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Effect of radiative hadronization on thermal photons

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Electromagnetic probes are one of promising tools to investigate properties of the hot and dense matter created in high-energy heavy-ion collisions. However, state-of-the-art phenomenological models which can correctly explain spectra and anisotropic flows of charged particles underpredict yield and elliptic flow of photons. It is known as “photon puzzle”.

Here we propose photon emission at hadronization as a possible resolution to the photon puzzle. In particular, we discuss the effect of radiative hadronization on thermal photons which are calculated by relativistic viscous hydrodynamical models. As a result, we succeed to enhance both direct photon yield and elliptic flow as a same time and reproduce experimental data of yield and elliptic flow at RHIC and LHC.

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