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Incident angle effect on the spatial resolution of an Asian GEM module

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A high performance central tracker is essential for precision measurements of Higgs properties at the ILC. The LCTPC-Asia group is developing a GEM based readout module for a TPC proposed as the central tracker of the ILD. Results from its test beam data taken in 2016 at DESY with the large prototype TPC (LP1) were reported multiple times in the past workshops of this series. This time we focus on inclined tracks and analyze their incident angle effect. A finite incident angle produces an extra charge spread over the readout pads and, together with the fluctuations of the positions and sizes of primary ionization clusters, degrades the spatial resolution as compared to that for the normal incidence. This so-called angular pad effect is expected to be further amplified by gas gain fluctuations. In this talk, we will report our preliminary results regarding the angular pad effect on the Asian GEM module, including the estimated effective number of primary ionization clusters and its comparison with a simulation result by the Heed package of Garfield++.

Time Zone

Asia/Pacific

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