Dharitree Bezboruah

dharitreebezboruah913@gmail.com

Research Interests	Antiparticle Physics, Neutrino Phenomenology, Cosmology and Machine -Learning

Education

PhD in Physics   September,2022 - Present
Tezpur University,Assam,India
Guide: Dr. Moon Moon Devi.
Current area of research:
1. Neutrino phenomenology,
2. Use of Machine Learning (ML) in neutrino and cosmic ray experiments.

Masters of Science in Physics   2020 - 2022
Tezpur University,Assam,India
CGPA: 8.52 (85.2 %)

Bachelor of Science in Physics   2017 - 2020
Cotton University,Assam,India
CGPA: 8.44 (84.4 %)

HSSLC   2015 - 2017
Salt Brook Academy – Assam, India
Percentage: 93
Physics, Chemistry, Mathematics, Biology

HSLC   2015
Sankardev Sishu Niketon, Dhakuakhana – Assam, India
Percentage: 92.12

Past Research Experiences

Exploring non-standard effects in long-baseline neutrino experiments.   2021 - 2022
Masters project in Tezpur University
Mentored by Dr. Moon Moon Devi, Assistant Professor, Department of Physics

Mukhanov Sassaki Equation   June 2021 - October 2021
IAS-INSA-NASI summer research Fellow at Indian Institute of Astrophysics.
Mentored by Prof. Pravabati Chingangbam

Awards and Honors

- Innovation in Science Pursuit for Inspired Research (INSPIRE)- Fellowship for Ph.D., January 2023- Present.
- Innovation in Science Pursuit for Inspired Research (INSPIRE)-Scholarship for higher education(SHE) by Department of Science and Technology (DST), India from 2017-2022.
- Selected as IAS-INSA-NASI Summer Research Fellow.

Exams Qualified

- CSIR-NET (LS)
- NE-SLET

Skills
- Programming languages: Python, C, C++
- Machine Learning: Scikit-learn, Pytorch, TensorFlow
- Operating systems: Linux, Windows
- Software: LaTeX, ROOT, Mathematica, GLoBES, GNUPLOT, MATLAB
- Languages: Assamese, English, Hindi, German (Basic)

Summer Schools and Workshops
- Understanding the Universe Through Neutrinos, ICTS Bangalore   April 2024
- Experimental High Energy Particle Physics School on software development, TIFR, Mumbai   January 2024
- Statistical Methods and Machine Learning in High Energy Physics, ICTS Bangalore   September 2023
- ICFA school on instrumentation in high energy physics, TIFR Mumbai   February 2023
- Online participation in Niels Bohr Institute Neutrino Summer School   July 2022
- Indian Institute of Astrophysics online Summer School   July 2021

Peer Reviewed Articles

1. A. Sarker, A. Medhi, **D. Bezboruah**, M. M. Devi, D. Dutta, "Impact of scalar NSI on the neutrino mass hierarchy sensitivity at DUNE, HK and KNO", JHEP 06 (2024)[arXiv:2309.12249].

ArXiv Preprints

1. A. Sarker, **D. Bezboruah**, A. Medhi, M. M. Devi, D. Dutta, "Impact of scalar NSI on the neutrino mass hierarchy sensitivity at DUNE, T2HK and T2HKK", [arXiv: 2406.15307]

Reviewed Proceedings

1. **D. Bezboruah** [On behalf of GRAPES-3 Collaboration], "Machine learning model for separation of muons from punch-through hadrons in EAS at GRAPES-3 experiment", PoS ICRC2023 (2023) 522.

2. **D. Bezboruah**, A. Medhi, and M. M. Devi, "The effect of dark non-standard interactions on the CP-phase measurement at DUNE", PoS ICRC2023 (2023) 1201.

3. A. Medhi, **D. Bezboruah**, D. Dutta, and M. M. Devi, "Probing scalar Non-Standard Interactions at DUNE, T2HK and T2HKK", PoS ICHEP2022 590.