

Abstract Submitted
for the DAMOP18 Meeting of
The American Physical Society

Energy and angular momentum exchanges due to the post-collision interaction in a near-threshold Auger ionization process¹ XIAO WANG, FRANCIS ROBICHEAUX, Purdue Univ — When the energy of an inner-shell photoionization is close to the threshold, the post-collision interaction (PCI) between a slow photoelectron and a fast Auger electron plays an important role in the Auger electron spectroscopy. The photoelectron can be recaptured, or shaken up/down to different bound states due to the energy and angular momentum exchanges between the photoelectron and the Auger electron. In general, numerical calculations could face difficulties when the inner-shell electron is excited to highly excited states where the Auger width is greater than the Rydberg spacings. We have performed calculations based on time-dependent Schrodinger equations and classical trajectory Monte Carlo methods using different parameters to mimic different atomic systems. Properties of the photoelectron after PCI are studied. These results can help us better understand the correlation between the photoelectron and the Auger electron in a near-threshold Auger ionization process.

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Date submitted: 26 Jan 2018

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