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Effects of Jets in the Flow Observables

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The study of the transverse momentum anisotropy of the particles produced in heavy ion collisions is one of the most important experimental observable to investigate the collective behavior of the systems created in such collisions. Recent studies show that the complexity of the nature of the system evolution, such as initial condition fluctuations and jets, may lead to important effects in the flow coefficients and, therefore, to misinterpretation of the results obtained. In this study, we used combined simulated events produced with a hydrodynamic model which allows inhomogeneous initial condition and proton-proton collisions produced with Pythia event generator to create a final set of particles to be analyzed with the usual experimental flow calculation techniques. Although this modest approach is somehow unrealistic, since it does not include the interaction of the jet with the medium, our results have shown a good agreement of the behavior of the elliptic flow coefficient as a function of the transverse momentum up to 6 GeV/c for Au+Au collisions at 200 GeV. Despite each model alone is not able to describe the full range, the combination of both set of particles as seen by the flow calculation techniques may be the key to explain the behavior observed in experimental data.

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