

Performance Studies of the Forward GEM Tracker

Author: Malorie Stowe

Affiliation: Physics and Astronomy

The spin of the proton is thought to be produced by several constituents including quarks, antiquarks, and gluons. It has been the goal of STAR (Solenoidal Tracker at RHIC) to measure the contribution of gluons and various sea quarks to the proton spin. The Forward GEM Tracker (FGT) is a detector in STAR, which is located at the RHIC (Relativistic Heavy Ion Collider) collider at Brookhaven National Laboratory. The FGT serves to track the position of forward-going charged particles, and it will be instrumental in observing the decay leptons from W bosons created by the interaction of the quark of one proton and the antiquark of another in a proton-proton collision. This information will be critical in helping to determine the contribution of the quarks and antiquarks to the spin of the proton. This project investigates the initial performance of the FGT electronics through various studies, such as stability, high voltage, and gas mixture studies. The goal is to optimize the performance of the detector.

Information about the Author:

Faculty Sponsor: David Grosnick

Student Contact: mstowe@bsu.edu