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A viscous blast-wave model for high energy heavy-ion collisions

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Using a viscosity-based survival scale for geometrical perturbations formed in the early stages of relativistic heavy-ion collisions, we model the radial flow velocity during freeze-out. Subsequently, we employ the Cooper-Frye freeze-out prescription, with first-order viscous corrections to the distribution function, to obtain the transverse momentum distribution of particle yields and flow harmonics. For initial eccentricities, we use the results of Monte Carlo Glauber model. We fix the blast-wave model parameters by fitting the transverse momentum spectra of identified particles at the Large Hadron Collider (LHC) and demonstrate that this leads to a fairly good agreement with transverse momentum distribution of elliptic and triangular flow for various centralities. Within this viscous blast-wave model, we estimate the shear viscosity to entropy density ratio $\eta/s \simeq 0.24$ at the LHC.

[1] A. Jaiswal and V. Koch, arXiv:1508.05878 [nucl-th].

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