

PHOTON INTERACTIONS WITH ATOMIC SYSTEMS: THEORY AND EXPERIMENT

Brendan M. McLaughlin

School of Mathematics and Physics, Queen's University of Belfast, Belfast BT7 1NN, Northern Ireland, UK
Email: b.mclaughlin@qub.ac.uk

The advent and availability of third-generation synchrotron light sources are making possible high resolution measurements on atomic complexes; neutrals, positive and negative ions. Photoionization and photodetachment experiments are being performed at the Advanced Light Source in Berkeley, California, with unprecedented high resolution on a variety of atomic systems [1-14], for both valence and inner-shell processes. The talk will concentrate on the ongoing synergistic and symbiotic relationship between state-of-the-art theoretical investigations necessary to fully understand and interpret experimental results and the dividends of such an approach. These studies are important for benchmarking theory on light (e.g., He-like to N-like ions) and more recently on heavy (e.g., Fe, Kr and Se-ions) complexes and for interpreting satellite X-ray spectra from astrophysical sources and for applications.

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