

Abstract Submitted  
for the DAMOP16 Meeting of  
The American Physical Society

**Contribution of the  $1s2l3l'$  Dielectronic Recombination in Li-Like Ar to the Hypothesized Dark Matter Related Faint Feature in Galaxy Clusters** AMY GALL, ROSHANI SILWAL, Clemson University Department of Physics and Astronomy, JOAN DREILING, National Institute of Standards and Technology, MARCO AJELLO, Clemson University Department of Physics and Astronomy, JOHN GILLASPY, National Science Foundation, ETHAN KILGORE, Clemson University Department of Physics and Astronomy, YURI RALCHENKO, National Institute of Standards and Technology, ENDRE TAKACS, Clemson University Department of Physics and Astronomy — Driven by the recent detection of an unidentified emission line previously reported at 3.55-3.57 keV in a stacked spectrum of galaxy clusters, we investigate the resonant DR process in Li-like Ar as a possible source of or contributor to the emission line. We are particularly interested in the Li-like transition  $1s^22l-1s2l3l'$ , which produces a 3.62 keV photon near the unidentified line at 3.57 keV. The Electron Beam Ion Trap at NIST was used to produce and trap the highly-charged ions of argon. The energy of the quasi-monoenergetic electron beam, set to a current of 60 mA, was incremented in steps of 15 eV to scan over all of the Li-like Ar DR resonances, including the resonance peak of interest. A solid-state germanium detector was used to take x-ray measurements perpendicular to the trap region. The DR cross section was measured and normalized to the well-known photoionization cross sections using radiative recombination peaks in the measured spectra. Our measurements are compared to the AtomDB emission lines used to fit the spectra containing the unidentified line, and conclusions are presented.

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Date submitted: 29 Jan 2016

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