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Intermolecular Coulombic Decay (ICD) Occuring in Triatomic Molecular Dimer WAEL ISKANDAR, AVERELL GATTON, BISHWANATH GAIRE, ELIO CHAMPENOIS, KIRK LARSEN, NIRANJAN SHIVARAM, Lawrence Berkeley National Laboratory, ALI MORADMAND, Auburn University, TRAVIS SEVERT, Kansas State University, JOSHUA WILLIAMS, University of Nevada, DANIEL SLAUGHTER, THORSTEN WEBER, Lawrence Berkeley National Laboratory — For over two decades, the production of ICD process has been extensively investigated theoretically and experimentally in different systems bounded by a week force (ex. van-der-Waals or Hydrogen force). Furthermore, the ICD process has been demonstrated a strong implication in biological system (DNA damage and DNA repair mechanism) because of the production of genotoxic low energy electrons during the decay cascade. Studying large complex system such as triatomic molecular dimer may be helpful for further exploration of "Auger electron driven cancer therapy". The present experiment investigates the dissociation dynamics happened in collision between a photons and CO_2 dimer. We will focus more specifically on the $CO_2{}^+$+$CO_2{}^+$ fragmentation channel and the detection in coincidence of the two ionic fragments and the two electrons will be done using a COld Target Recoil Ion Momentum Spectroscopy (COLTRIMS). The measurements of the Kinetic Energy Release of the two fragments and the relative angular distribution of the electrons in the molecular frame reveal that the ICD is the only mechanism responsible for the production of this fragmentation channel.

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