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# Hadronic phase lifetime and $K^*(892)^0/K$ ratio in relativistic nuclear collisions within a hydrodynamic framework

*Thursday 15 December 2022 14:00 (1 hour)*

Short-lived hadronic resonances with widely varying lifetimes provide an excellent tool to study the hadronic phase produced in relativistic heavy ion collisions. The dynamics of these particles, especially the $K^*(892)^0$ meson, and thus varying yields has been used extensively to study the hadronic phase lifetime. In this work, we employ an alternative method by assuming 1+1D second-order viscous hydrodynamics for the evolution of the hadronic medium and to obtain the hadronic phase lifetime. The evolution is assumed to break down when the Knudsen number limit, $Kn > 1$, is attained. It is assumed that the particle yield gets preserved at this limit. The obtained lifetime is then used within a transport model for $K^*(892)^0$ mesons modelled by including rescattering and regeneration effects to predict their final state yield. The results obtained in our calculations are qualitatively in agreement with the experimentally obtained hadronic phase lifetime and $K^*(892)^0/K$ ratio.

## Session

Heavy Ions and QCD

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