

Abstract Submitted
for the DNP20 Meeting of
The American Physical Society

Forward sTGC Tracker Prototyping and Performance Test for the STAR Upgrade YINGYING SHI, Shandong University, STAR COLLABORATION — The STAR experiment at RHIC is undergoing an upgrade including a new Forward Tracking System (FTS), which consists of a Forward Silicon Tracker (FST) and a Forward sTGC Tracker (FTT). The small-strip Thin Gap Chambers (sTGC) at STAR are designed to provide a precision position measurement of about 100 μ m for charged particles at high luminosity, covering a rapidity region ($2.5 < \eta < 4$). This extended rapidity coverage combining particle tracking detectors and calorimetry opens novel physics opportunities in pp, pA and AA collisions in the years following the Beam Energy Scan II (BES-II) at STAR. Three different sTGC prototypes have been designed at Shandong University. The first pre-prototype has been installed at STAR in 2019 during the BES-II run. A full size prototype has been tested with cosmic rays at Shandong University. The latest prototype, a pentagon-shaped design, is being constructed in 2020. In this presentation, the R&D details on prototyping and performance testing of these prototypes will be presented. The current status and future plans of the FTT upgrade will be discussed.

Yingying Shi
Shandong University

Date submitted: 25 Jun 2020

Electronic form version 1.4