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Study of pixel clusters produced by an ^{241}Am radioactive source in the ALPIDE pixel chip

The ALPIDE is a Monolithic Active Pixel Sensor used in the ALICE Inner Tracking System installed during LS2 of the LHC and currently being operated in pp and Pb-Pb collisions. In the ALPIDE, electron-hole pairs are produced by the energy loss caused by incident charged particles, and the electrons are collected by the pixel diodes. The cluster size corresponding to the number of pixels fired by each incident particle indicates how widely the electrons are spread out and how many pixels responded to them over the threshold. Thus, the cluster size distribution provides the information on the incident particle trajectory and energy loss. In this presentation, the cluster size distribution produced from ^{241}Am alpha source will be shown at various collimator sizes and alpha particle energies, and the response of the ALPIDE chip will be discussed.

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