

ATLAS ITk Pixel Detector Overview

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To cope with the resulting increase in occupancy, bandwidth and radiation damage at the HL-LHC, the ATLAS Inner Detector will be replaced by an all-silicon system, the Inner Tracker (ITk). The innermost part will consist of a pixel detector with an active area of about 13m^2 . Several silicon sensor technologies will be employed. The pixel modules assembled with RD53B readout chips have been built to evaluate their production rate. Irradiation campaigns were done to evaluate their thermal and electrical performance before and after irradiation. A new powering scheme –serial –will be employed, helping to reduce the material budget of the detector as well as power dissipation. This contribution presents the status of the ITk-pixel project focusing on the lessons learned and the biggest challenges towards production, from mechanics structures to sensors, and it will summarize the latest results on closest-to-real demonstrators built using module, electric and cooling services prototypes.

Alternate track

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Yes

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