

Abstract Submitted
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Atomic Photoionization of Ba 5s using Relativistic Random Phase Approximation *with* Relaxation AARTHI GANESAN, SUDHA DESHMUKH, Jain University, Bangalore, GAGAN B. PRADHAN, UNLV, VOJISLAV RADOJEVIC, Institute of Physics, Belgrade, STEVEN T. MANSON, Georgia State University, PRANAWA C. DESHMUKH, IIT-Madras — We report studies of photoionization cross section and angular distribution of Barium 5s using both the Relativistic Random Phase Approximation (RRPA) [1] and the Relativistic Random Phase Approximation *with* relaxation (RRPA-R) [2]. It is found that agreement between theory and experiment in the region of the higher-energy 5s Cooper minimum is significantly better for the cross section when relaxation is included. The agreement between theory and experiment with regard to the angular distribution of the photoelectrons however, is only qualitatively correct; theory predicts a deviation of the β parameter from 2 over the correct energy range, but quantitatively, theory predicts a substantially larger deviation than is seen experimentally [3]. This demonstrates that non-RPA correlations are necessary for quantitative accuracy, most likely interchannel coupling with the important ionization-plus-excitation channels in the region of this Cooper minimum.

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- [2] V. Radojevic, M. Kutzner and H. P. Kelly, Phys.Rev. A **40**, 727 (1989).
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