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Phenomenological study of quarkonium suppression and the impact of the energy gap between singlets and octets

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The study of heavy quarkonium suppression in heavy-ion collisions represents an important source of information about the properties of the quark-gluon plasma produced in such collisions. The evolution of the reduced density matrix of heavy quarks inside a quark-gluon plasma is described by a master equation. In a previous work, we found that this master equation needs to take into account the finite energy gap between singlet and octet states in order to lead to the correct thermalization at late times. In this talk, we will discuss the phenomenological consequences of taking into account such energy gap when computing the nuclear modification factor. We will do this in two different scenarios, one using Hard Thermal Loop perturbation theory and another inspired by recent lattice QCD results on the static potential.

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