

High p_T direct photon spectra and azimuthal anisotropy measurement in 200GeV Au+Au collisions at RHIC-PHENIX

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Direct photons are a powerful probe to study the property of Quark Gluon Plasma (QGP) in high energy heavy ion collisions. Since photons do not interact strongly with any other particles, they have long mean free path and thus can carry out information on the states where they are emitted. For instance, direct photon yield provides thermodynamical quantities such as temperature and number of degrees of freedom.

There are many photon sources in addition to hard photons produced at high p_T in heavy ion collisions. In non-central collisions, the anisotropy of collision region makes the different pressure gradients and particle density in in-plane and out-plane which causes different anisotropy of particle emission, depending on the production processes of photons. Therefore, an azimuthal anisotropy parameter, v_2 is a powerful tool to explore the source of direct photons.

We will report on the latest direct photon spectra and photon v_2 at high p_T that have been measured in 200GeV Au+Au collisions at RHIC-PHENIX (Year-4). These data allow us to study direct photon sources. We also present the status of the analysis, using a larger statistics and better reaction plane information from a new detector available from RHIC Year-7 data.