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## Measurement of low-momentum direct photons in Cu+Au collisions at 200 GeV

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Direct photons are widely used probe to study the properties and evolution of the hot and dense medium (e.g. QGP) produced in high energy heavy-ion collisions. Being color neutral, they do not interact strongly with the medium and are produced at all stages of the collision.

A universal scaling of the direct photon yield with charged particle multiplicity has been observed for a wide range of collision systems at different center of mass energies (Au+Au at 200 GeV, 62.4 GeV, 39 GeV, Cu+Cu at 200 GeV, d+Au at 200 GeV and p+Au at 200 GeV). The measurement also hints that the QGP turn off/on transition region may exist between large and small system collisions.

In this poster, the analysis status of the low transverse momentum direct photon production in Cu+Au collisions at  $\sqrt{s_{NN}} = 200$  GeV using external conversion method with the PHENIX detector is presented. The present study will help bridge the gap between small and large systems, and hence will provide more information about the transition region.

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