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CERBEROS: a Tracking System for Secondary Pion Beams at the HADES Spectrometer

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In 2014 the HADES collaboration performed two successful physics production runs with secondary pion beams. Since secondary beams are strongly defocussed in position and momentum, two fast tracking stations were installed along the pion beam chicane following the pion production target providing the momentum measurement of each individual pion. The momentum is reconstructed using the position information of every hit detected by the tracking stations and the beam optics transport calculation with a resolution below 0.5% playing an important role in terms of the exclusive analysis of investigated reactions.
Both stations consit of a double sided silicon strip detector with an large active area (10x10cm2). To guarantee fast tracking, the sensors are read out with the n-XYTER ASCI chip. Due to its self-triggering architecture and local storage capability, the chip enables on-line tracking at high rates (dN/dt > 106 part./s). The TRB3 on which the trigger logic is implemented integrates the system into the HADES DAQ.
In this presentation we are showing the results obtained during a calibration experiment with a monochromatic proton beam set at seven different momenta centered around 2.68 GeV/c. Also the excellent system performance achieved during the production campaign with pion beams are reported about.

Collaboration

HADES Collaboration

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