Last update : March 14, 2024

Curriculum Vitae

PARTHA KUMAR PAUL

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Kandi, Sangareddy, Telangana 502285, India | ORCiD : 0000-0002-9107-5635 | ReseachGate

PRESENT POSITION

Ph.D. Research Scholar July 2022 – Present
Department of Physics, Indian Institute of Technology Hyderabad Telangana, India

- **Supervisor:** Prof. Narendra Sahu

RESEARCH INTEREST

- Beyond Standard Model Physics
- Leptogenesis and Baryogenesis
- Neutrino Physics
- Dark Matter Phenomenology

EDUCATION

Indian Institute of Technology Hyderabad July 2022 – Present
Ph.D., Theoretical High Energy Physics Telangana, India

- **Relevant Coursework:** Particle Physics, Gravitation and Cosmology, Computational Particle Physics

Tezpur University July. 2019 – July 2021
Master of Science in Physics Assam, India

- **Specialization:** High Energy Physics, Astrophysics
- **Relevant Coursework:** Quantum Field Theory, Particle Physics, Introductory Astrophysics, Elements of GTR and Cosmology, Physics and Computational Lab, Introduction to Scientific Computing, Quantum Mechanics I, Quantum Mechanics II, Electromagnetic Theory I, Electromagnetic Theory II, Nuclear Theory and Particle Physics

Siliguri College, University of North Bengal July. 2016 – July 2019
Bachelor of Science West Bengal, India

- Physics Honours
- Minored in Mathematics and Statistics

Bani Mandir Railway H.S. School, West Bengal Council of Higher Secondary Education 2014 – 2016
Higher Secondary West Bengal, India

Kabi Sukanta High School, West Bengal Board of Secondary Education 2008 – 2014
Matriculation West Bengal, India

PERSONAL DETAILS

- **Nationality :** Indian
- **Languages :** Bengali, English, Hindi

ACHIEVEMENTS AND AWARDS

- Awarded **Prime Minister's Research Fellowship (PMRF)** on 26 October 2023 (Cycle-11)
- PANE Young Researchers Award (Poster) at **XIII Biennial National Conference of Physics Academy of North East (PANE-2022)**
- Qualified GATE 2021
- Qualified IIT-JAM 2019

TECHNICAL SKILLS

- **Languages :** Python, C++, Shell scripts, LaTeX
- **Technical Computation :** Mathematica, ROOT
- **Plotting Softwares :** Veusz
- **Operating Systems :** Linux, Windows
- **HEP Softwares :** LanHEP, `CalcHEP, micrOMEGAs`, Pythia8, Delphes

RESEARCH EXPERIENCE

Junior Research Fellow January 2022 – July 2022
Indian Institute of Technology Hyderabad Telangana, India

- **Principal Investigator**: Prof. Narendra Sahu, Professor, Department of Physics, Indian Institute of Technology Hyderabad

Master Thesis August 2020 – May 2021
Tezpur University Assam, India

- **Project Title**: **Neutrino phenomenology in an A4 flavour symmetry based neutrino two Higgs doublet model**
- **Supervisor**: Prof. Mrinal Kumar Das, Department of Physics, Tezpur University

WORKSHOPS ATTENDED

- **"Less Travelled Path to the Dark Universe"**, Organised by ICTS-TIFR, India, during 13-24 March'23 (Offline)
- **"Data and Machine Learning at the Large Hadron Collider (DML@LHC-2022)"**, Organised by the Department of Physics, IIT Hyderabad and SERB during 22-28 August'22 (Offline)
- **"Workshop on Particle Physics"**, Organised by the Department of Physics, Assam Don Bosco University, during 17-31 August'20 (Online)

SCHOOLS ATTENDED

- **Experimental High Energy Particle Physics School on software development**, TIFR, Mumbai, during 29th Jan - 10th Feb, 2024 (Offline)
- School on **High Energy Particle & Astroparticle Physics (HEPAP-DAS 2023)**, Organised by Saha Institute of Nuclear Physics (SINP), India, during 5-9 December'23 (Offline)

CONFERENCE PRESENTATIONS

1. Oral Presentation at **International Conference on Future Prospects in Neutrino and Astroparticle Physics (ICFPNAP), 2024**, Assam Don Bosco University, Assam, India (January 23-24, 2024) on **Darko-lepto-genesis in type-III seesaw.**
2. Oral Presentation at **PHOENIX, 2023**, IIT Hydearabad, India (December 18-20, 2023) on **Scotogenic $U(1)_{L_\mu - L_\tau}$ origin of $(g-2)_\mu$, W-mass anomaly and 95 GeV excess.**
3. Poster Presentation at **XIII BIENNIAL NATIONAL CONFERENCE OF PHYSICS ACADEMY OF NORTH EAST (PANE), 2022**, Manipur University (Novemeber 8-10, 2022) on **Explaining Dark Matter and Neutrino mass in a $A_4 \otimes Z_8$ flavour symmetry based ν2HDM.**

RESEARCH PUBLICATIONS

Journal Publications

1. *Debasish Borah, Satyabrata Mahapatra,* ***Partha Kumar Paul****, Narendra Sahu "Scotogenic* $U(1)_{L_\mu - L_\tau}$ *origin of* $(g-2)_\mu$*, W-mass anomaly and 95 GeV excess."*, Phys. ReV. D **109**, 055021, doi.org/10.1103/PhysRevD.109.055021, [arXiv:2310.11953[hep-ph]].

2. *Satyabrata Mahapatra,* ***Partha Kumar Paul****, Narendra Sahu, Prashant Shukla "Cogenesis of matter and dark matter from triplet fermion seesaw."*, [arXiv:2305.11138[hep-ph]].

3. *Lavina Sarma,* ***Partha Kumar Paul****, Mrinal Kumar Das, "Connecting dark matter, baryogenesis and neutrinoless double beta decay in a* $A_4 \otimes Z_8$ *based* ν*2HDM."*, Int. J. Mod. Phys. A **37** (2022) 27, 2250157, doi :10.1142/S0217751X22501573 , [arXiv:2208.14764[hep-ph]].

Book Chapters

1. *Lavina Sarma,* ***Partha Kumar Paul****, Mrinal Kumar Das, "Explaining Dark Matter and Neutrino mass in a* $A_4 \otimes Z_8$ *flavour symmetry based* ν*2HDM."*, in **Recent Trends in Physics Research (PANE-2022)**, **ISBN : 978-9390951666**, *195-200*, Allied Publishers Private Limited.