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# The upgraded Pixel Detector of the ATLAS experiment for Run-2 at the Large Hadron collider. (12' + 3')

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Run-2 of the LHC is providing new challenges to track and vertex
reconstruction with higher energies, denser jets and higher rates.
Therefore the ATLAS experiment has constructed the first 4-layer Pixel detector in HEP, installing a new Pixel layer, also called Insertable B-Layer (IBL).
IBL is a fourth layer of pixel detectors, and has been installed in May 2014 at a radius of 3.3 cm between the existing Pixel Detector and a new smaller radius beam-pipe. The new detector, built to cope with high radiation and expected occupancy, is the first large scale application of 3D detectors and CMOS 130nm technology. In addition the Pixel detector was refurbished with a new service quarter panel to recover about 3% of defective modules lost during run-1 and a new optical readout system to readout the data at higher speed while reducing the occupancy when running with increased luminosity.

The commissioning and performance of the 4-layer Pixel Detector, in particular the IBL, will be presented, using collision data.

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