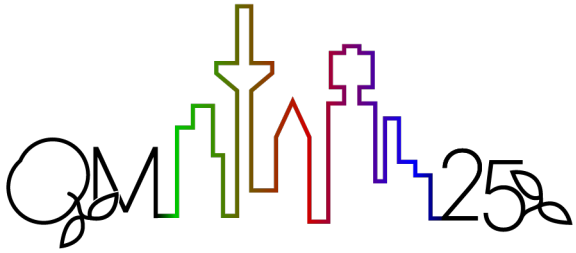

Contribution ID: **879** Type: **Poster**

sPHENIX Event Multiplicity Dependence of Heavy Flavor Jet Production in p+p Collisions

We investigate the event multiplicity dependence of heavy-flavor jet production in p+p collisions at RHIC, focusing on the role of multi-parton interactions (MPI). Due to differences in mass and color charge, heavy-flavor jets are expected to fragment differently from jets originating from light partons. While jet quenching, a key signature of the quark-gluon plasma in AA collisions, is unlikely in small systems due to limited volume, MPI in high-multiplicity events in p+p collisions could still modify jet characteristics. Thus, studying heavy-flavor jet modification in high-multiplicity p+p collisions is of significant interest. In 2024, the sPHENIX experiment at RHIC achieved high-statistics p+p data collection, equipped with full hadronic and electromagnetic calorimeters and precision silicon pixel and strip detectors near the interaction point. This setup enables, for the first time, a detailed investigation of heavy-flavor jet modifications due to MPI in p+p collisions. The latest progress from this study will be presented.

Category

Experiment

Collaboration (if applicable)

sPHENIX

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Session Classification: Poster session 2

Track Classification: Heavy flavor & quarkonia