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Cross sections for simultaneous ionization/excitation of argon[1]
JOHN B. BOFFARD, CHUN C. LIN, University of Wisconsin- Madison — Optical emissions from $3p^4 4p$ argon ion levels (420-490 nm) are widely used in plasma diagnostics. Cross sections for electron-impact from the ground state have been studied extensively since the 1960's for levels involved in argon-ion laser emissions. Much less work, however, has been performed on measuring cross sections for other excited levels. We present measurements for simultaneous ionization/excitation cross sections into virtually all of the levels of the $3p^4 4p$, $3p^4 4d$, and $3p^4 5s$ configurations, and a number of additional higher levels. Emission cross sections from 300-900 nm were measured using a monochromator/PMT combination, whereas near-IR transitions in the range 850-1500 nm were measured using a FTS/Ge detector combination.

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