QUARK MATTER 2015
Sep. 27 – Oct. 3, 2015 Kobe, Japan

Contribution ID: **345** Type: **Poster**

Velocity-induced dissociation of Heavy Quarkonium in the gauge-gravity prescription

Tuesday, 29 September 2015 16:30 (2 hours)

Using the gauge-gravity duality we have obtained the potential
between a heavy quark and an antiquark pair, which is
moving transverse to the direction of orientation.
For the purpose we work on a metric in the gravity side, {\em viz.} OKS-BH geometry, whose
dual in the gauge theory side runs with the energy and hence proves to be a
better background for thermal QCD.
The potential obtained has confining term both in vacuum and medium,
in addition to the Coulomb term alone usually reported in the literature.
As the velocity of the pair is increased the screening of the potential
gets screened, which may be understood by the decrease of effective
temperature with the increase of velocity. The chief finding of
our work is that the potential develops an imaginary part
beyond a critical separation of the heavy quark pair, which
is nowadays beleived to be the main source of dissociation.
The imaginary part is found to vanish at small r, thus agrees with the
perturbative result. Finally we have estimated the thermal width
for the ground and first excited states and found that
non-zero rapidities lead to an increase of thermal width.
This implies that the moving medium fecilitates the dissociation of quarkonium states
than in the static medium, thus agrees with other calculations. However, the
width in our case is larger than other calculations due to the presence
of confining terms and hence dissolutes earlier.

Primary author: Dr PATRA, Binoy (Indian Institute of Technology Roorkee, India)

Co-authors: Mr KHANCHANDANI, Himanshu (Indian Institute of Technology Roorkee); Ms THAKUR, Lata (Indian Institute of Technology Roorkee)

Presenter: Mr KHANCHANDANI, Himanshu (Indian Institute of Technology Roorkee)

Session Classification: Poster Session

Track Classification: Quarkonia