

Last update : October 31, 2023

# Curriculum Vitae

## PARTHA KUMAR PAUL

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### PRESENT POSITION

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#### Ph.D. Research Scholar

Department of Physics, Indian Institute of Technology Hyderabad

July 2022 – Present

Telangana, India

- **Supervisor:** Prof. Narendra Sahu

### RESEARCH INTEREST

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

### EDUCATION

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#### Indian Institute of Technology Hyderabad

Ph.D., Theoretical High Energy Physics

July 2022 – Present

Telangana, India

- **Relevant Coursework:** Particle Physics, Gravitation and Cosmology, Computational Particle Physics
- **SGPA:** 9.5 out of 10

#### Tezpur University

Master of Science in Physics

July. 2019 – July 2021

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
- **CGPA:** 8.45 out of 10

#### Siliguri College, University of North Bengal

Bachelor of Science

July. 2016 – July 2019

West Bengal, India

- **Physics Honours**
- **Minored in Mathematics and Statistics**
- **Percentage:** 59

#### Bani Mandir Railway H.S. School, West Bengal Council of Higher Secondary Education

Higher Secondary

2014 – 2016

West Bengal, India

- **Percentage:** 86.80 (Class 12)

#### Kabi Sukanta High School, West Bengal Board of Secondary Education

Matriculation

2008 – 2014

West Bengal, India

- **Percentage:** 85.29 (Class 10)

### PERSONAL DETAILS

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

## ACHIEVEMENTS AND AWARDS

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- 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

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

## RESEARCH EXPERIENCE

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### Junior Research Fellow

Indian Institute of Technology Hyderabad

January 2022 – July 2022

Telangana, India

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

### Master Thesis

Tezpur University

August 2020 – May 2021

Assam, India

- **Project Title**: Neutrino phenomenology in an  $A_4$  flavour symmetry based neutrino two Higgs doublet model
- **Supervisor**: Prof. Mrinal Kumar Das, Department of Physics, Tezpur University

## WORKSHOPS ATTENDED

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- “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)

## CONFERENCE PRESENTATIONS

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1. Poster Presentation at **XIII BIENNIAL NATIONAL CONFERENCE OF PHYSICS ACADEMY OF NORTH EAST (PANE), 2022**, Manipur University (November 8-10, 2022) on **Explaining Dark Matter and Neutrino mass in a  $A_4 \otimes Z_8$  flavour symmetry based  $\nu$ 2HDM.**

## RESEARCH PUBLICATIONS

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### 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.”, [[arXiv:2310.11953](https://arxiv.org/abs/2310.11953)][[hep-ph](#)].
2. Satyabrata Mahapatra, **Partha Kumar Paul**, Narendra Sahu, Prashant Shukla “Cogenesis of matter and dark matter from triplet fermion seesaw.”, Submitted to Journal of Cosmology and Astroparticle Physics (JCAP), [[arXiv:2305.11138](https://arxiv.org/abs/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  $\nu$ 2HDM.”, Int. J. Mod. Phys. A **37** (2022) 27, 2250157, doi:[10.1142/S0217751X22501573](https://doi.org/10.1142/S0217751X22501573), [[arXiv:2208.14764](https://arxiv.org/abs/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  $\nu 2HDM$ .”, in **Recent Trends in Physics Research (PANE-2022)**, ISBN : 978-9390951666, 195-200, Allied Publishers Private Limited.