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New direct and non-prompt photon yield and flow results from PHENIX in 200 GeV Au+Au collisions

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Direct photons produced in heavy ion collisions are penetrating probes and as such encode the entire space-time history of the collision, from the initial hard scattering till the final kinetic freeze-out. For the very same reason theoretical models are challenged to connect and balance many different production mechanisms. Simultaneous observation of large yields and large azimuthal asymmetries (elliptic flow) by PHENIX could so far not been reproduced quantitatively, a situation dubbed “direct photon puzzle”. Using the 2014 200 GeV Au+Au data, which have ten times the statistics of earlier published results, and deploying the same analysis technique over the wide 0.8 - 10 GeV/c transverse momentum range, PHENIX re-measured both the direct and nonprompt photon yields and the direct photon elliptic flow in finer centrality bins than before. In this presentation we will discuss the results and their bearing on the “direct photon puzzle”.

session

G. Heavy Ion Physics

Primary author: OROSZ, Melinda (HUN-REN Atommagkutató Intézet)

Presenter: OROSZ, Melinda (HUN-REN Atommagkutató Intézet)

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