

Quality inspection aspects of hybrid prototypes for the CMS Outer Tracker upgrade at HL-LHC

Wednesday 26 May 2021 05:12 (18 minutes)

In the HL-LHC scenario, the CMS experiment will need to operate at up to 200 interactions per 25 ns beam crossing time and with up to 3000 fb^{-1} of integrated luminosity. To achieve the physics goals the experiment needs to improve the tracking resolution and the ability to selectively trigger on specific physics events. The CMS Tracker upgrade requires designing a new detector to cope with HL-LHC scenario. The new Outer Tracker is based on two silicon modules (strip-strip & pixel-strip). Each module type has a few types of high-density interconnect hybrid circuits which house the front-end and auxiliary electronics. Two sides of the sensors are wire-bonded to the front-end hybrids. For both module types, folded flexible circuits are used to enable wire-bonded connection from the sensor assemblies with various spacing.

The talk will introduce the technological choices for modules and hybrids and it will present the quality control aspects of the first hybrid prototypes.

TIPP2020 abstract resubmission?

No, this is an entirely new submission.

Funding information

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Session Classification: Posters: Trackers

Track Classification: Experiments: Experiments: Trackers