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The production K^+ meson in Al+Al collisions at beam energy 1.9A GeV.

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The kaon production in heavy ion collisions at intermediate energies provides a sensitive probe to study the in-medium properties and nuclear equation of state. Kaon properties in dense hadronic matter are important for understanding of nuclear matter at high densities. We investigated the in-medium kaon potential by rapidity density distribution and transverse mass spectra for K^+mesons in heavy ion collisions. We used Quantum Molecular Dynamics Model (QMD model) based on covariant kaon dynamics to simulate ${}^{27}_{13}Al+{}^{27}_{13}Al$ collisions at beam energy 1.9 A GeV. Calculated results with a repulsive in-medium K^+N potential can reasonably describe the features of FOPI experiment data. They also shown that the transverse mass spectrum of K^+ mesons is a sensitive observable to probe the kaon in-medium potential in dense nuclear matter.

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