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Coherent electron-positron pair production in ultra-peripheral AuAu collisions at STAR[1] MATTHEW REHBEIN, Creighton University, Omaha, STAR COLLABORATION — The focus of this study is coherent photoproduction of electron-positron pairs in 200 GeV ultraperipheral AuAu collisions detected by STAR, with an integrated luminosity of 1.9 inverse nanobarns. Because hadronic interactions are suppressed in ultra-peripheral collisions, these events provide an opportunity to study purely electromagnetic interaction in the non-perturbative regime. This presentation will provide a description of the techniques used to select exclusive electron-positron events, as well as the resulting kinematic distributions for pair invariant mass greater than 0.35 GeV, pair transverse momentum less than 0.1 GeV, and absolute value of pair pseudorapidity less than 0.8. Efficiency correction techniques will also be discussed. In previous measurements at the same energy at STAR, the shape of the transverse momentum distribution could not be fully described by the equivalent photon approximation (EPA). Measurements at the LHC indicate that the cross section is reduced by approximately 25 percent compared to the EPA. This study ultimately seeks to examine these effects in more detail at RHIC energies.

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Matthew Rehbein
Creighton University, Omaha

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