



UNIVERSITÀ
DEGLI STUDI
DI PADOVA



Ajay Sharma
PhD Retreat at LNGS
17th - 21st February 2025

Background Details

Master's Degree in Physics at **University of Delhi, India.**

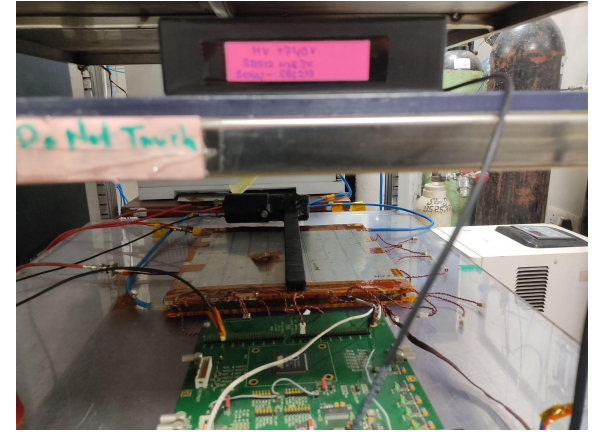


Past Research Work

- **Research Project on Resistive Plate Chambers (RPC)**
- **Department:** Physics and Astrophysics, University of Delhi, India
- **Supervisors:** Dr. Aman Phogat and Dr. Mohammad Naimuddin
- **Title:** Development and testing of eco-friendly gas mixtures for RPC detectors

Key Activities

- Gas calibration and choice of gases for optimal performance
- Development and testing of front-end electronics and readout systems
- Construction and characterization of RPC detectors



RPC Detector at University of Delhi



PhD Project



- **Current Position at INAF-OAS Bologna**
- **Supervisors:** Riccardo Campana and Enrico Virgilli
- **Project:** Development and Testing of Test Equipment for Silicon Drift Detectors.

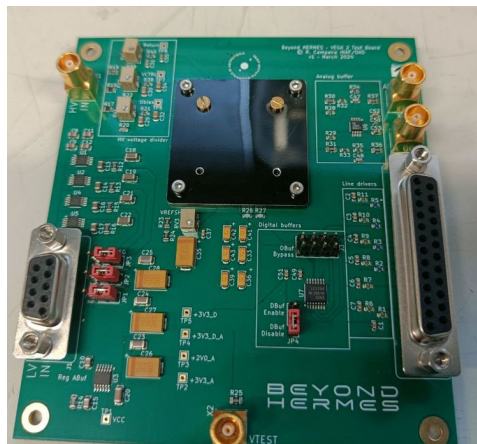
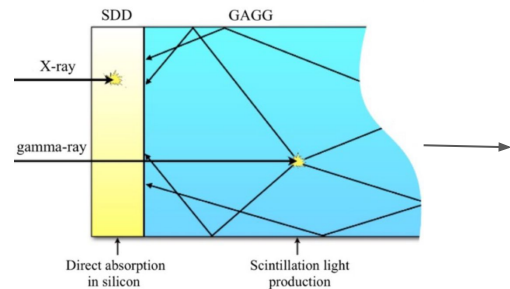
Research Focus

• **Objective:** Development of test equipment for a new prototype of front-end electronics for Silicon Drift Detectors in a high-energy astrophysics experiment.

Key Activities

- **Development and optimization of FPGA firmware** and interface client PC software.
- **Laboratory testing** of the setup **with and without Silicon detectors** to characterize the FEE and detectors
- Aiming to deliver a well-developed test equipment along with comprehensive spectroscopic data and analysis





Parameter	Value
Chip dimensions	4900 × 4320 μm^2
Number of channels	32
Channel pitch	150 μm
Equivalent Noise Charge	< 17 e^-_{rms}
Time resolution	< 10 μs

Main parameters of the AFE ASIC

