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Strange meson spectral functions and cross sections in hot and dense nuclear matter

We discuss updated results on the properties of strange mesons in nuclear matter at finite temperature from a chiral unitary approach in coupled channels, which incorporates the s- and p-waves of the kaon nucleon interaction. As a novelty, the in-medium scattering amplitudes and cross sections in several channels (such as $K\bar{K}N \rightarrow \pi\Sigma$) are obtained in addition to the (off-shell) K and $K\bar{K}$ spectral functions and quasi-particle properties, which is of particular interest for microscopic transport evaluations of strangeness production and propagation in heavy-ion collisions.

A reminder of previous results and comparison to data from the HSD transport approach, relying on a G-matrix calculation of strange meson spectral functions within a meson-exchange model, is presented. Progress on our understanding of strange meson interactions with hadronic matter, in view of in-medium cross sections within the chiral unitary model, is discussed.

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