Dependence of semi-inclusive jet and high-$p_T$ charged particle production on event activity at high backward-rapidity in $\sqrt{s_{NN}} = 200$ GeV $p+$Au collisions at STAR

Tuesday, 2 June 2020 12:55 (20 minutes)

Observations of flow-like signals in small-system collisions, $pp$ and $p/d+$A, have led to a resurgence of interest and measurements, the results of which have perhaps permanently challenged the naive picture of initial geometry and subsequent early-time dynamics for these systems. In the wake of this renewed interest, jet and high-$p_T$ particle measurements in small systems are proving similarly fruitful and challenging. While no clear signal of jet quenching has been observed, inclusive measurements at both LHC and RHIC energies of $p/d+$A collisions show jet spectra enhancement/suppression at high Bjorken-$x$ when binned by event activity (EA) at high backward-rapidity (the A-going direction). In this talk we present the first semi-inclusive small-system jet spectra measurements at RHIC energies. The results show significant suppression of the jet spectra normalized per trigger in high-EA relative to low-EA collisions. PYTHIA 8 simulations verify that the modification of these spectra is not the result of trivial autocorrelations. Surprisingly, these simulations do show a qualitatively similar modification and studies to understand the cause will be presented. Finally, we present charged particle correlations with EA at high backward-rapidity, which hint at energy conservation or fluctuating proton effects.

Collaboration (if applicable)

STAR

Track

Initial State

Contribution type

Contributed Talk

Primary author: STAR COLLABORATION

Presenter: STEWART, David (Yale University)

Session Classification: Parallel

Track Classification: Initial State