



Contribution ID: 340

Type: Poster

## Expected Tracking performance of the ATLAS ITk detector for HL-LHC

The increased instantaneous luminosity levels expected to be delivered by the High-Luminosity LHC (HL-LHC) will present new challenges to High-Energy Physics experiments, both in terms of detector technologies and software capabilities. The current ATLAS inner detector will be unable to cope with an average number of 200 simultaneous proton-proton interactions resulting from HL-LHC collisions. As such, the ATLAS collaboration is carrying out an upgrade campaign, known as Phase-II upgrade, that foresees the installation of a new all-silicon tracking detector, the Inner Tracker (ITk), designed for the expected occupancy and fluence of charged particles. The new detector will provide a wider pseudorapidity coverage and an increased granularity. In this contribution the expected performance of the ITk detector will be presented, with emphasis on the improvements on track reconstruction based on the latest available developments since the ITk technical design reports [1].

[1] <https://atlas.web.cern.ch/Atlas/GROUPS/PHYSICS/PAPERS/IDTR-2023-01/>

### Secondary track

**Author:** COLLABORATION, ATLAS

**Session Classification:** T11

**Track Classification:** T11 - Detectors