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Physics Performance with the ATLAS Pixel Detector

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The ATLAS Pixel Detector is the innermost detector of the ATLAS experiment at the Large Hadron Collider at CERN, providing high-resolution measurements of charged particle tracks in the high radiation environment close to the collision region.

The operation and performance of the Pixel Detector during the first years of LHC running are described. More than 96% of the detector modules were operational during this period, with an average intrinsic hit efficiency larger than 99%. The evolution of the noise occupancy is discussed, and measurements of the Lorentz angle, delta-ray production and energy loss presented. The alignment of the detector was found to be stable at the few-micron level over long periods of time.

Primary author: MIGLIORANZI, Silvia (Abdus Salam Int. Cent. Theor. Phys. (IT))

Presenter: MIGLIORANZI, Silvia (Abdus Salam Int. Cent. Theor. Phys. (IT))

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