

Abstract Submitted  
for the DAMOP14 Meeting of  
The American Physical Society

**Multiphoton and above-threshold ionization in the XUV energy range**<sup>1</sup> ANTONIA KARAMATSKOU, Center for Free-Electron Laser Science, DESY, Hamburg, and Department of Physics, Universität Hamburg, Hamburg, STEFAN PABST, Center for Free-Electron Laser Science, DESY, Hamburg, ROBIN SANTRA, Center for Free-Electron Laser Science, DESY, Hamburg, and Department of Physics, Universität Hamburg, Hamburg — Recent experiments at the free-electron laser in Hamburg FLASH have succeeded in measuring direct multiphoton ionization and above-threshold ionization (ATI) in the XUV. We present a theoretical description of the phenomena seen in argon and xenon in an ab initio approach using the time-dependent configuration interaction singles method. Upon solving the time-dependent Schrödinger equation for the N-electron problem the photoelectron spectrum is calculated. Multiphoton absorption cross sections are derived and employed to quantify the ATI process for different photon energies.

<sup>1</sup>This work has been supported by the Deutsche Forschungsgemeinschaft under Grant No. SFB 925/A5.

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Date submitted: 23 Jan 2014

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