

11th Beam Telescopes and Test Beams Workshop



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In-beam Analogue Pixel Test Structure characterization with the ALPIDE telescope

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The ALICE experiment is preparing the ITS3, an upgrade of its Inner Tracking System for LHC Run 4. The technology proposed for this upgrade is Monolithic Active Pixel Sensor (MAPS) produced in the 65 nm CMOS imaging process by TPSCo. Different pixel test structures have been developed to validate this technology. One of these is the Analogue Pixel Test Structure (APTS) which features an analogue readout of a matrix 4 x 4 pixels, available with different process modifications and pixel pitches: 10, 15, 20, and 25 μm . The performance of different APTS types, pixel pitches, and irradiation levels has been studied at the CERN PS and SPS with hadron beams of respectively 10-12 GeV/c and 120 GeV/c using ALPIDE telescopes for tracking. In this talk, the analysis and the results of these test beam measurements will be presented.

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