

## The STAR PXL detector cooling system

*Wednesday, 25 May 2016 15:00 (30 minutes)*

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. The PXL detector is part of the Heavy Flavor Tracker (HFT), which has been designed to improve the vertex resolution and extend the STAR measurement capabilities in the heavy flavor domain, providing a clean probe for studying the Quark-Gluon Plasma. The two PXL layers are placed at a radius of 2.8 and 8 cm from the beam line, respectively, and accommodate 400 ultra-thin (50  $\mu\text{m}$ ) high resolution MAPS sensors arranged in 20 cm long 10-sensor ladders to cover a total silicon area of 0.16 m<sup>2</sup>. After a description of the detector design and characteristics, we will focus on the PXL air cooling system. We will report on design details and testing addressing the successful control of thermal deformations, air induced vibrations and other stability issues. We will show the detector and cooling system performance during the 2014-2016 STAR Runs.

### Summary

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