



Contribution ID : 702

Type : Poster

Density dependence of pseudoscalar D and \bar{D} mass splitting

Monday, 5 October 2020 19:45 (15)

We deduce the D -nucleon interactions from the even odd QCD sum rules. Unifying the chiral SU(3) model, we study the in-medium mass splitting between pseudoscalar D and \bar{D} meson in the hot and dense asymmetric nuclear matter. The medium modified quark and gluon condensates are evaluated from the chiral SU(3) model and further plugged into the even odd QCD sum rules to compute the in-medium mass of pseudoscalar D meson. We find that the mass of both D and \bar{D} meson increase with the medium density. We calculate the D meson mass in centroid approximation and compared it with the mass of D^+ (D^0) and D^- (\bar{D}^0) meson. By plugging the in-medium mass of D and \bar{D} meson in the mass splitting formula, $\Delta m^* (=m_D^* - m_{\bar{D}}^*)$, we observe non-negligible splitting in the D and \bar{D} mass which increases appreciably as a function of nuclear density. The medium modified mass is further used to study the decay width of higher charmonia states decaying into $D\bar{D}$ pairs using 3P_0 model

Primary author(s) : KUMAR, Rajesh (National Institute of Technology Jalandhar India); Dr. KUMAR, Arvind (Dr B R Ambedkar National Institute of Technology Jalandhar India)

Presenter(s) : KUMAR, Rajesh (National Institute of Technology Jalandhar India)

Session Classification : Poster session

Track Classification : Heavy Ion physics