

Probing hadronization with the charge correlator ratio in pp and Ru+Ru/Zr+Zr collisions at $\sqrt{s_{NN}} = 200$ GeV at STAR

Wednesday 25 September 2024 11:10 (20 minutes)

Jet substructure observables can reveal details of the parton fragmentation and hadronization processes that create a jet. We measure a new substructure observable, the charge correlator ratio (r_c), that characterizes the fraction of string-like fragmentation by distinguishing the charge signs of leading and subleading charged particles within jets. This can further our understanding of non-perturbative QCD and provide tests for phenomenological hadronization models. Moreover, by measuring r_c with jets created in heavy-ion collisions, we probe for potential modifications of the hadronization process due to the presence of the Quark Gluon Plasma.

We present the first fully corrected results of r_c at RHIC, in $\sqrt{s} = 200$ GeV pp collisions recorded by the STAR detector, and compare them with Monte Carlo predictions. Additionally, we present progress on the first measurement of r_c in heavy-ion collisions, with $\sqrt{s_{NN}} = 200$ GeV Ru+Ru and Zr+Zr collisions.

Category

Experiment

Collaboration

STAR

Primary author: SONG, Youqi

Presenter: SONG, Youqi

Session Classification: Parallel 32: hadronization

Track Classification: 2. High momentum hadrons and correlations