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Dark photon search at the PHENIX experiment JIN HUANG, Brookhaven National Laboratory, PHENIX COLLABORATION — The "dark photon," a beyond standard model $U(1)$ gauge boson weakly coupled to ordinary photons, is a popular focus of searches for new forces and dark matter at the GeV-scale. Its existence may explain the muon $(g-2)$ anomaly, as measured by the E821 experiment, as well as the excess of high-energy cosmic-ray positrons observed by PAMELA and AMS. The PHENIX experiment at the Relativistic Heavy Ion Collider has performed a direct search for this dark photon candidate appearing within the light meson decays, $\pi^0, \eta \to \gamma e^+ e^-$. An upper limit in the coupling between ordinary photons and dark photons in the mass range of 30 to 90 MeV/c^2 was obtained. The analysis and results will be discussed in this talk.

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