Contribution ID: **658** Type: **Poster**

Radiation-Hard Silicon Strip Sensors for the ATLAS Phase-2 Upgrade

Thursday 30 July 2020 13:39 (3 minutes)

The ATLAS upgrade for HL-LHC operations includes an entirely new all-silicon Inner Tracker (ITk). The silicon strip region comprises 165 m2 of instrumented area, made possible by mass production of silicon strip sensors. This area is covered in a nearly hermetic way. Slim edge technology is used to minimize inefficiency gaps between adjacent devices. Multiple shapes with curved edges are utilized to provide a continuous coverage of the disc surface in the endcap. As a result, there are 8 different strip sensor types in the system. They all feature AC-coupled n-in-p strips with polysilicon biasing, developed for 1.6e15 neq/cm2 fluence and 66 Mrad dose. Following many years of R&D and 4 prototype submissions and evaluations, the project transitioned into pre-production, where 5% of the total volume is produced in all 10 designs. Deliveries are scheduled for early 2020. We will report on the evaluation program, test results, and experience with the pre-production sensors.

I read the instructions

Secondary track (number)

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Session Classification: Detectors for Future Facilities (incl. HL-LHC), R&D, Novel Techniques - Posters

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