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Extracting effective viscosities from heavy ion collisions

Thursday, 7 April 2022 11:30 (20 minutes)

In this presentation, I'll introduce the effective viscosity that can be computed from the viscous damping of anisotropic flow in heavy-ion collisions for arbitrary temperature-dependent shear and bulk viscosities, running ideal and viscous hydrodynamic simulations. I'll show that the damping is solely determined by effective shear and bulk viscosities, which are weighted averages over the temperature. We determine the relevant weights for LHC and RHIC and present their dependence, where the effective bulk viscosity is driven in the earlier stages of the collision, and the effective shear viscosity coming from the lowest temperatures, just above freeze-out. I'll also show recent developments on the effective viscosities, where we can use the "data-driven" (Bayesian analysis) and Lattice computations to the temperature dependence on viscosities and extract the effective viscosities to heavy-ion collisions. Then we can compare the different parametrizations for viscosities.

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