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In-medium properties of η mesons

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We study the modification of η meson mass in a medium comprise of nucleons and hyperons. The interaction terms for the η mesons are derived using chiral hadronic mean field SU(3) model. Within chiral SU(3) model, in-medium properties of nucleons and hyperons are modified through their interactions with the scalar (σ , ζ and δ) and vectors fields (ω , ρ and ϕ). We solve the coupled equations of motion for these scalar and vector fields for finite strangeness fraction and isospin asymmetry of the medium and evaluate the optical potentials of η mesons in hot and dense matter. The present results on in-medium properties may play an important role in understanding η -nuclei bound states and also the photo-production of η mesons.

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