

Abstract Submitted
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Insight into the direct photon puzzle at PHENIX MICHAEL GILES, State Univ of NY - Stony Brook, PHENIX COLLABORATION — Direct photons provide valuable insight into the collective properties of Quark Gluon Plasma (QGP). They are emitted throughout the evolution of a heavy ion collision and do not interact strongly with the medium as they leave it. The PHENIX experiment has observed both a large yield and a large elliptic flow of low p_T direct photons in Au+Au collisions at $\sqrt{s_{NN}}=200\text{GeV}$. This presents a challenge to the theoretical models of QGP, since a large direct photon yield requires photons emitted in the early stages of the collisions where the temperature is high, while a large elliptic flow requires photons emitted in the later stages of the collisions where the collective motion of the system is well developed. Furthermore, an intriguing scaling behavior is observed between the low p_T direct photons production and the charged particle multiplicity across all A+A collision systems and different beam energies from 39 GeV to 2760 GeV, indicating similar photon sources for all these systems. To provide more insight into photon production mechanisms and more constraints on theoretical models, precise measurement of the direct photon anisotropy is needed. In this talk, measurements of spectra and the flow coefficients of low-momentum photons will be presented with the high statistics Au+Au data taken in the year 2014.

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