Hadronic molecules with a (D)over-bar meson in a medium

Abstract
We study the effect of a hot and dense medium on the binding energy of hadronic molecules with open-charm mesons. We focus on a recent chiral quark-model-based prediction of a molecular state in the N (D) over bar system. We analyze how the two-body thresholds and the hadron-hadron interactions are modified when quark and meson masses and quark-meson couplings change in a function of the temperature and baryon density according to predictions of the Nambu-Jona-Lasinio model. We find that in some cases the molecular binding is enhanced in medium as compared to their free-space binding. We discuss the consequences of our findings for the search for exotic hadrons in high-energy heavy-ion collisions as well as in the forthcoming facilities FAIR or J-PARC. (AU)

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