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Inclusive jet measurements in p+Au collisions at $\sqrt{s_{\mathrm{NN}}}$ = 200 GeV in STAR

With the observation of flow-like correlations in small system collisions (p+Pb, p+Au and d+Au) at the LHC and RHIC, the existence of quark-gluon plasma (QGP) in small systems, which was initially assumed to be absent, became an open question and has been actively investigated over recent years. High momentum partons produced at early stages of heavy ion collisions generate collimated sprays of hadrons called \textit{jets}. Jets have been well established as a hard probe for the existence and properties of the QGP. These partons lose energy when passing through the medium, forming an effect usually known as "jet quenching". While previous jet-quenching analysis in small systems using minimum bias datasets are consistent with the non-existence of the QGP, various modifications are observed when collisions are categorized based on the event activity (EA).

In this poster, we aim to present investigation on p+Au collisions at $\sqrt{s_{\mathrm{NN}}} = 200$ GeV at STAR for possible evidence of jet quenching by studying the binary-scaled inclusive jet yield. Studies involving both full (charged + neutral) and charged jets will be presented. We will also present the EA definition of collision events based on backward (Au-going direction) signals. Relevant simulation procedures will also be discussed, including simulation using the Glauber model and corresponding detector response. Progress towards the resultant nuclear modification factor R_{pAu}, after combining with the results from the Glauber model calculation, as well as the comparison between yields in high and low EA bins, will be discussed.

Collaboration (if applicable)

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Track

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