

Distance of Closest Approach and Unfolding Study to Infer Bottom and Charm Quark Production in p+p Collisions at $\sqrt{s} = 200$ GeV in the PHENIX experiment

Heavy quarks, such as bottom and charm, are primarily produced during the initial collision. In heavy ion collisions they experience the full evolution of the hot medium formed. As such they are valuable probes of the properties of the quark gluon plasma (QGP). The PHENIX Collaboration has previously published results in Au+Au collisions at $\sqrt{s} = 200$ GeV using the PHENIX silicon vertex detector that indicated a different energy loss pattern for bottom and charm quarks. To more accurately measure this effect and produce a well-understood R_{AA} , a similar analysis is being done in the 2015 p+p collision data set at $\sqrt{s} = 200$ GeV. The analysis uses Bayesian unfolding techniques applied simultaneously to the heavy flavor electron yield and the distance of closest approach for heavy flavor electrons in order to provide separated charm and bottom invariant yields.

This poster will present the distance of closest approach measurements for electrons from heavy flavor decays, their use in the unfolding procedure, and the status of the analysis.

Preferred Track

Open Heavy Flavors

Collaboration

PHENIX

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