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Comparative Analysis of Double Auger Decay and Two-Step Shake-Off Resulting from the Relaxation of Core Excited Neon[1] M.P. JONES, Auburn University, M. SCHOFFLER, T. JAHNKE, K. KREIDI, J. TITZE, R. DORNER, University of Frankfurt, C. STUCK, A. BELKACEM, TH. WEBER, Lawrence Berkeley National Laboratory, A.L. LANDERS, Auburn University — We have conducted a COLTRIMS experiment at the ALS-LBNL to investigate the core excitation of neon: $Ne + \gamma \rightarrow Ne(1s2s^2 2p^6 3p)$. The subsequent electronic relaxation produced among others, the Ne^{2+} charge state. An analysis of this channel revealed mechanisms that include Double Auger (DA) decay as well as a two-step shake-off process involving the $3p$ electron. In addition, we have studied the energy sharing and angular correlation that takes place between the continuum electrons. These detailed measurements further our understanding of the sequential nature of PCI and the characterization of the DA process. Lastly, we will demonstrate how the series of line energies associated with the shake process can be exploited to produce an extremely sensitive method for calibrating a COLTRIMS spectrometer.

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