ID contributo: **90** Tipo: **Invited**

In-medium effects in φ meson production in heavy-ion collisions from subthreshold to relativistic energies

mercoledì 8 novembre 2023 15:20 (25 minuti)

We investigate the hidden strange ϕ meson production in heavy-ion collisions from subthreshold ($E_{kin} \sim 1$ A GeV) to relativistic ($E_{kin} \sim 21$ A TeV) energies as well as its coupling to the open strange mesons (kaons, antikaons) and their productions.
Our study is based on the off-shell microscopic Parton-Hadron-String Dynamics (PHSD) transport approach which is applicable for the dynamical description of strongly interacting hadronic and partonic degrees-of-freedom created in heavy-ion collisions.
Implementing novel meson-baryon and meson-hyperon production channels for ϕ mesons, calculated within a T-matrix coupled channel approach based on the extended SU(6) chiral effective Lagrangian model, along with the collisional broadening of the ϕ-meson in-medium spectral function, we find a substantial enhancement of ϕ meson production in heavy-ion collisions, especially at sub- and near-thresholds. This allows to describe the experimentally observed strong enhancement of the ϕ/K^- ratio at low energies without including hypothetical decays of heavy baryonic resonances to ϕ as in alternative approaches. Moreover, we show that in spite of a stronger contribution from enhanced ϕ to K^- production, the majority of the experimental data for different A+A systems at low energies favour the scenario with in-medium modifications of the kaon and antikaon properties in the hot and dense environment. Moreover, we study the influence of the final state interactions of $K, \bar{K}$ mesons on the reconstruction of ϕ's by the by invariant mass method.

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Classifica Sessioni: Day 3 - Afternoon