

8th International Workshop on Semiconductor Pixel Detectors for Particles and Imaging.



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The STAR Pixel detector

The PiXeL detector (PXL) of the STAR experiment at RHIC is the first application of the state-of-the-art thin Monolithic Active Pixel Sensors (MAPS) technology in a collider environment. Designed to extend the STAR measurement capabilities in the heavy flavor domain, it took data in Au+Au collisions, p+p and p+Au collisions at $\sqrt{s_{NN}} = 200$ GeV at RHIC, during the period 2014-2016.

The PXL detector is based on 50 μm -thin MAPS sensors with a pitch of 20.7 μm . Each sensor includes an array of nearly 1 million pixels, read out in rolling shutter mode in 185.6 μs . The 170 mW/cm² power dissipation allows for air cooling and contributes to reduce the global material budget to 0.4% radiation length on the innermost layer.

Experience and lessons learned from construction and operations will be presented in this talk. Detector performance and results from 2014 Au+Au data analysis, demonstrating the STAR capabilities of charm reconstruction, will be shown.

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