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The Atlas SCT: Commissioning experience and SLHC Upgrade

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The ATLAS SemiConductor Tracker (SCT) has been installed, and fully connected to electrical, optical and cooling services. Commissioning has been performed both with calibration data and cosmic ray events. The cosmics were used to align the detector, measure the hit efficiency and set the timing. The SCT is now ready to take data when the LHC turns on this autumn. At the same time, it is clear that the present ATLAS tracker will need to be renewed for projected luminosity upgrade of the LHC, the SLHC. This is mainly driven by occupancy and radiation hardness issues. The new tracker will likely be entirely made of silicon, with the space of the present SCT largely taken up by detectors with much shorter strips. Several large-scale R&D projects on the sensors and module concepts for this upgrade are running, including sensor and module prototyping. We will report upon the commissioning experience from the SCT, use it to extract valuable lessons for future silicon tracker projects, and give an up-to-date overview of the status and results of the R&D efforts for the ATLAS tracker upgrade.

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