

print

Feedback and Support

Please Proof your Submission

Print this page for your records

Order	Name	Role	Email	Affiliation	Action
001	Alessio Illari, HS	Speaker	alessio.illari@uconn.edu	University of Connecticut	Submitter

Abstract Title: Reconstructing Lambda baryon decays with the ePIC Zero Degree Calorimeter (ZDC)

Presentation Type: Oral

Sorting Category: 11

Category Type: Experimental

Abstract Body: The Electron-Ion Collider (EIC) is a new accelerator facility designed to enable detailed studies of the internal structure of nuclei and hadrons with unprecedented luminosities and a broader  $Q^2$  and  $x$  range. Central to the EIC's experimental capabilities is the enhanced Particle Identification and Calorimetry (ePIC) detector system. Among its components, the ePIC Zero Degree Calorimeter (ZDC) is vital for reconstructing neutral particles in the forward direction along the proton beam line. The Sullivan process, wherein the electron beam scatters off a virtual pion or kaon, offers a unique opportunity to study the structure of these particles. Crucial to this investigation is the ePIC ZDC's ability to accurately reconstruct the lambda baryon decay into a neutral pion and neutron. This study presents a detailed analysis of the ZDC's performance in reconstructing both the vertex and energy of the neutral pion from the two resulting photons and the neutron, underscoring the detector's essential role in advancing our understanding of fundamental nuclear processes.

Funding Acknowledgement: DOE Office of Science Grant No. DE-SC0021359

Newsworthy Research? No

Return