

Abstract Submitted
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Single and double multiphoton ionization of Li and Be atoms by strong laser fields¹ DMITRY TELNOV, St. Petersburg State University, Russia, JOHN HESLAR, National Taiwan University, Taiwan, SHIH-I CHU, University of Kansas — The time-dependent density functional theory with self-interaction correction and proper asymptotic long-range potential is extended for nonperturbative treatment of multiphoton single and double ionization of Li and Be atoms by strong 800 nm laser fields. We make use of the time-dependent Krieger-Li-Iafrate (TD-KLI) exchange-correlation potential with the integer discontinuity which improves the description of the double ionization process. However, we have found that the discontinuity of the TDKLI potential is not sufficient to reproduce the characteristic feature of double ionization. This may happen because the discontinuity of the TDKLI potential is related to the spin particle numbers only and not to the total particle number. Introducing a discontinuity with respect to the total particle number to the exchange-correlation potential, we were able to obtain the knee structure in the intensity dependence of the double ionization probability of Be.

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