 – Spring 2017.
4. Summer Intern in the Department of Physical Sciences at IISER, Kolkata, India, project on “Study of Renormalization in ABC Theory”, 2015.
5. Summer Intern at Variable Energy Cyclotron Centre (VECC), Kolkata, India, project on “Penning Trap and Search for Better Quadrupolar Potential”, 2013.

Honors and Awards

1. University of Kentucky Max Steckler Fellowship Award, 2017.
2. Parpati Chandumal Sahani Memorial Gold Medal Award, India, 2015.
3. INSPIRE Scholarship Award, India, 2011-2015.

Special Interests and Skills

1. Proficient in multiple programming languages (Python, C++, MATLAB, ROOT, LabView, Mathematica).
2. Singing (Indian Classical Music).
3. Painting.