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Second order viscous hydrodynamics within an effective kinetic theory and thermal particles from QGP

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We investigate the thermal dilepton and photon production yields from relativistic heavy ion collisions in presence of both shear and bulk viscosities by employing the recently developed second order viscous hydrodynamic framework within a quasiparticle description of hot QCD medium. The sensitivity of shear and bulk viscous pressures to the temperature dependence of relaxation time is studied under one dimensional boost invariant expansion of quark gluon plasma. The viscous corrections to the non-equilibrium distribution functions are obtained from the Chapman-Enskog like iterative solution of effective Boltzmann equation in the relaxation time approximation. Thermal dilepton and photon production rates for QGP are determined by employing this viscous modified distribution function. Thermal particle yields are calculated for the one dimensional expansion of QGP with different temperature dependent relaxation times. Our analysis indicate that the particle spectra gets enhanced by both bulk and shear viscosities and is well behaved. Also, the particle yields are found to be sensitive to relaxation time.

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