Based on our previous work[5] for symmetric nuclear matter, in the present work[6], we have investigated the neutron and proton off-shell mass operators as well as their spectral functions in asymmetric nuclear matter within the framework of the extended BHF approach by using the AV18 two-body interaction supplemented with a microscopic TBF. Some results are reported in Figs. 1 and 2. At high densities well above the normal nuclear matter density, the TBF turns out to affect significantly the off-shell behavior of both the proton and neutron mass operators. The neutron and proton spectral functions in asymmetric nuclear matter are calculated and discussed. At low densities around and below the normal density, the TBF effect on the spectral functions turns out to be negligibly weak.

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1 - 3 Nuclear In-medium Effects of Strange Particles in Proton-nucleus Collisions*

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Extraction of the in-medium properties of strange particles from heavy-ion collisions is very complicated, since the nuclear density varies in the evolution of nucleus-nucleus collisions. To avoid the uncertainties of the baryon densities during the stage of strange particle production, one can investigate proton-nucleus collisions where the nuclear density is definite around the saturation density. Dynamics of strange particles produced in the proton-induced nuclear the reactions near the threshold energies has been investigated within the Lanzhou quantum molecular dynamics (LQMD) transport model. The in-medium modifications on particle production in dense nuclear matter are considered through the corrections to the elementary cross sections via the effective mass and the mean-field potentials[1].

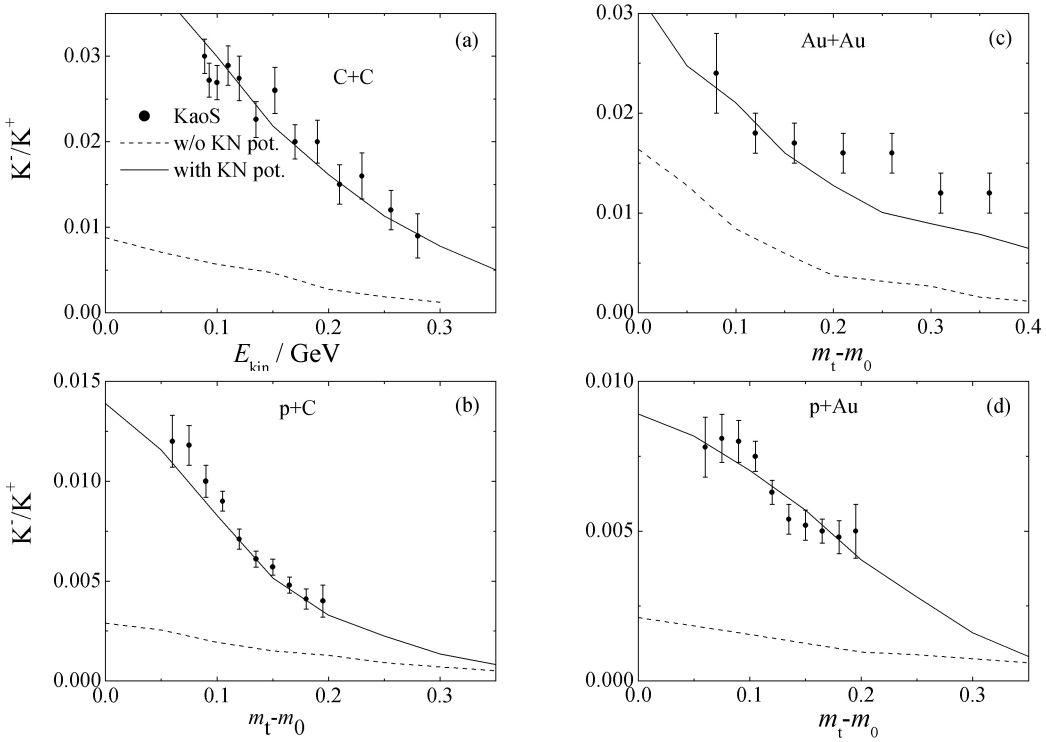

Fig. 1 Ratio of K^-/K^+ as a function of transverse mass (kinetic energy) in collisions of $^{12}C+^{12}C$ and protons on ^{12}C and ^{197}Au at the beam energies of 1.8 AGeV and 2.5 GeV, respectively. Reactions of $^{197}Au+^{197}Au$ at the incident energy of 1.5 AGeV.