

Finite lifetime effects on the photon production from a quark-gluon plasma

Direct photons play an important role as electromagnetic probes from a quark-gluon plasma (QGP) created in heavy-ion collisions. After being once produced, they leave the medium undisturbed and thus provide direct insight into the early stage of the collision. We use the real time Keldysh formalism to investigate how non-equilibrium effects such as a finite lifetime modify the resulting photon spectra. We provide an ansatz which eliminates the divergent contribution from the vacuum polarization and renders the photon spectrum UV-finite if the time evolution of the QGP is described in a suitable manner.

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