

Abstract Submitted
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Ultrapерipheral Heavy Ion Collisions at RHIC and LHC ANTHONY BALTZ, Brookhaven National Laboratory — Higher order QED calculations of ultraperipheral heavy ion $e^+ + e^-$ pair production at RHIC have shown reductions from perturbation theory consistent with both STAR and PHENIX experimental measurements. The STAR and PHENIX data were triggered by Coulomb dissociation neutrons detected in Zero Degree Calorimeters. A phenomenological model based on photonuclear data from the giant dipole resonance region all the way to the kinematic cutoff in the vector dominance region is employed for the calculation of the Coulomb dissociation trigger of the $e^+ + e^-$ events. Ultrapерipheral electromagnetic interactions can also produce quark anti-quark pairs in the form of meson events also triggered by Coulomb dissociation. Higher order QED calculations for $\mu^+ + \mu^-$ pair production predict reductions from perturbation theory comparable to the $e^+ + e^-$ case. For the the recent LHC heavy ion run of colliding 1.38 TeV/N Pb beams, the single Pb ion dissociation cross section is calculated to be 202.5 barns, an 11% reduction from the 227.3 barn cross section previously calculated at LHC design energy of 2.76 TeV/N.

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