Abstract Submitted
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Two-photon double ionization of atomic beryllium by ultrashort laser pulses[1] FRANK L. YIP, California Maritime Academy, Dept. of Science and Mathematics, ALICIA PALACIOS, FERNANDO MARTIN, Universidad Autonoma de Madrid, Dpto. de Quimica Modulo 13, THOMAS N. RESCIGNO, Chemical Sciences Div., Lawrence Berekeley National Laboratory, C. WILLIAM MCCURDY, Chemical Sciences Div., Lawrence Berekeley National Laboratory and UC Davis, Dept. of Chemistry — A time-dependent formalism for evaluating ionization amplitudes and generalized cross sections for two-electron atoms previously used to study the correlated electron dynamics of helium under ultrashort laser pulses [1] is adapted to study similar processes involving the $2s^2$ valence shell of atomic beryllium in the presence of a fully-occupied $1s^2$ core shell. The similar symmetry of the overall process in two-photon double ionization permits a direct comparison between Be and He atoms, revealing details about the nature of electron correlation within these two atoms whose impact is manifest in the continuum electron dynamics. In particular, consequences of the different shell structures of the initial states for He and Be are prominent when considering sequential double ionization processes.

[1] A. Palacios, T.N. Rescigno and C.W. McCurdy.*Phys. Rev. A* **79** 033402, (2009)

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