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Type: Talk

An overview of recent STAR jet measurements and futurity

Wednesday, 1 September 2021 11:30 (30 minutes)

Jets are produced in heavy-ion and nucleon-nucleon collisions from hard-scattered partons of the incoming beams. We can infer the property of hot-dense QCD matter, known as Quark-Gluon Plasma (QGP), by studying the modified jet properties in heavy-ion collisions with respect to their vacuum reference. The STAR experiment has recently reported several novel jet measurements in heavy-ion collisions that provide information about the medium-induced parton energy loss at RHIC. In central Au+Au collisions at $\sqrt{s_{NN}} = 200$ GeV, the inclusive charged-particle jet yields show a strong suppression for different jet resolution parameters (R), whereas the semi-inclusive direct-photon and hadron triggered recoil jet measurements hint at a R dependent jet suppression. We compare these measurements with those at the LHC and investigate the parton energy loss in QGP by comparing jet transverse momentum shift at different collision energies. Besides, we study the QCD parton shower and jet evolution in vacuum by measuring different jet substructure observables in p+p collisions. For example, the SoftDrop groomed jet mass, shared momentum fraction, and groomed jet radius are measured in p+p collisions at $\sqrt{s} = 200$ GeV, and compared with different QCD-based models. Finally, we will discuss the forthcoming STAR experiment data-taking plan during the final stage of RHIC running and the improved precision achievable for jet measurements.

Is this abstract from experiment?

Yes

Name of experiment and experimental site

STAR Experiment: <https://www.star.bnl.gov>

Is the speaker for that presentation defined?

Yes

Details

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Internet talk

Yes

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