

Abstract Submitted  
for the MAR10 Meeting of  
The American Physical Society

**Augmented collisional ionization in XUV-cluster interaction**<sup>1</sup> EDWARD ACKAD, NICOLAS BIGAOUETTE, LORA RAMUNNO, Department of Physics, Centre for Research in Photonics, University of Ottawa, Ottawa, Ontario K1N 6N5, Canada — High charge states have been observed in Xenon cluster interaction with extreme ultraviolet (XUV) radiation from an intense HHG source [1]. Mechanisms underlying the observed high charge states from clusters exposed to the VUV regime – such as enhanced Inverse Bremsstrahlung heating – do not play a role due to the small XUV wavelength. Our many body molecular dynamics simulations show that high charge states result from augmented collisional ionization processes, and not enhanced photoionization. These arise from additional microscopic effects that have been not been implemented previously. We have included the process of electron-ion recombination, and have calculated the dynamics for long times after the XUV pulse. We find that many of the high charge states that exist in the core would not survive to the detector.

[1] B. F. Murphy, K. Hoffmann, A. Belolipetski, J. Keto, and T. Ditmire, PRL 101, 203401 (2008).

<sup>1</sup>Supported by the Canada Research Chairs program, the Ontario Ministry of Research and Innovation and the Natural Sciences and Engineering Research Council of Canada.

Edward Ackad  
Department of Physics, Centre for Research in Photonics,  
University of Ottawa, Ottawa, Ontario K1N 6N5, Canada

Date submitted: 29 Nov 2009

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