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Double ionization of helium by energetic Au^{33+} projectiles analyzed using the frozen-correlation approximation T. KIRCHNER, Department of Physics and Astronomy, York University, Toronto, Ontario, Canada M3J 1P3, M.F. CIAPPINA, ICFO-Institut de Ciences Fotoniques, 08860 Castelldefels (Barcelona), Spain, M. SCHULZ, Department of Physics and LAMOR, Missouri University of Science and Technology, Rolla, MO 65409 — We present calculations for double ionization of helium by 158 MeV Au^{33+} projectiles based on the frozen-correlation approximation (FCA) of the two-electron dynamics [1,2]. We have implemented the FCA within the framework of the Monte Carlo Event Generators that allow us to generate theoretical event files and to compare with experimental data in a direct way using the four-body Dalitz (4-D) plots [3]. The idea of the FCA is to separate electronic correlations in the asymptotic initial and final states from those which might operate during the collision. It was argued that the latter can be neglected when the collision time is short compared to a suitably defined correlation time of the system [1]. Following this suggestion we restrict the incorporation of correlation effects to the initial and final states for the energetic collision system studied in this work. Results for 4-D plots are compared with previous calculations and experimental data [3].

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