Contribution ID: **16** Type: **Parallel session talk**

Test-beam activities and results for the ATLAS ITk pixel detector

Tuesday, 26 May 2020 12:12 (18 minutes)

The Phase-II upgrade of the LHC will result in an increase of the instantaneous luminosity up to about 5×1034 cm−2s−1. To cope with the challenges the current Inner Detector will be replaced by an all-silicon Inner Tracker (ITk) system. The Pixel Detector will have to deal with occupancies of about 300 hits/FE/s as well as a fluence of $2\times10^{16}\mathrm{n}_{eq}\mathrm{cm}^{-2}$. 3D Pixel sensors will be installed in the innermost layer, planar sensors in the outer layers. After extensive characterization of the sensors in the lab, their charge collection properties and hit efficiency are measured in common testbeam campaigns. The setups used in the ITk Pixel testbeam campaigns will be presented, including the common track reconstruction and analysis software. Results from the latest measurements will be shown, highlighting some of the developments and challenges for the ITk Pixel sensors.

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Session Classification: Experiments: Trackers

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