The sTGC Prototyping and Performance Test for the STAR Forward Upgrade

The STAR experiment at RHIC is upgrading the Forward Tracking System (FTS) which consists of Forward Silicon Tracker (FST) and Forward sTGC Tracker (FTT). The small-strip Thin Gap Chambers (sTGC) at STAR are designed to provide precision position measurement at about 100um level for the charged particles in high luminosity, covering forward rapidity region (2.5 < eta < 4). This extended rapidity coverage on particle identification enables lots of physics opportunities in pp, pA and AA programs beyond 2020 at STAR.

Two size of sTGC prototypes have been designed and produced at Shandong University. The final designation will be finished by Feb.2020. In this poster, the sTGC prototype R&D details and some performance test results, such as position resolution and detection efficiency, will be presented. Current status and future plan of the FTT upgrade will also be discussed.