

# Seminar

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## Thermal modification of heavy mesons below $T_c$ from an effective hadronic theory

We study the modification of heavy mesons in a hot pionic medium using a non-perturbative unitary approach based on an effective hadronic theory [1]. The interaction between the heavy mesons and pseudoscalar Goldstone bosons is described by a chiral Lagrangian at next-to-leading order in the chiral expansion and leading order in the heavy-quark mass expansion so as to preserve heavy-quark spin symmetry. The meson-meson scattering problem in coupled channels with finite-temperature corrections is solved in a self-consistent manner.

From the self-consistent unitarized scattering amplitudes at finite temperature, we calculate the self-energies and the spectral functions of the ground-state charmed mesons. We observe that the  $D$  and  $D_s$  mesons acquire a substantial width and their masses drop significantly with increasing temperatures. Similar thermal effects are found for the vectors  $D^*$  and  $D_s^*$ . This implies a modification at  $T > 0$  of the excited mesonic states, generated dynamically in our heavy-light molecular model, as the  $D_0(2300)$  and  $D_{s0}(2317)$ .

[1] G. Montaña, A. Ramos and L. Tolos, arXiv:1910.01384 [hep-ph] (Submission to SciPost Physics Proceedings).

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**Place: D6-135**