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Non-Markovian evolution of bottomonia in QGP

We study bottomonium evolution in QGP using an open quantum systems approach. Previous works [1,2] study quarkonia using Lindblad equation in Brownian regime i.e, at zero frequency limit of the medium correlators. Finite frequency effects of the medium are important [3,4] for quarkonia dynamics when the binding energy is of the order of temperature (beyond the Brownian regime). We include these effects in a non-Markovian master equation and numerically solve it with a hydro background to calculate suppression at CMS and RHIC energies.

[1] Yukinao Akamatsu et al., Phys.Rev.D 105 (2022) 5, 054036; DOI: 10.1103/PhysRevD.105.054036

[2] Nora Brambilla et al., JHEP 08 (2022), 303; DOI: 10.1007/JHEP08(2022)303

[3] Rishi Sharma and Balbeer Singh, Phys. Rev. C 109, 054905

[4] Jean-Paul Blaizot et al., Phys. Rev. D 104, 054034

Category

Theory

Collaboration

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