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charmonium in nuclear matter and nuclei

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Results for η_c- and J/Ψ-nucleus bound state energies for various nuclei are presented. These results are obtained using effective Lagrangians at the hadronic level. Essential input for the calculations, namely the medium-modified D and D^* meson masses, as well as the density distributions in nuclei, are calculated within the quark-meson coupling (QMC) model. The attractive potentials for the η_c and J/Ψ mesons in the nuclear medium originate, respectively, from the in-medium enhanced DD^* and $D\bar{D}r$ loops in the η_c and J/Ψ self energies. Our results suggest that the η_c and J/Ψ mesons should form bound states with all the nuclei considered. Some of the results presented were recently published in J.J. Cobos-Martinez et al, Phys.Lett.B 811 (2020) 135882

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