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Melting and freeze-out conditions of hadrons in a thermal medium

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We present several results on the temperature dependence of hadronization and hadron freeze out by using different approaches. We apply the Polyakov-Nambu-Jona-Lasinio model to generate the low-lying mesons and baryons with strangeness at finite temperature. We find a flavor-dependent pattern in the temperature of the effective deconfinement, similarly to what is found in recent lattice calculations for the QCD phase transition, favouring a hotter transition for states with strangeness. In addition, we use a simple model of a medium in a Friedmann-Robertson-Walker spacetime, which mimics the expansion of a fireball in a heavy-ion collision. This model presents a well-defined decoupling mechanism, whose temperature can be easily extracted versus the mass and the cross section of the particles in the bath. Our findings support a sequential freeze out in relativistic heavy-ion collisions.

List of tracks

Freeze-out, hadronisation and statistical models

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