

Diphoton Production Rate with the Effect of Chemical Potential in Relativistic Heavy-Ion Collisions

Friday, 15 July 2022 13:30 (20 minutes)

We investigate the production of diphotons from the hot and dense matter of quark-gluon plasma. The emission of diphotons is one of the most important electromagnetic signatures from quark-gluon plasma, experiments on which are still in progress at Large Hadron Collider (LHC) and Relativistic Heavy-Ion Collider (RHIC). For the same purpose, we employ a quasi-particle model containing quarks and gluons. Instead of the earlier used dynamical quark mass, we take into account the parameterization factors in temperature-dependent quark mass which rises due to the interaction of these quarks in extremely hot and dense state of quark-gluon plasma. In addition, a finite chemical potential is considered in our phenomenological model. We show the diphoton emission mass spectra in QGP and compare it with the diphoton production from hadronic gas at high temperatures and finite chemical potential. Our results contribute to further understanding of diphotons which is useful in the study of quark-gluon plasma and heavy-ion collision experiments at LHC and RHIC.

The speaker is a student or young scientist

No

Section

1. Intermediate and high energies, heavy ion collisions

Primary author: KUMAR, Yogesh (Deshbandhu College, University of Delhi, Kalkaji, New Delhi)

Co-author: Dr JAIN, Poonam (Sri Aurobindo College, University of Delhi)

Presenter: KUMAR, Yogesh (Deshbandhu College, University of Delhi, Kalkaji, New Delhi)

Session Classification: Intermediate and high energies, heavy ion collisions