



Contribution ID: 585

Type: **Poster**

Dilepton and photon production in the semi-quark gluon plasma

Tuesday 29 September 2015 16:30 (2 hours)

We discuss the dilepton and photon production in the semi-quark gluon plasma (semi-QGP), at temperatures above but near the critical temperature for deconfinement. Working to leading order in the coupling constant of QCD, we find that there is a mild enhancement, $\sim 20\%$, for dilepton production in the semi-QGP over that in the perturbative QGP. In contrast, we find that photon production is strongly suppressed in the semi-QGP, by about an order of magnitude, relative to the perturbative QGP. In the perturbative QGP photon production contains contributions from $2 \rightarrow 2$ scattering and collinear emission with the Landau-Pomeranchuk-Migdal (LPM) effect. In the semi-QGP we show that the two contributions are modified differently. The rate for $2 \rightarrow 2$ scattering is suppressed by a factor which depends upon the Polyakov loop. In contrast, the collinear rate is suppressed not by the Polyakov loop, but by $1/N$. We compute the rate from $2 \rightarrow 2$ scattering to the leading logarithmic order and the collinear rate with the LPM effect to leading order in the semi-QGP. We also discuss that the effect of the photon suppression to the photon elliptic flow.

Reference: Yoshimasa Hidaka, Shu Lin, Robert D. Pisarski and Daisuke Satow, 1504.01770[hep-ph]

Author: LIN, Shu (Brookhaven National Laboratory)

Co-authors: SATOW, Daisuke (ECT*); PISARSKI, Robert (Brookhaven National Lab.); HIDAKA, Yoshimasa (RIKEN)

Presenter: HIDAKA, Yoshimasa (RIKEN)

Session Classification: Poster Session

Track Classification: Electromagnetic Probes