Atelier
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Workshop
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Effective field theories for quarkonium at zero and finite temperature

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Heavy quarkonium is special system to study strong interactions. Being a multiscale system is probing different energy regimes of the strong interactions, from the hard region, where an expansion in the coupling constant is possible and precision studies may be done, to the low-energy region, dominated by confinement and the many manifestations of nonperturbative dynamics. In addition the properties of production and absorption of quarkonium in a nuclear medium are crucial inputs for the study of QCD at high density and temperature, reaching out to cosmology.

Effective field theories (EFTs) are the modern tools to address research at the frontier of strong interactions. They are based on scale factorization and formulated to be valid only in some limit. Problems become simpler because essential physics has been isolated, and it is possible to systematically parameterize those quantities that cannot be calculated.

In my talk I will introduce the nonrelativistic effective field theory description for heavy quarkonium at zero and finite temperature and discuss its implication on our control of strong interactions in the Standard Model of Particle Physics and the relation to other tools for strongly coupled theories.

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