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Electromagnetic Dissociation at the Large Hadron Collider JOHN NORBURY, NASA — Neutron production via electromagnetic dissociation in Pb-Pb collisions has recently been measured at the Large Hadron Collider (LHC). The very large experimental cross section of 196 barn is in excellent agreement with simple first order Weizsacker-Williams theory based on single photon exchange. The present work considers the effects of other corrections to Weizsacker-Williams theory such as electric quadrupole interactions, Rutherford bending of the beam trajectories, multiple photon exchange and strong interaction contributions to the total cross section. At LHC energies, it is found that all such corrections are negligible and this explains why the simplest Weizsacker-Williams theory is in excellent agreement with experiment.

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