B RAJESH ACHARI

Final year PhD Student in Physics

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ABOUT ME

Final-year PhD student in high-energy physics specializing in the characterization and radiation hardness of Silicon Photomultipliers (SiPMs). Extensive experience in developing automated thermal and self-annealing protocols to mitigate radiation damage in high-energy physics detectors especially for ePIC-dRICH detector at the Electron-Ion Collider, USA.

PROJECTS

PhD thesis

Study and Characterisation of SiPM based detector for ePIC–dRICH detector and future applications

Nov 2023 - ongoing | UNIBO, Italy

- Dr. Roberto Preghenella
- Characterising SiPM sensors to be used in ePIC-dRICH detector at the future Elctron-Ion collider. Developing a novel annealing technique for the SiPM sensors to mitigate the radiation induced damage. Contributing to build an ePIC-dRICH prototype and validating its performance with beam tests.

Master's Thesis

Simulation and Characterization of Thick-GEM

Aug 2022 - May 2023 | NISER, Bhubaneswar

- Prof. Bedangadas Mohanty
- Simulated field lines and drift lines to obtain the relation between electron gain and the bias voltage of the detector. Fabricated a chamber to characterize the THGEM detector with Fe55 source. Results from both experiments and simulations are compared and analysed.

Open lab Project

Simulations of PID Controller

Aug 2021- Dec 2021 | NISER, Bhubaneswar

- Dr. Pratap K Sahoo
- This project presents the simulation of a PID controller using both Python and Multisim by changing different gain elements of the controller. The behaviour is then analysed to get an optimised PID controller.

Sixth Semester Project

Characterization of Resistive Plate Chamber

Jan 2021 – July 2021 | NISER, Bhubaneswar

- Supervision: Prof. Bedangadas Mohanty and Dr. Varchaswi K S Kashyap
- This project includes the fabrication of a glass RPC and then observing its IV characteristics, noise rate, efficiency, and rate capability by detecting cosmic ray muon.

SCHOLARSHIPS

- Fully funded tuition fees, boarding, and all activities at JNV from standard 6 to 12 by the Ministry of Education, Government of India (2010-2017).
- Disha scholarship for bachelor and master's degree by the Department of Atomic Energy, Government of India (2018-2023)
- PhD scholarship is funded by the Department of Physics and Astronomy, University of Bologna using funds from the IMAPP Project (2023–2026).

LIFE PHILOSOPHY

"Be the best whatever you are and do the best whatever you can."

RESEARCH INTEREST

I am interested in experimental high energy physics in both simulation as well as in detector characterisation.

EDUCATION

PhD student in Physics

University of Bologna

2023–present | Bologna

Integrated B.Sc. and M.Sc. in Physics

National Institute of Science Education and Research

2018–2023 | Bhubaneswar

Board: HBNI, CGPA: 8.15/10

Higher Secondary Education in Science

Jawahar Navodaya Vidyalaya, Surangi

2015–2017 | Ganjam, Odisha

Board: CBSE, Percentage: 92%

Matriculation

Jawahar Navodaya Vidyalaya, Surangi

2014–2015 | Ganjam, Odisha

Board: CBSE, CGPA: 10/10

TECHNICAL SKILLS

C/C++ | Python | ROOT CERN | LaTeX | GitHub | Windows | Linux | Simulation and Analysis | Instrumentation

LANGUAGES

English | Hindi | Odia