

Shweta Yadav

The University of Texas at Arlington
sxy1439@mavs.uta.edu

Physics Ph.D. Candidate
Office: RM 213, Science Hall

LinkedIn: <https://www.linkedin.com/in/shweta-yadav-937108238/>

EDUCATION

Doctor of Philosophy (Candidate) in Physics, <i>The University of Texas at Arlington</i>	Expected 2026
MSc in Physics, <i>Indian Institute of Technology, Jodhpur</i>	2021
BSc (H) in Physics, <i>University of Delhi</i>	2019

COLLABORATIONS

Part of the following collaborations of the neutrino oscillation experiments:

- Short Baseline Neutrino Experiment (SBND) collaboration
- Imaging Cosmic And Rare Underground Signals (ICARUS) collaboration

EMPLOYMENT

Graduate Research Assistant, <i>The University of Texas at Arlington</i>	Jan 2023 - Present
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- Working on constraining the Near Detector systematics for the **Short Baseline Near Detector** at Fermilab.
- Developed an event selection to better understand the different sources of systematic uncertainties.
- Working with the Valor neutrino fit tool to produce sensitivity studies.

Graduate Teaching Assistant, <i>The University of Texas at Arlington</i>	Aug 2021 – Dec 2022
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Prepared and supervised undergraduates to perform laboratory experiments for the following courses:

- PHYS 1442: Electromagnetism and Optics
- PHYS 1444: Electromagnetism and Optics

INTERNSHIPS / PROJECTS

- **Constraining the Near Detector systematics for SBND at Fermilab:** Developed event selections to better understand the sources of uncertainties in the cross-section studies and developed tools to incorporate the different sources of detector systematics for the Short Baseline Near Detector (SBND) and currently working with the Valor neutrino fit tool to do the sensitivity studies with the event selections I developed.
- **Analysis of the best cross-section model for studying interaction model using MicroBooNE data:** Developed an analysis to understand the best cross-section model to study the data from current neutrino experiment MicroBooNE and for the future experiments like SBND and DUNE.
- **Probing New Physics through neutrino telescopes:** Studied Standard and Non-standard interactions and calculated cross-sections for both kinds of interactions for **Standard Model (SM)** processes as well as for the **Microscopic Black Holes (MBH)** in the **Ultra High Energy** regime of energy, such as IceCube and ANITA energy regime.
- **Magnetic moments detection techniques:** Learned about the methods of magnetic moment measurement techniques (VSM, SQUID and fluxgate magnetometer) and worked with the VSM (Vibrating Sample Magnetometer), obtained hysteresis for different samples and determined their magnetic moments.
- **Lifetime measurements of the cosmic muons:** Developed a table-top muon lifetime measurement experiment using Photo multiplier tubes, discriminator, TAC (time to Analog convertor) and Plastic scintillator, which was the detection medium.

PUBLICATION

- Ashutosh, k. A.; Trisha, S.; **Shweta Y.**, "Effects of non-standard interaction on microscopic black holes from ultra-high energy neutrinos ", *The European Physical Journal C*, 82:711 (2022)

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SKILLS

Tools and Languages Python, C, C++, Fortran, SCILAB, MATLAB, ROOT, \LaTeX
Softwares Valor, LArSoft, Microsoft Office (Word, Excel, PowerPoint),

SCHOOLS / WORKSHOPS / CONFERENCES

International Neutrino Summer School 2023, Fermilab, Chicago, IL Aug 2023
SBN Analysis Workshop, Fermilab, Chicago, IL Jul 2023
Oral presentation titled, "Updates on Calorimetry systematics studies"
SBND Collaboration meeting, Arlington, TX Jun 2023
Oral presentation titled, "*Event Selection for the SB(ND) constraint in the Oscillation Studies*"

SCHOLARSHIPS

Chartwell Scholarship Award (~ \$1000) Fall 2022
Graduate School Ray Fellowship (~ \$1000) Fall 2021