



XXIV QUARK MATTER DARMSTADT 2014

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Heavy Quark Interactions with the Medium as Measured with Electron-Hadron Correlations in $Au + Au$ Collisions in STAR

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Measurements of heavy flavor R_{AA} have shown a large suppression in central heavy ion collisions, indicating the importance of both gluon radiation and collisional energy loss in models of heavy quark propagation. There is still considerable uncertainty around the energy loss mechanisms of heavy quarks in QGP: the relative contribution of radiative and collisional interactions to the energy loss of heavy quarks as well as the response of the medium to heavy quark propagation are both open questions. Two particle correlations from heavy flavor jets are a unique tool to investigate interactions with QGP, as away side correlations in central events should show modifications as compared to measurements in peripheral bins and $p + p$ collisions. High p_T non-photonic electrons serve as a proxy for heavy flavor mesons coming from heavy ion collisions and allow us to tag heavy flavor jets. These electrons' correlations to associated hadrons could give insight into the interactions between charm and bottom quarks and the medium. The away side will contain information both from the decay of any associated away side meson as well as interaction of the away side jet with the bulk.

The high statistics from STAR Run 11 allow us to construct correlations across a range of centralities and particle p_T . We present measurements of correlations of non-photonic electrons to hadrons in high tower triggered $\sqrt{s} = 200$ GeV $Au + Au$ data from STAR, and will show comparisons to theoretical models for heavy quark correlations in QGP.

On behalf of collaboration:

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