Abstract Submitted
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Two-photon double ionization of lithium GREGORY ARMSTRONG, JAMES COLGAN, Theoretical Division, Los Alamos National Laboratory — The advent of free-electron laser technology has generated significant interest in the study of few-photon reactions at VUV and EUV wavelengths. Pioneering experimental measurements of recoil-ion momentum distributions for two-photon double ionization of lithium are currently underway at the Hamburg FLASH facility, augmenting previous measurements for helium and neon [1,2]. The time-dependent close-coupling (TDCC) method employed in this work is capable of treating single, double and triple photoionization of a three-electron system in full dimensionality [3]. However, the current work focuses on double ionization, and so a 'frozen core' approach is used to treat the inner 1s electron. This work provides the first TDCC calculations to date of two-photon double ionization of lithium. This work also aims to extend the analysis of symmetrized amplitudes, previously invoked for double photoionization [4], to two-photon double ionization of a general two-electron atom.

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[3] J. Colgan, M. S. Pindzola and F. Robicheaux, 2004 *Phys.Rev.Lett.* **93** 053201
[4] A. S. Kheifets *et al.*, 2010 *Phys.Rev.A* **82** 023403

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