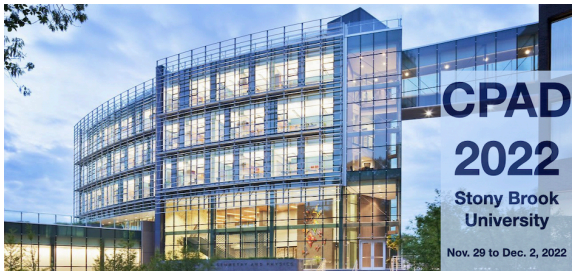

Contribution ID: **121** Type: **Contribution Talk**

An overview of the MPGD Development for the EIC's ePIC Detector

Tuesday, 29 November 2022 14:50 (20 minutes)

The future Electron-Ion Collider (EIC) at Brookhaven National Laboratory (BNL) will collide polarized electrons with polarized proton/ions. The electron Proton and Ion Collider (ePIC) detector is being designed as the day one EIC detector. The EIC physics program requires precision tracking and PID capabilities that extend over a large kinematic acceptance. Micro-Pattern Gaseous Detectors (MPGDs) are able to provide space point measurements that will aid in both tracking and PID. The eRD108 group has been charged with developing both planar and cylindrical MPGDs for ePIC which address several challenges that would need to be overcome for a successful physics program. These MPGDs will span large angular acceptance and will see tracks entering over a large angular range, in addition to tracks bending due to the ePIC's magnetic field, leading to a degradation of the space point resolution. Furthermore, one needs to deal with potential hit ambiguities and maintain good pattern recognition to ensure the signal hits can be distinguished from background/ghost hits. Finally, depending on where the detectors are located, their material budget could have a significant effect on the tracking performance. An overview of R&D activities by eRD108 to address the above mentioned challenges will be presented here.

Primary author: POSIK, Matt (Temple University)

Presenter: POSIK, Matt (Temple University)

Session Classification: WG5: MPGDs

Track Classification: WG5: MPGDs