Abstract Submitted
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Reaction dynamics in double ionization of helium by electron impact[1] M. CIAPPINA, ICFO-Institut de Ciences Fotoniques, 08860 Castelldefels (Barcelona), Spain, M. SCHULZ, Department of Physics and LAMOR, Missouri University of Science & Technology, Rolla, MO 65409, T. KIRCHNER, Department of Physics and Astronomy, York University, Toronto, Ontario, Canada M3J 1P3 — We present theoretical fully differential cross sections for double ionization of helium by 500 eV and 2 keV electron impact [1]. Contributions from various reaction mechanisms are calculated separately and compared to experimental data. Our theoretical methods are based on the first Born approximation. Higher-order effects are incorporated using the Monte Carlo Event Generator technique. Earlier, we have successfully applied this approach to double ionization by ion impact and in the work reported here it is extended to electron impact. We demonstrate that at 500 eV impact energy double ionization is dominated by higher-order mechanisms. Even at 2 keV double ionization does not predominantly proceed through a pure first-order process.

[1] M. F. Ciappina et al., Phys. Rev. A 82, 062701 (2010)

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