Contribution ID : **126** Type : **Oral Presentation**

Heavy quarkonia at finite temperature and magnetic field

Thursday, 17 November 2022 09:30 (20)

Several heavy-ion collision experiments at RHIC and LHC have been performed in identifying quark-gluon plasma (QGP) matter. In recent times, non-central heavy-ion collisions are of more interests where very strong magnetic field is produced in the direction perpendicular to the reaction plane. Many theoretical efforts have been made to study the modification of the strongly interacting matter in presence of an external magnetic field.

The heavy quarkonium is one of the important probes to investigate the properties of nuclear matter in presence of finite temperature and magnetic field. Also the time scale of quarkonia formation and the magnetic field generation are of similar order. So the study of heavy quarkonia in presence of magnetic field is of great interest.
In this work we have explored the imaginary part of the Heavy Quark (HQ) potential and subsequently the dissociation of heavy quarkonia at finite temperature and magnetic field. With respect to earlier investigations on this topic, present work contain three new ingredients. First one is considering all Landau level summation, for which present work can be applicable in entire magnetic field domain - from weak to strong. Second one is the general structure of the gauge boson propagator in a hot magnetized medium, which is used here in heavy quark potential problem first time. Third one is a rich anisotropic structure of the complex heavy quark potential, which explicitly depends on the longitudinal and transverse distance. By comparing with earlier references, we have attempted to display our new contributions by plotting heavy quark potential tomography and dissociation probability at finite temperature and magnetic field.

Primary author(s) : GHOSH, Ritesh

Presenter(s) : GHOSH, Ritesh

Session Classification : Day 3: Session 1

Track Classification : Heavy flavor and Quarkonium production