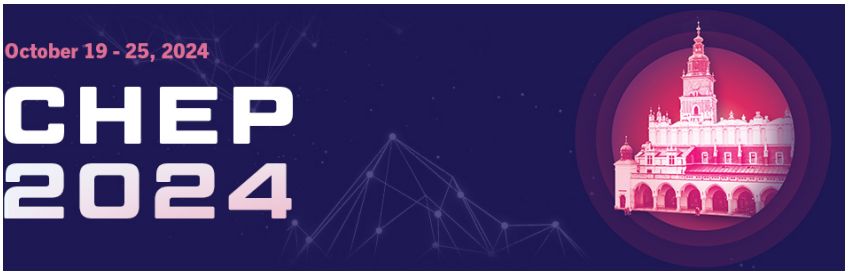

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Anomaly Detection on BESIII EMC using Machine Learning

The BESIII at the BEPCII electron-positron accelerator, which is located at IHEP, Beijing, China, is an experiment for the studies of hadron physics and τ-charm physics with the highest accuracy achieved until now. It has collected several world's largest e^+e^- samples in τ-charm region. Anomaly detection on BESIII detectors is an important segment of improving data quality, enhancing data acquisition efficiency and monitoring detectors' status. An offline unsupervised autoencoder-based anomaly detection method is applied on CsI(Tl) electromagnetic calorimeter (EMC). This method checks over histograms generated by each crystal using Jensen-Shannon Distance as loss function. Comparing to traditional method, this method is able to provide more accurate anomaly information with less manpower consuming.

Primary author: LI, Mingrun (IHEP, CAS)

Co-authors: Dr LIU, Chunxiu (IHEP, CAS); Dr JI, Xiaobin (IHEP, CAS)

Presenter: LI, Mingrun (IHEP, CAS)

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