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Tracking Performance of the ATLAS Inner Detector TOMPKINS LAUREN, BEATE HEINEMANN, UC Berkeley, ATLAS COLLABORATION —
The ATLAS experiment is one of the large scale experiments designed to explore high energy collisions at the Large Hadron Collider, a proton-proton accelerator with a center of mass energy of 14 TeV. Tracking of the individual particle trajectories in the ATLAS experiment is provided by the Inner Detector. It consists of three layers of silicon pixel detectors, four layers of silicon strip detectors, and a transition radiation tracker comprised of straw proportional tubes, which provides both tracking and transition radiation detection. In preparation for collision data the ATLAS experiment has taken large amounts of cosmic ray data that have been used to calibrate and align the tracking detectors. In this presentation we will show the observed tracking performance of the Inner Detector in cosmic ray data and compare it to the expected performance for collisions using simulated data. We will examine resolutions, efficiencies and mis-identification rates to paint a picture of the tracking performance in both early data and at the detector's design luminosity.

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