

9th Beam Telescopes and Test Beams Workshop



Contribution ID: 23

Type: **not specified**

MALTA CMOS sensor telescope: new developments and recent measurements

Tuesday, 9 February 2021 15:30 (30 minutes)

MALTA is a novel monolithic active pixel CMOS sensor chip designed in TowerJazz 180nm imaging technology originally conceived for the phase II upgrade of the ATLAS Inner Tracker (ITk) detector. MALTA sensor has been produced on Cz substrate in view of optimising the signal for efficiency and time resolution. A beam telescope system has been developed using up to six MALTA planes with a dedicated custom readout and trigger system. The contribution will review the architecture of the system and its multiple features with particular attention to its spatial and timing resolution. Results from application with electron beam telescope, beta decay sources and cosmic rays will be presented. Preliminary tests show that the MALTA sensor can achieve a time resolution of few ns.

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Session Classification: Beam Telescopes