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Forward Silicon Tracker Upgrade for the STAR Detector

Summary

The STAR Collaboration plans to design, construct, and install a suite of new detectors in the forward rapidity region ($2.5 < \eta < 4$) over the next two years, enabling a program of novel measurements in pp, pA, and AA collisions. This extension of STAR's kinematic reach will allow detailed studies of cold QCD physics at both very high and very low protonic momentum fraction, and will enable studies of the longitudinal structure of the nuclear initial state and fragmentation regions in heavy-ion collisions.

Forward silicon tracker (FST) is the sub-system closest to the collision interaction points and provide tracking along with Small-strip Thin Gap Chambers (sTGC) in STAR proposed forward upgrade program. FST consists of three layers of silicon disks based on single-sided double-metal Silicon Ministrip sensors technology. The readout of silicon sensors will be transmitted to the DAQ system through APV25 chips, which will be wire-bonded to the flexible circuit board. We will discuss the FST design and prototype plan and status in this talk.

Primary authors: YI, Li (Shandong University); 董, 家宁 (山东大学)

Presenter: 董, 家宁 (山东大学)