

Abstract Submitted  
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**Calibration/Survey/Alignment studies of STAR HFT Pixel Detector**<sup>1</sup> LONG MA, Lawrence Berkeley National Laboratory — As a critical component of the STAR inner tracking detector – Heavy Flavor Tracker (HFT), the pixel detector consists of 10 sectors with 400 million 20x20-micrometer pixels forming the two innermost layers of the HFT at radii of 2.5 and 8 cm, respectively. In Run-13, a three-sector prototype was installed and successfully integrated into STAR. To achieve physics goals of HFT, the alignment calibration of pixel detector to a high precision of  $\sim 10$  microns is essential. The precision alignment to map out each pixel position within the sector is carried out via a survey measurement utilizing a Coordinate Measurement Machine with a repeatability of a few micrometers. The global position parameters of the pixel sectors with respect to the STAR TPC will be obtained via a track-based alignment method with beam collisions. Particularly, the sensitive area of the pixel detector is designed to have some overlaps in order to complete the relative alignment between sectors using tracks passing through the overlap region. In this presentation, we will present the alignment calibration procedure for the HFT pixel detector. Status of the alignment calibration for the pixel detector prototype in Run-13 will be discussed.

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