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# Quarkonia and its fate in the anisotropic hot QGP medium

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Signatures of a strongly coupled system of deconfined quarks and gluons have been observed in high energy heavy-ion collisions at RHIC and LHC facilities. A systematic measurement of quarkonia production has been carried out in these experiments and several theoretical models have been proposed to understand the measurements.

It has been argued that the hot QGP medium produced in the heavy-ion collisions could be anisotropic. Here, we have studied the quarkonia (a colorless and flavorless bound states of heavy quark-antiquark) suppression ( ground state and first excited state) considering the hot anisotropic QCD medium. We obtained the real and imaginary parts of the medium modified quarkonia potential and then, in turn, obtained their binding energies (BE) and the dissociation widths. We have found that the binding energy decreases while the dissociation width increases with temperature. Whenever the BE overcomes the thermal width of a given quarkonia state, the quarkonia dissociates in the medium ( the corresponding temperature is called the dissociation temperature of that quarkonia state). The hot QCD medium effects have also been considered employing a quasi-particle description using recent lattice equation of state. Finally, the presence of anisotropy has found to modify the dissociation temperature of each considered state significantly. Further, our calculations show a visible shift in the values of dissociation temperatures while considering the interaction effects in the hot QCD medium. Such non-ideal effects are observed to suppress the dissociation temperature as compared to the ideal case. We find out results on Quarkonia dissociation agree with the lattice QCD calculations [1].

1: S. Digal, P. Petreczky and H. Satz, hep-ph/0110406

## Collaboration name

## Track

Heavy Flavour

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