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A Monte Carlo Event Generator for Ultra Peripheral Collisions JOSEPH BUTTERWORTH, Creighton University, SPENCER KLEIN, YURY GORBUNOV, JOAKIM NYSTRAND, JANET SEGER — Ultra peripheral collisions occur when the nuclei pass one another without overlapping. The intense electric fields present can be treated as a flux of photons; these photons can interact with the other nucleus, producing a range of particles, including vector mesons (Upsilon, J/Psi, rho, ...) and pairs of oppositely charged pions. In order to effectively study ultra peripheral collisions at the STAR experiment, a Monte Carlo event generator was created to optimize particle selection criteria and to assess on whether rarer physics processes are possible to study. The FORTRAN program was initially designed in 1995 to simulate ultra-relativistic Au-Au interactions. Since then, changes have been made to the program to fit the needs of newer experiments. I will present the kinds of physics that are modeled by the program such as photonuclear and photon-photon interactions, comparisons to data, and the current and future upgrades being made to the Monte Carlo. The upgrades include the consolidation of versions into C++, additional final states, asymmetric collisions of arbitrary nuclei, and improved expandability.

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