KAON PRODUCTION WITH A REPULSIVE IN-MEDIUM KAON POTENTIAL IN NUCLEUS-NUCLEUS COLLISIONS

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ABSTRACT

The inclusive invariant cross section of K^+ in C + C, Ni + Ni and Au + Au collisions at incident energies from 0.6 to 2.0 A GeV and the azimuthal distribution of K^+ mesons in Ni + Ni collisions at 1.93 A GeV are studied using the Quantum Molecular Dynamics model [1] based on the covariant kaon dynamics. Calculated results with a repulsive in-medium K^+N potential [2] (its value at saturation density is $U_k(\rho_0) \approx 30MeV$) can reasonably describe the features of KaoS Collaboration [3-4]. These indicate that the inclusive invariant cross section and the azimuthal distribution of K^+ are sensitive probes to extract information on in-medium properties at high densities.

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