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Implementation of jet and jet-hadron analyses in heavy-ion collisions in Rivet

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Rivet (Robust Independent Validation of Experiment and Theory) is a valuable framework for the comparison of data and simulations. Since features required for heavy ion analyses were only recently available, there is a backlog of analyses which need to be implemented. We discuss implementation of heavy ion analyses in Rivet by undergraduates in a Course-Based Undergraduate Research Experience (CURE) in order to address this backlog. Currently, jet analyses in Rivet are restricted to simpler collision systems such as pp or electron-positron.

Complementary tools are currently being developed in order to allow Rivet to analyze jets in heavy-ion collisions. Specifically, the comparison of jet measurements made at the LHC and RHIC to energy loss and flow models is important to understanding of the Quark-Gluon Plasma (QGP). The azimuthal correlations between identified jets and associated particles (jet-hadron correlation) is one observable that can characterize the effects of energy loss of partons in the QGP through their fragmentation.

This contribution presents new Rivet tools for the jet and jet-hadron correlation analyses in heavy-ion collisions. These tools allow analyses to perform jet background subtraction and can take into account v_n contributions.

Collaboration (if applicable)

Track

Jets and High Momentum Hadrons

Contribution type

Contributed Talk

Primary authors: Dr OLIVEIRA DA SILVA, Antonio Carlos (University of Tennessee - Knoxville); NATTRASS, Christine (University of Tennessee (US))

Presenter: WITT, William Edward (University of Tennessee (US))

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