Jet and Di-jet Underlying Event in p+Au collisions at $\sqrt{s_{NN}} = 200\,\text{GeV}$ at STAR

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Abstract

Proton-ion collisions have been included in runs at the LHC and RHIC in addition to proton-proton and heavy ion collisions as a means of studying cold nuclear matter (CNM) effects. These asymmetric systems have yielded some unexpected trends, notably in measurements of nuclear modification factors at different centralities. Detectors at forward/backward rapidity have been used as a proxy for centrality or event activity (EA) in p+Au collisions in order to avoid auto-correlations in mid-rapidity measurements. In this poster, we show correlations of backward-rapidity (Au-going) event activity with mid-rapidity underlying event (UE) in p+Au collisions at $\sqrt{s_{NN}} = 200\,\text{GeV}$ measured with the STAR detector. We present UE measurements and show the trends of UE in relation to EA for high-transverse momentum (p_T) jet events vs. di-jet events. Additionally, we will study collision kinematics via observables including jet rapidity (η) and jet p_T as a means of investigating the initial hard scattering of partons in these events.