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sPHENIX capabilities for measuring Λc_cc production in Au+Au collisions

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A strong enhancement of Λ_c/D⁰ ratio compared to the fragmentation baseline is observed in Au+Au collisions at the top energy of the RHIC. This also suggests that Λ_c may be an important component for the total charm cross section. Precision measurements of charm baryons over a broad momentum range are needed for a detailed understanding of hadronization and parton energy loss mechanisms as well as to characterize QGP transport properties. sPHENIX is a planned next-generation high-rate jet, Upsilon and open heavy-flavor detector at RHIC. A state-of-the-art MAPS-based silicon detector (MVTX) is proposed to enhance heavy flavor detection capabilities greatly. We will present simulation studies of Λ_c baryon measurements in 200 GeV Au+Au collisions utilizing the full sPHENIX tracking capabilities with MVTX. The simulation method for estimating the expected signal and background will be discussed. Statistical projections of the Λ_c/D⁰ ratio will be presented.

Collaboration (if applicable)

sPHENIX

Track

Heavy Flavor and Quarkonia

Contribution type

Poster

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