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Transport coefficients from in medium quarkonium dynamics

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Three are the mechanisms that influence quarkonium suppression in a medium: screening, thermal decay, and recombination. In recent years, a framework that can treat them consistently at the same time has been put forward, the open quantum system approach. In this talk, we will discuss how the combination of open quantum system and Effective Field Theory techniques are useful to understand quarkonium evolution in a medium in the regime in which the temperature is smaller than the inverse of the typical radius. In this case, the interaction parameter depends only on two transport coefficients κ and γ , where κ is the heavy quark diffusion coefficient. Combining these results with recent lattice QCD evaluations of the mass shift and thermal decay width of quarkonium we are able to obtain a non-perturbative determination of κ compatible with state-of-the-art results. This talk is based on the recent paper Phys.Rev. D100 (2019) no.5, 054025.

Collaboration (if applicable)

Track

Heavy Flavor and Quarkonia

Contribution type

Contributed Talk

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