GEC14-2014-000048

Abstract for an Invited Paper
for the GEC14 Meeting of
the American Physical Society

Angular distributions for ionization from excited states of atoms[1]

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We present recent theoretical work examining cross sections for electron-impact ionization of excited states of atoms. Our work is motivated by recent measurements of the angular differential cross sections from electron-impact single ionization of Mg atoms in the $3s3p$ excited state [1], which were prepared by laser excitation of the Mg target. We use the time-dependent close-coupling approach to electron-impact ionization [2] and explore the angular distributions from excited state Na and Mg, building on recent work by us in which we examined the angular distributions from the ground states of Na and Mg [3]. We examine the differences between the angular distributions resulting from ionization of the ground and excited states. Our calculations are also compared to the recent measurements [1], and we highlight where further work would be desirable in this area.

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[1]The Los Alamos National Laboratory is operated by Los Alamos National Security, LLC for the National Nuclear Security Administration of the U.S. Department of Energy under Contract No. DE-AC5206NA25396.