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Open bottom hadron physics program at sPHENIX

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Recent data from RHIC and LHC show that R_{AA} and v_2 of charm hadrons are very similar to that of light and strange hadrons. At the same time, the R_{AA} of bottom decay daughters at low p_T seems to be less suppressed compared to light and charm hadrons, suggesting a mass suppression hierarchy. Precision open bottom measurements over a broad momentum range are needed for detail understanding of parton energy loss mechanisms and to characterize the transport properties of the strongly-coupled QGP medium.

sPHENIX is a planned next generation high-rate jet, Upsilon and open heavy-flavor detector at RHIC. A fast MAPS-based silicon vertex detector (MVTX) is proposed to greatly enhance the heavy flavor detection capabilities of sPHENIX. In this poster, 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 D^0 daughters and the full exclusive reconstruction of $B^+ \rightarrow \bar{D}^0 + \pi^+$. Statistical projections for nuclear modification factor and elliptic flow measurements will be presented.

Content type

Experiment

Collaboration

sPHENIX

Centralised submission by Collaboration

Presenter name already specified

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