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Strange hadron production in Au+Au collisions at √s_NN=3-27 GeV with UrQMD

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The study of strange hadrons plays a critical role in understanding the properties of hot and dense nuclear matter created in heavy-ion collisions, as they provide unique insights into the quantum chromodynamics phase transition and the possible formation of a quark-gluon plasma. Strangeness enhancement, first proposed as a signature of quark-gluon plasma, arises from the high production rate of strange quarks in deconfined matter compared to hadronic interactions. Strange hadrons are particularly sensitive probes because of their relatively low production in ordinary hadronic collisions and their ability to retain information of the hadronization conditions.

In this work, the model dependence of strange hadron spectra (K0, Lambda, Xi, Omega) is studied with regards to the transverse momenta and different rapidities, collision centralities in the range of collision energies √s_NN = 3-27 GeV providing information on the dynamics of the hot dense matter on the onset of deconfinement. Precise measurements of strange particles yields in Au+Au collisions have potential to deepen our understanding of thermodynamic properties of the strangeness production and hadronization conditions near the phase boundary.

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