Central University of Haryana

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Central University of Haryana
Department of Physics and Astrophysics, Central University of Haryana
Mahendergarh -123031
District Mahendergarh, Haryana 123031
INDIA

Collaboration members:
Ramandeep Kumar, Meenu Thakur

Institution representative(s) on EIC User Group Council: **Meenu Thakur**

- **140 km from National Capital: New Delhi**
- **300 km from State Capital: Chandigarh**

- 34 Departments & ~5k Students
- Diverse campus (students from almost all Indian states & few countries)

Courses:

1. Integrated B.Sc. M.Sc. (Physics) [Five-year]
2. M.Sc. (Physics) [Two-year]
3. Ph.D.

Student Contribution:

- **Involvement of five focussed undergraduate students with good programming skills**
- One PhD student and two or more MSc students (for one semester dissertation work) may join

Faculty Profile

Dr. Meenu Thakur
PhD: Panjab Univ.
PDF: Florida State Univ.

Previous Work:

- Detector instrumentation for detection of low energy neutrons produced in inverse kinematics using RESONEUT setup at FSU, US
- Fission studies of super-heavy nuclei: mass gated neutron multiplicity measurements performed using India's largest neutron detector array (NAND) at IUAC, New Delhi

Skills (Hardware & Software):

- Tools: FORTRAN, C, C++, ROOT, FLUKA, GEANT4
- Target fabrication and characterization
- Hands on experience with different detector systems and related electronics
- Experience of using NIM, CAMAC, and VME based DAQ systems

Previous Work:

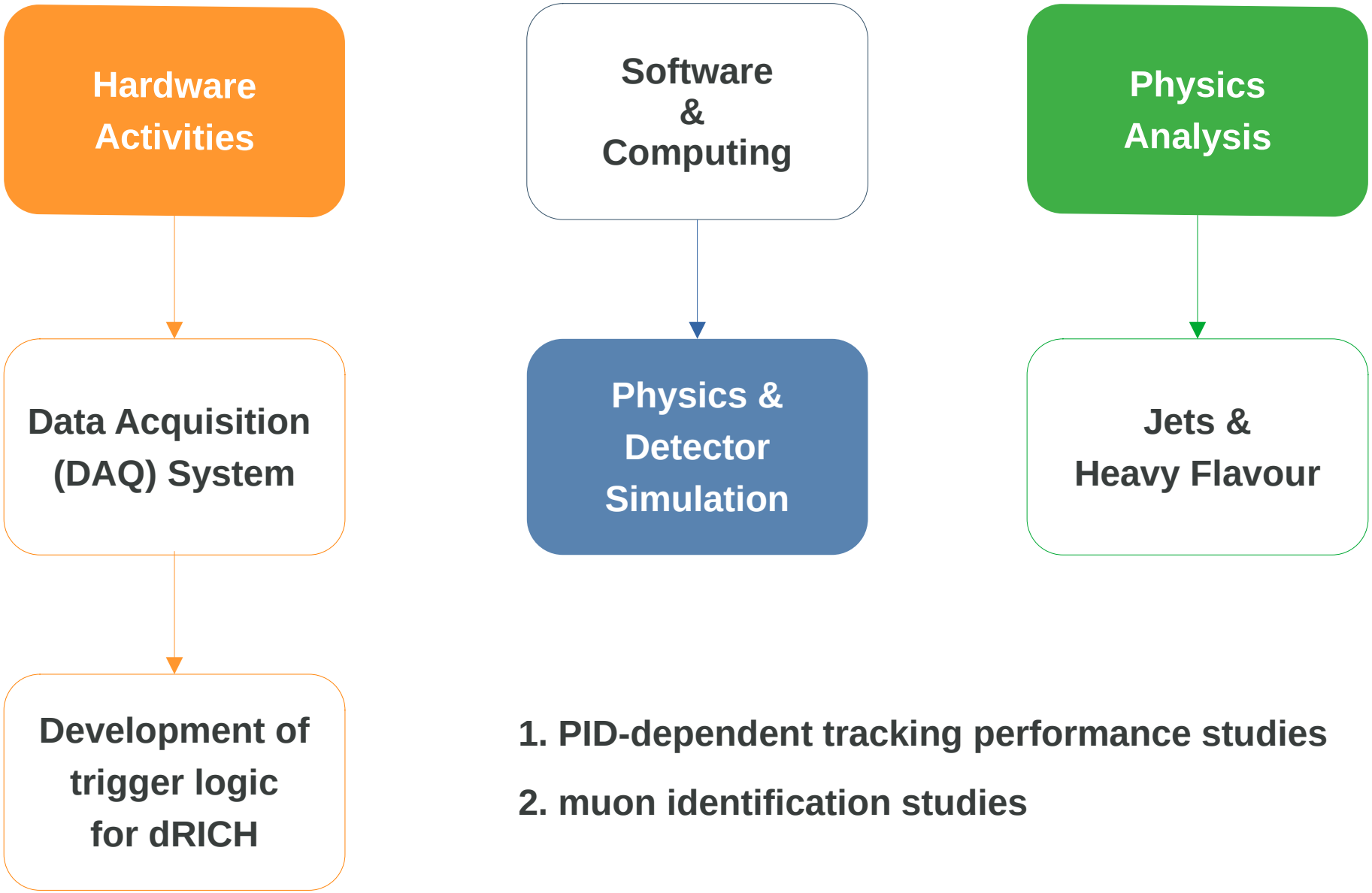
- Fabrication & Characterization of Resistive Plate Chambers (for CMS detector)
- Study of Double Parton Scattering processes using CMS data at the LHC
- DPS studies (phenomenological) using jet fragmentation properties

Skills:

- Tools: C++, Python, ROOT
- MC Event Generators: PYTHIA8, MADGRAPH, SHERPA, POWHEG, HERWIG++

Dr. Ramandeep K.
PhD: Panjab Univ.

Potential Contribution to ePIC



1. PID-dependent tracking performance studies
2. muon identification studies

*in joint collaboration with Central University of Karnataka

PID-dependent tracking performance studies

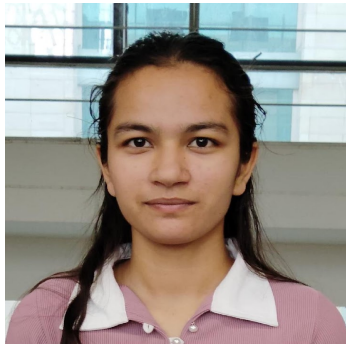
Present Scenario

- combined (efficiency x momentum resolution) for pi, K, p
- questionable results for protons
- Momentum resolution with proximity matching
- Crude primary/secondary differentiation

Rohit Jangid

Tasks to do

1. proper factorization of efficiency and resolution, access to track quality control, primary/secondary differentiation
2. “Official” matching reco to track
3. “Official” matching reco to gen (or track to gen)



Taniya

- Students of Integrated B.Sc.-M.Sc. (Physics)
- Skills: FORTRAN, C++, SciLab, GnuPlot, LaTex
- Knowledge of Basics of Particle Physics
- Learning: ROOT; ePIC software using available tools

Himanshi

* Local mentors: M. Thakur (CUH), R. Kumar (CUH), D. Samuel (CUK)