Contribution ID: **243** Type: **Talk**

Calibration of the PANDA Electromagnetic Calorimeter

Thursday 26 August 2021 17:00 (30 minutes)

PANDA is a hadron physics research detector at the FAIR facility in Darmstadt, using antiproton beams with momenta between 1.5 and 15 GeV/c interacting with fixed proton targets. From the scientific requirements, the high-performance of electromagnetic calorimeters (EMC) is of utmost importance for the success of the PANDA experiment. Excellent identification and reconstruction of multi-photon/lepton events are crucial for the study of resonances decaying to pi0/eta, photons or electrons. In addition, final states with many photons can occur, leading to a low photon threshold as a central requirement for the EMC. To measure wide angle Compton scattering, the detection of high energy photons is also needed. Thus, high-performance of EMC over a large energy range from a few MeV up to several GeV is required. To achieve these requirements from software side, a dedicated calibration method including Machine Learning, is developed. This talk presents the calibration strategies and the implementation to Monte Carlo simulated data sample. After calibration, high-performance of PANDA EMC can be achieved with improved energy scale stability and resolution.

Is this abstract from experiment?

Yes

Name of experiment and experimental site

PANDA Experiment, Darmstadt, Germany

Is the speaker for that presentation defined?

Yes

Details

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Internet talk

Yes

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Session Classification: Mini-workshop on Machine Learning for Particle Physics