



Contribution ID: 58

Type: Poster

Opto-system prototypes and preliminary tests

Thursday, 28 May 2020 10:00 (30 minutes)

The all-silicon inner tracker (ITk) envisioned for ATLAS HL-LHC upgrade features a high-speed, radiation-hard data transmission system for the Pixel Detector, of which a key stage is the electrical-to-optical conversion, which combines multiple electrical signals into an optical signal. This includes dedicated application specific integrated circuits to restore attenuated signals from the electrical data transmission, multiplex and de-multiplex the outgoing and incoming signal and a dedicated module, designed for all the LHC experiments, to provide the electrical-to-optical conversion. The integration of these components into a single board, tests of first prototypes and overall data transmission are shown.

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Session Classification: POSTER