Abstract Submitted
for the DNP20 Meeting of
The American Physical Society

sPHENIX TPC diffuse laser light system NIKHIL KUMAR, Stony Brook University — As part of the sPHENIX detector being constructed at RHIC, a diffuse-light laser calibration system for TPC space charge monitoring is being constructed. The sPHENIX detector will measure upsilon states, jets, and jet correlations. In partnership with Brookhaven National Lab, a compact TPC is under construction at Stony Brook University as part of sPHENIX. Space charge is the buildup of charge inside the TPC that distorts the electric field. The Central Membrane of the TPC has a gold substrate with small aluminum stripes in a well-known configuration. The work function of gold is much higher than that of aluminum; in particular we would find approximately 240 times the rate of photo-electron release using a UVC laser. The diffuse laser calibration system will produce an electron signal from these aluminum stripes covering the central membrane. This will allow for the measurement and correction of field distortions present in the TPC drift volume. The current status of the diffuse laser system will be presented.

Nikhil Kumar
Stony Brook University

Date submitted: 02 Jul 2020 Electronic form version 1.4