



Proposal to join the ePIC collaboration

ePIC Collaboration Council Meeting

April 2024

Meenu Thakur

Central University of Haryana, IN

Central University of Haryana



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

- 34 Academic Departments
- ~5k students in 83 Courses (UG/PG/PhD)
- Diverse campus (students from almost all Indian states & few countries)

Department of Physics & Astrophysics

Integrated
B.Sc.-M.Sc.
(Physics)

M.Sc.
(Physics)

Ph.D.
(Physics)

RESEARCH FIELDS

• Condensed Matter Physics (TH & EXP)

• Nuclear Physics (TH & EXP)

• Astronomy & Astrophysics (TH)

• Particle Physics (EXP & PHENO)

• Radiation Physics (EXP)

• Physics Education

Physics@CUH

RESEARCH FACILITIES

- UV-VIS-NIR Spectrophotometer
- DTA/TGA/DSC & Thermal-CVD System
- Orbitrap Q-Exactive Plus Mass Spectrometer
- Atomic Force Microscope (AFM)
- 80 MHz Benchtop NMR Spectroscopy
- RF Sputtering & Thermal Evaporation Unit

EDUCATION LABORATORIES

- Well Established UG and PG labs with experimental setups related to all fields of Physics
- Nuclear and Particle Physics: GM counter and Scintillator detector (SCA) setup
- Computational Physics Laboratory
- Telescope (BRESSER Messier)

Proposal for the present FY 2024-25

Photo-luminescence Apparatus (PLA)

Thin Film Sputtering System

Nuclear & Particle Physics Instrumentation

Raman Spectrometer

Personnel Resources

Meenu Thakur

- Past Experience:
 - ✦ Detector instrumentation for detection of low energy neutrons using RESONEUT setup at FSU, US
 - ✦ Fission studies of super-heavy nuclei using India's largest neutron detector array (NAND) at IUAC, IN
- Skills (Hardware & Software):
 - ✦ Tools: FORTRAN, C, C++, ROOT, FLUKA, GEANT4
 - ✦ Target fabrication and characterization
 - ✦ Hands on experience with detector systems & related electronics
 - ✦ NIM, CAMAC, and VME based DAQ systems

Ramandeep Kumar

- Previous Work (CMS):
 - ✦ 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++

FORTRAN, C++, SciLab,
GnuPlot, LaTeX, ROOT

Particle Physics, Nuclear Astrophysics,
Particle Detectors

ePIC software (learning)



Meenu Thakur
Faculty



Ramandeep Kumar
Faculty



Tanya Tanvi
Student



Girdish Laishram
Student



Rohit Jangid
Student



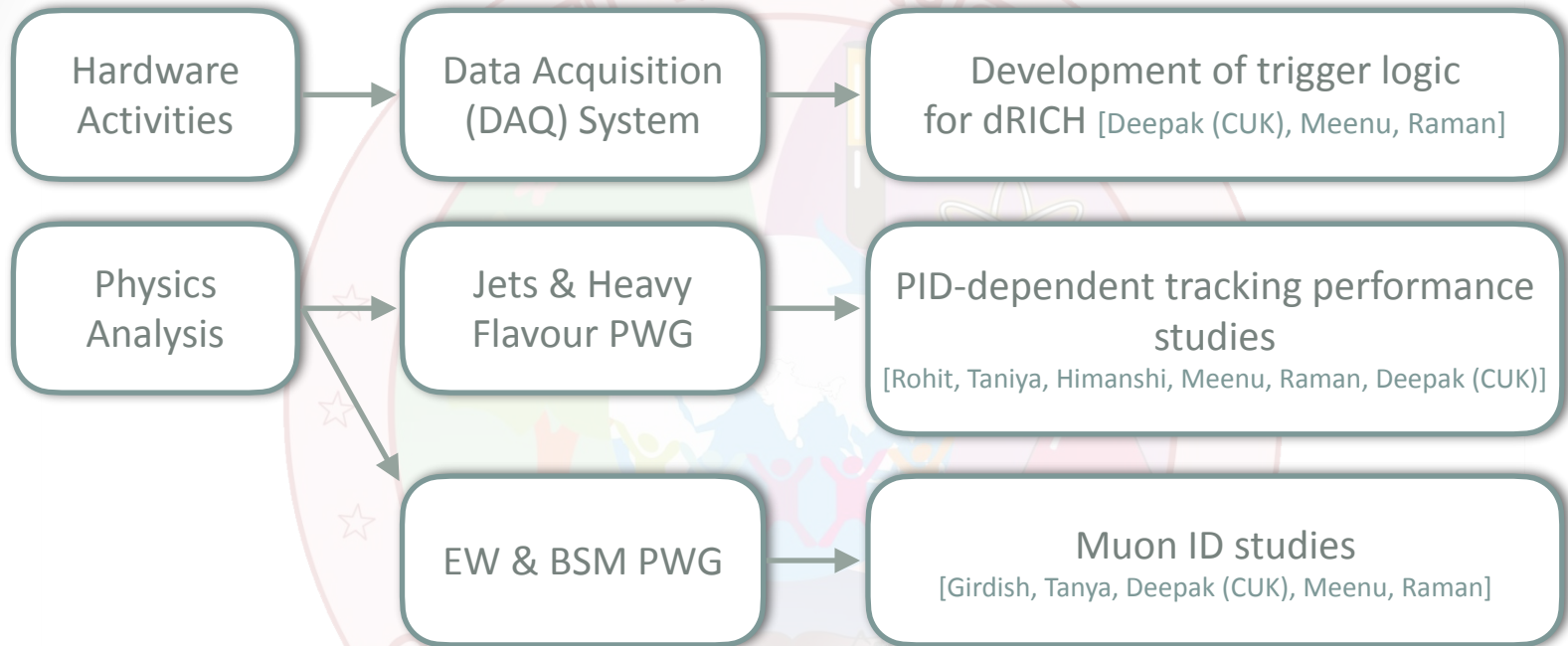
Himanshi
Student



Taniya
Student

Looking
forward to
contribution
from more
students...

Potential Contribution to ePIC



In collaboration with Central University of Karnataka

- We are in contact with Physics Analysis coordinators and concerned PWG conveners
- Working on learning ePIC software using available tutorials & dedicated sessions by conveners
- Preliminary discussions with DAQ conveners -> development of trigger logic for dRICH
- Looking forward to contributing to the Collaboration!