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Jet R_{AA} and v_n for PbPb 5.02 TeV with JEWEL+v-USPhydro

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The Quark-Gluon Plasma, a state of matter characterized by its extreme energy density and temperature generated in heavy-ion collision experiments, is expected to modify hard-scattered partons traveling through it and, consequently, the jets they produce. Analyses regarding jets may recover information about the medium and its partonic energy-loss mechanism. This work applies the Monte Carlo event generators JEWEL and PYTHIA for the simulation of observables comparable to current experimental research, focusing on the impact of a realistic description of the medium, provided by the state-of-the-art (2+1)D v-USPhydro code and T_RENTo initial conditions, in the azimuthal distribution and energy modification of jets.

We present the jet nuclear modification factor R_{AA} and anisotropic flow coefficients $v_{n=2,3,4}$ for multiple models, centralities and jet radii R . The R_{AA} simulated presents good agreement with experimental data for central collisions only. The evolution of the results in terms of centrality and R indicates a possibility of better understanding of medium response in the JEWEL framework. The realistic hydrodynamics models behave differently to JEWEL's longitudinal-only expansion, mainly in the circumstances where less quenching is expected. The correlation between the jet azimuthal distribution and those generated by soft particles resulted from the realistic medium profiles enables the event-by-event calculation of higher-order jet anisotropic flow coefficients that can be compared to experimental measurements. The simulations show a transverse momentum-dependent elliptic flow v_2 and a positive triangular flow v_3 .

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