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Direct photon emission of QCD matter with Tsallis statistics

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Nonextensive statistics [1] has attracted attention as a description of an extended range of hadronic particle spectra in nuclear collisions. In this study, we consider a relativistic hydrodynamic model with Tsallis statistics [2] to estimate direct photons, which are a prominent observable for understanding the properties of the QCD matter. Nonextensivity enters the model via the modification of (i) the space-time evolution of the system and (ii) the photon emission rate. Direct photon spectra and elliptic flow are estimated in numerical simulations.

[1] C. Tsallis, J. Statist. Phys. 52, 479 (1988)
[2] K. Kyan, A. Monnai, Phys. Rev. D 106, 054004 (2022)

Category

Theory

Collaboration

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