Abstract Submitted
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Clusters in Intense XUV ultrafast pulses: effects of cluster size on expansion dynamics and ionization[1] EDWARD ACKAD, NICOLAS BIGAOUETTE, LORA RAMUNNO, Department of Physics, Centre for Research in Photonics, University of Ottawa, Ottawa, Ontario K1N 6N5, Canada — Recent experiments in the XUV are probing the expansion of clusters. Of primary interest is the expansion of the target during the pulse. XUV- cluster interactions are dominated by atomic processes, such as photo-ionization. We present results using our many body molecular dynamics simulations of clusters in intense XUV pulses which includes augmented collisional ionization processes. The increase in emergence probability of high charge states with respect to cluster size is analyzed using our model. The detailed expansion of clusters throughout the laser pulse and at much later times is explained, for clusters spanning two orders of magnitude in size. Understanding the expansion of clusters is a first step in being able to image biomolecules in ultra intense laser pulses.

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

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