Contribution ID: **7** Type: **Oral**

Impact of D meson loop on J/ψ mass shift in nuclear medium

Friday 5 September 2025 16:00 (15 minutes)

We explore the in-medium modification of the J/ψ meson mass in symmetric nuclear matter at zero and finite temperatures using an effective Lagrangian combined with a QCD sum-rule approach. The J/ψ self-energy is evaluated via the DD, D^*D, and D^*D^* meson loops, with medium effects incorporated through D and D^* meson masses computed in the hadronic chiral SU(3) model and QCD sum rules. Results are compared with previous studies and may contribute to a better understanding of forthcoming data from heavy-ion collision experiments of the FAIR project, such as CBM and PANDA.

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Session Classification: Parallel Session