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Module developments for the ATLAS-ITk pixel detector

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The LHC high luminosity upgrade will result in about 200 proton-proton collisions in a typical bunch crossing. To cope with expected unprecedented occupancy, bandwidth, and radiation damage, the ATLAS Inner Detector will be replaced with an all-silicon system, the Inner Tracker (ITk). The innermost part of the ITk will be equipped with pixel modules, consisting of pixel sensors and novel ASICs, implemented in 65 nm CMOS technology. Several types of modules will be used in the pixel ITk detector. Prototype modules assembled with RD53A chips are being built to evaluate their production rate, thermal and electrical performance, and performance before and after irradiation. In this contribution the assembly process and tooling is described and the first results on the modules performance are presented.

In-person participation

Yes

Presenter: CUNNINGHAM, Liam (University of Glasgow)**Session Classification:** Poster Session**Track Classification:** Operation, Performance and Upgrade (Incl. HL-LHC) of Present Detectors