

The STAR Tracking Upgrade

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The STAR collaboration is preparing a tracking detector upgrade, the Heavy Flavor Tracker (HFT) and the Forward GEM Tracker (FGT) to further investigate fundamental properties of the new state of strongly interacting matter produced in relativistic-heavy ion collisions at RHIC and to provide fundamental studies of the proton spin structure and dynamics in high-energy polarized proton-proton collisions at RHIC.

The HFT is based on a novel two-layer CMOS active-pixel sensor detector together with a conventional two-layer silicon-strip/silicon-pad detector.

The FGT upgrade will consist of six triple-GEM detectors with two dimensional readout arranged in disks along the beam axis. The FGT project has completed an extensive R&D program of industrially produced GEM foils at Tech-Etch Inc. in comparison to GEM foils produced at CERN based on optical measurements, testbeam and ^{55}Fe source measurements of a triple-GEM prototype detector using $10 \times 10\text{cm}^2$ GEM foils. The FGT project requires large GEM foils which are currently being tested.

The HFT and FGT design, the status of full prototype tests along with the HFT and FGT construction and the installation schedule will be presented.

Primary author: Prof. SURROW, Bernd (MIT)

Presenter: Prof. SURROW, Bernd (MIT)

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