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An Investigation of Inclusive Differential Jet Shapes with Monte Carlo Simulations at RHIC Energies APURVA NARDE, Rutgers University — Heavy-ion collisions allow us to investigate the nature of quark-gluon plasma (QGP) which was predominant in the initial moments of the early universe. In the aftermath of hard scattered partons, the collection of high transverse momentum particles consisting of quarks and gluons form the basis of a jet. Jets interact strongly with the QGP medium, also known as jet quenching, which changes the energy flow within a jet. Thus, differential jet shape observable serves as a natural choice of a probe to investigate the detailed properties of QGP. In this study, Monte Carlo simulations of proton+proton and Au+Au collisions at $\sqrt{s_{NN}}$ = 200 GeV energies generated in Pythia and Angantyr event generators are used to examine the jet shapes. Jets are reconstructed using the anti-kT sequential recombination algorithm with R = 0.4. The jet shapes are measured for full jets and charged only jets to investigate the effect of the neutral content, kinematic selection, and background effects to further understand the selection biases.

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