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Type: **Talk**

Underlying event characterization in 200 GeV Au+Au collisions and jet measurements with the sPHENIX detector

Wednesday 28 August 2024 12:00 (20 minutes)

sPHENIX is a new experiment at the Relativistic Heavy Ion Collider (RHIC), designed with large-acceptance, hermetic EM and hadronic calorimeters. One of the main goals of the sPHENIX experiments is the measurement of jets and their substructure in heavy ion collisions as a probe of the QGP at RHIC. Since jets in heavy ion collisions sit on top of large fluctuating backgrounds, these must be understood to carry out a precision program of jet physics.

This talk reports a detailed characterization of the underlying event and jet background fluctuations at RHIC using 200 GeV Au+Au collision data collected with the sPHENIX calorimeter system during its 2023 commissioning run. The characterization uses several approaches: unbiased sampling of calorimeter window areas and random cones, as well as methods sensitive to jet reconstruction effects such as embedding high- p_T probes from data or simulation into recorded minimum-bias Au+Au data. The non-Poissonian background fluctuations for several jet background subtraction methods are also investigated. Lastly, we present highlights of the envisioned sPHENIX jet physics program.

Internet talk

Yes

Is this an abstract from experimental collaboration?

Yes

Name of experiment and experimental site

sPHENIX

Is the speaker for that presentation defined?

Yes

Details

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