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Preliminary Results on Direct Photon-Photon HBT Measurements in $\sqrt{s_{NN}}$=200 GeV Au+Au Collisions at RHIC GUOJI LIN, ALEXEI CHIKANIAN, EVAN FINCH, JACK SANDWEISS, HAIBIN ZHANG — Direct photons emitted from the early hot phase of relativistic heavy ion collisions and their HBT correlations are an important signature of the quark gluon plasma and its properties. Despite the large number of decay photons, direct photon HBT correlations were observed at SPS energies[1]. Monte Carlo simulations at RHIC energies also show promising possibilities. In this presentation, we will report the current status on the direct photon HBT measurements in Au+Au collisions at $\sqrt{s_{NN}}$=200 GeV at STAR. Photons have been reconstructed using conversions via $\gamma \rightarrow e^+e^-$ in the STAR Time Projection Chamber (TPC) and energy deposited by photons in the STAR Barrel Electromagnetic Calorimeter (BEMC). Correlations have been extracted using one photon reconstructed from conversions and the other measured with the BEMC. Preliminary results of the two-photon correlation function distributions will be presented. Possible solutions to some difficulties we currently face and future plans will be addressed. [1]M.M Aggarwal et al.,Phys Rev. Lett. 93,022301(2004).

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