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Anisotropic hydrodynamic modeling of 2.76 TeV Pb-Pb collisions

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In this talk, I will present some comparisons of phenomenological results from 3+1d
quasiparticle anisotropic hydrodynamics (aHydroQP) with experimental data col-
lected in LHC 2.76 TeV Pb-Pb collisions. In particular, I will present comparisons of
particle spectra, average transverse momentum, and elliptic flow. This new model re-
lies on the introduction of a single temperature-dependent quasiparticle mass which
is fit to lattice QCD data. The dynamical equations can be obtained by taking
moments of Boltzmann equation which are used in the hydrodynamic stage. In this
work, we include the effects of both shear and bulk viscosities. At freeze-out, we use
anisotropic Cooper-Frye freeze-out performed on a fixed-energy-density hypersur-
face to convert to hadrons. To model the production and decays of the hadrons we
use THERMINATOR 2 which is customized to sample from ellipsoidal momentum-
space distribution functions. Using smooth Glauber initial conditions, we find very
good agreement with many heavy-ion collision observables.

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