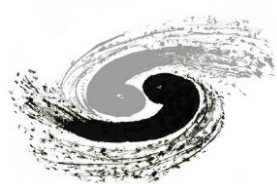


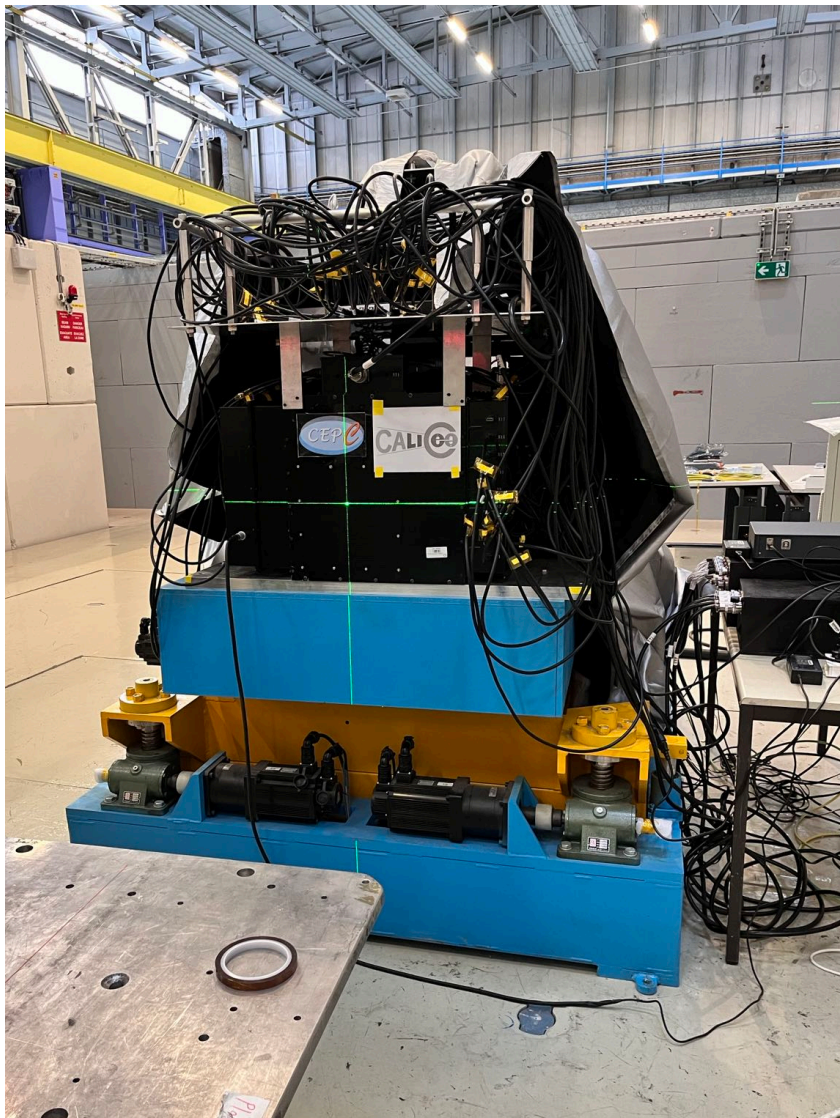
CALICE Calorimeter Prototypes at PS-T09: beamtest status

Yong Liu (IHEP),
for the CALICE and CEPC Calorimeter teams
May 24, 2023

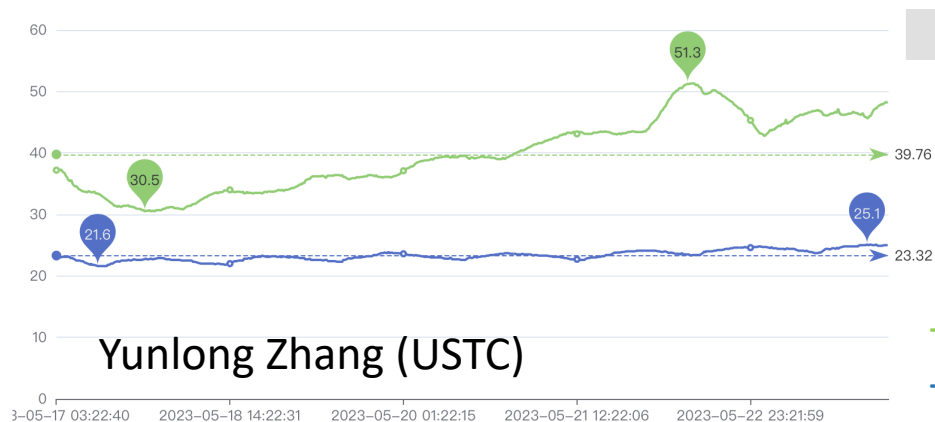




PS-T09 status: May 17 - 24

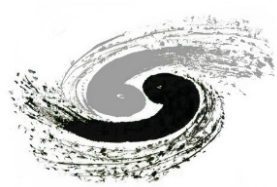


- Setup: combined ScW-ECAL+AHCAL prototypes
- 10 GeV μ^- beam for MIP calibration: **finished**
- π^- beam for energy scans (1-15 GeV): **finished**
 - 1, 3, 5, 8, 10, 12, 15 GeV
- e^- beam for energy scans in 0.5-5 GeV: **finished**
 - 0.5, 1, 2, 3, 4, 5 GeV
- In total over 1M events collected



Yunlong Zhang (USTC)

— Humidity: 30.5-51.3 %
— Temperature: 21.6-25.1°C



Hadronic showers in low energy region

Siyuan Song (SJTU)

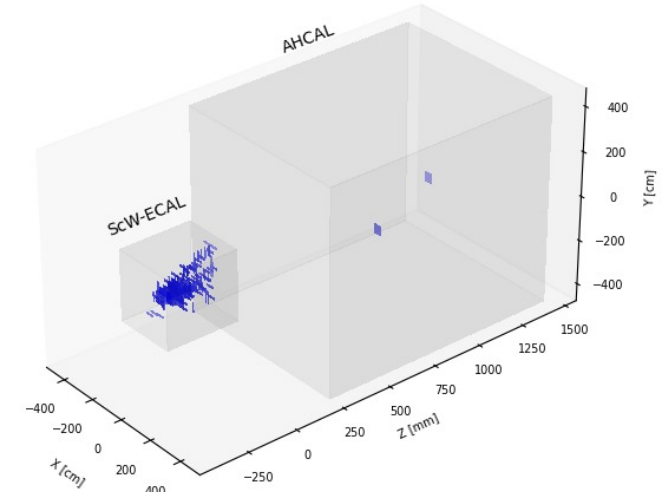
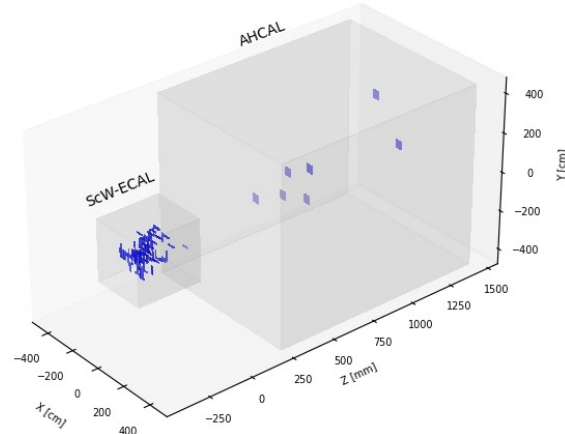
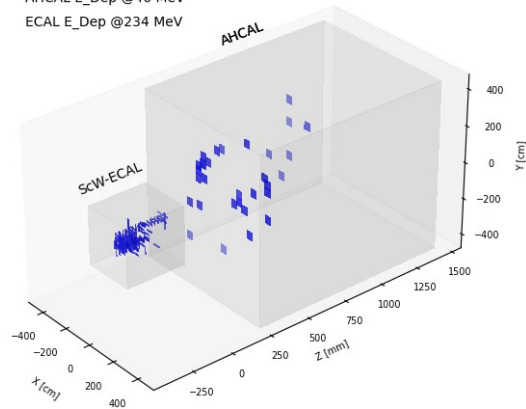
5 GeV π^-

10 GeV π^-

15 GeV π^-

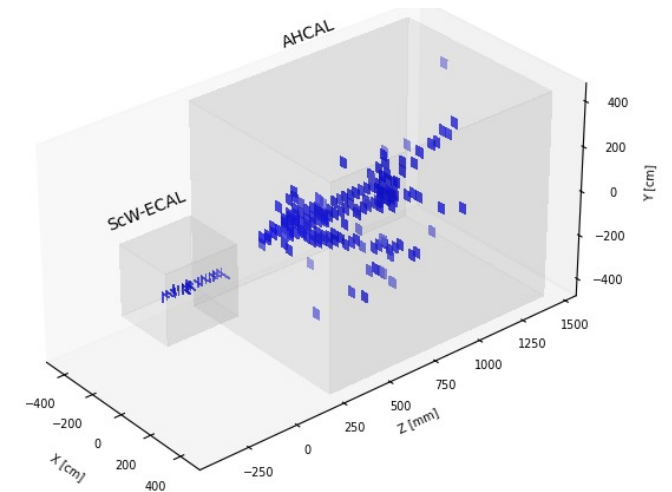
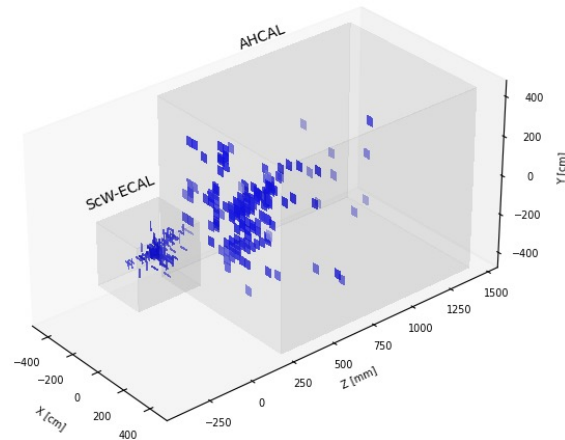
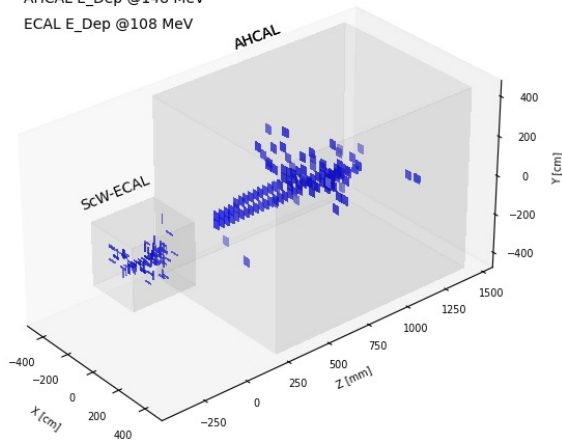
Test Beam

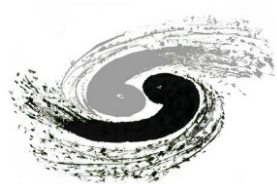
AHCAL E_Dep @46 MeV
ECAL E_Dep @234 MeV



Test Beam

AHCAL E_Dep @148 MeV
ECAL E_Dep @108 MeV

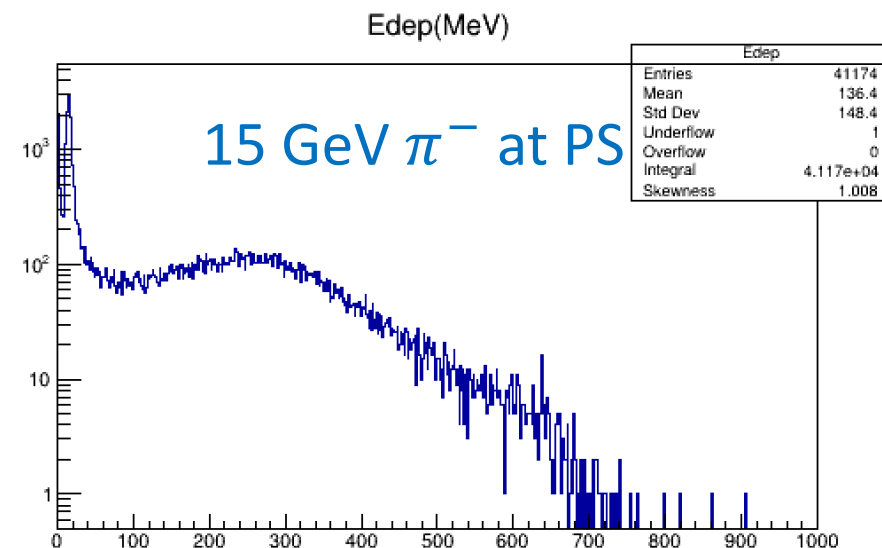
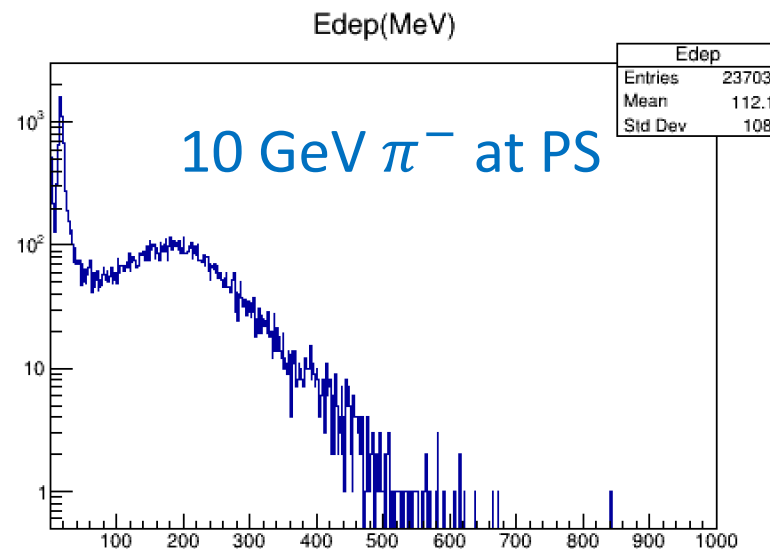
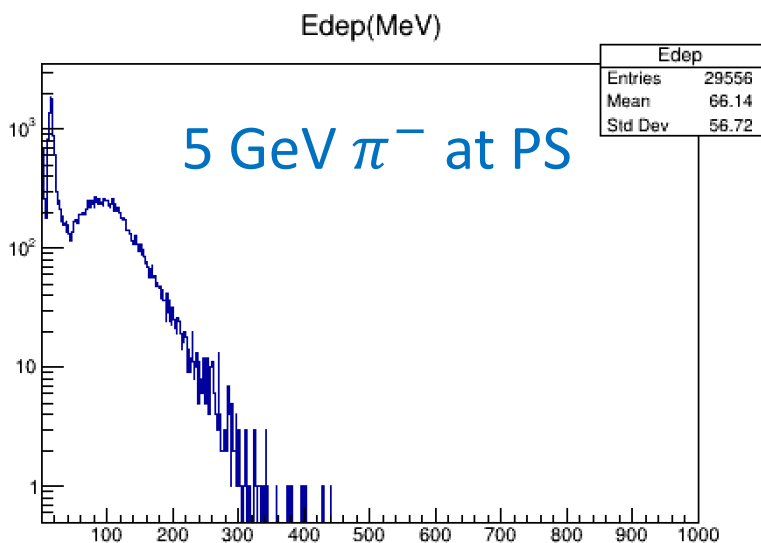
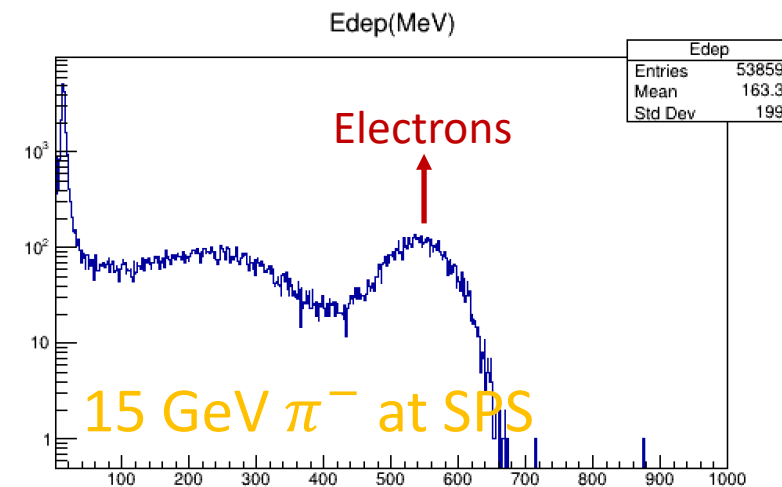


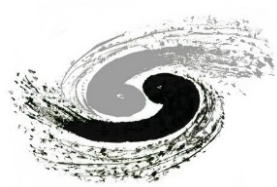


ScW-ECAL response to negative pions

Yunlong Zhang (USTC)

- ScW-ECAL prototype $\sim 1\lambda_I$ in depth
 - A large fraction of hadronic showers initiated
- Better pion purity at PS
 - More prominent fraction of electrons at SPS-H2

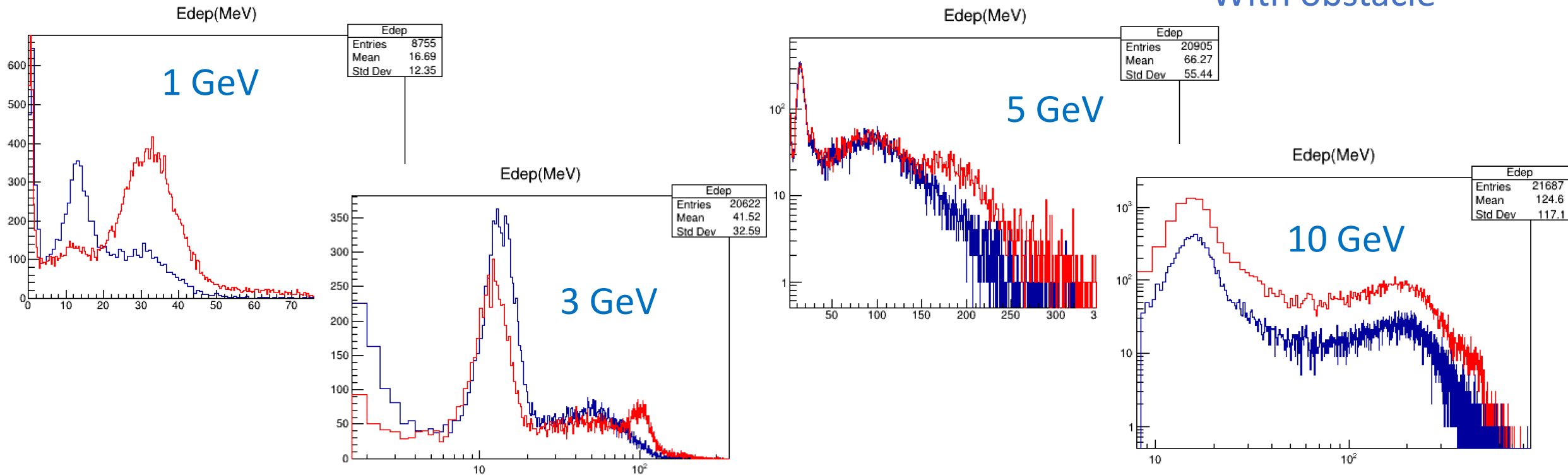


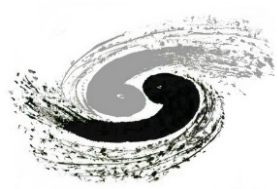


Suppress electrons with absorber

- Observed electrons in mixed hadron beam
- Used an obstacle in the beam to suppress electron yield
 - XCON025, 4 mm lead

— Without obstacle
— With obstacle





Plans: May 25 - 31

- Setup: AHCAL prototype alone
 - Plan to move ScW-ECAL out today
- π^- beam for energy scans (1-15 GeV)
- e^- beam for energy scans in 0.5-5 GeV
- Preparations of transportation in early June

- Acknowledgements
 - Dipanwita for preparing beam files and sharing helpful information on beamline

