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In-medium study of J/ψ state using D meson loop effect

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In the present investigation, using effective Lagrangian approach, we investigate the shift in the mass of J/ψ state. The in-medium mass of J/ψ state is evaluated through the consideration of intermediate pseudoscalar D and \bar{D} mesons to the J/ψ self energy. The impact of medium is incorporated through the in-medium mass of D meson calculated using chiral SU(3) model + QCD sum rule approach. The self energy loop integrals are regularized using the phenomenological form factor of the dipole form. Further, we show the sensitivity of the cut off masses used in these dipole form factor on the result of the present analysis. In addition, we compare our present results with the previous work. These results may be important to understand the possible outcomes of the heavy ion collision experiments, e.g., CBM and PANDA.

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