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Direct photon collective flow in Au+Au collisions at $\sqrt{s_{NN}}=200\text{GeV}$

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Direct photons are emitted from various processes from all stages from the beginning to the end of the high energy heavy ion collisions.

Theoretical models tell that the angular emission patterns of the photons are different depending on their production mechanism.

Previous published PHENIX results indicate that the second order Fourier coefficient (v_2) is positive for $p_T < 4.0\text{GeV}/c$, which is qualitatively explained by hydrodynamical model calculations, but not quantitatively. The 3rd order Fourier coefficient (v_3) of photons has been proposed as a critical additional handle to understand photon emission.

Photons emitted under the presence of strong magnetic field created in the collision would have a significant influence on v_2 and very little on v_3 .

In contrast, hydrodynamical models predict a sizable photon v_3 .

We report the latest results on the direct photon v_2 and v_3 coefficients in Au+Au collisions at $\sqrt{s_{NN}}=200\text{GeV}$.

On behalf of collaboration:

PHENIX

Primary author: MIZUNO FOR THE PHENIX COLLABORATION, Sanshiro (University of Tsukuba (JP))

Presenter: MIZUNO FOR THE PHENIX COLLABORATION, Sanshiro (University of Tsukuba (JP))

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