

Abstract Submitted
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Study of direct photon asymmetry via dielectron pairs at RHIC-PHENIX TOMOYA HOSHINO, Hiroshima University, PHENIX COLLABORATION — Creation of a strong magnetic field in non-central heavy ion collisions is predicted by several theoretical models. The field can reach as high as 10^{14} teslas at RHIC. Theoretical calculation using vacuum polarization tensor in an external strong magnetic field predicts an asymmetry of virtual photon decays with respect to the reaction plane [1]. In addition, polarization of direct (virtual) photons via gluon-quark Compton scattering was predicted by [2]. These two phenomena may cause an asymmetry of the decay angle of dielectron pairs with respect to the reaction plane. The PHENIX experiment has excellent electron identification capabilities and can be used for search of such asymmetry. We report current status of the analysis aiming on the measurement of dielectron pair asymmetry and discuss experimental challenges to measure asymmetry of direct virtual photons.

[1] K. Ishikawa et. al., Int. J. Mod. Phys. A28, 1350100 (2013)

[2] G. Baym and T. Hatsuda, arXiv:1405.1376

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