

System tests with the TEPX detector for the CMS Inner Tracker upgrade

Thursday 18 July 2024 20:40 (20 minutes)

The CMS experiment will undergo different upgrades in view of the HL-LHC phase of LHC. A key feature is the complete replacement of the Inner Tracker (IT), which will be equipped with detectors with improved radiation hardness, enhanced granularity, and the ability to manage higher data rates. A pioneering serial powering strategy will be deployed for biasing the pixel modules, accompanied by the adoption of new technologies for a high-bandwidth readout system. The Endcap disks (TEPX) of the IT detector will feature four large double disks on each side. This work focuses on the design and performance of the TEPX detector, particularly highlighting the disk prototyping. The functionality of the quad modules built with the first version of the CROC chip, in both digital and planar sensor forms, will be discussed, in terms of noise and threshold uniformity. The final design of the TEPX disk will also be evaluated, especially in terms of optical data transmission quality.

Alternate track

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Yes

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Session Classification: Poster Session 1

Track Classification: 12. Operation, Performance and Upgrade (incl. HL-LHC) of Present Detectors