Contribution ID: **178** Type: **Poster**

The sPHENIX MAPS-based vertex detector Simulation and Tuning with Test Beam Data

Tuesday 2 June 2020 07:30 (1h 20m)

Recent data from RHIC and LHC show that R_{AA} and v₂ of charm hadrons are very similar to that of light and strangeness hadrons. The R_{AA} of bottom decay daughters at low p_T seems to be less suppressed than that of light and charm hadrons, suggesting a mass suppression hierarchy. Precision open bottom measurements over a broad momentum range are needed for a detailed understanding of parton energy loss mechanisms and to characterize the transport properties of the strongly-coupled QGP medium. The sPHENIX detector at BNL's Relativistic Heavy Ion Collider (RHIC) will have extensive capabilities for jet and Upsilon measurements. A fast MAPS-based silicon vertex detector (MVTX) is proposed to greatly enhance the heavy flavor detection capabilities of sPHENIX. We will present physics simulation studies on the open bottom measurements within the full sPHENIX tracking environment including the MVTX detector. Open bottom reconstruction has been explored via the inclusive non-prompt D⁰ daughters and the full exclusive reconstruction of B⁺⟶D⁰π⁺. Statistical projections on the nuclear modification factor and the elliptic flow measurements will be presented.

Collaboration (if applicable)

sPHENIX

Track

Heavy Flavor and Quarkonia

Contribution type

Poster

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