

ELECTRON EXCITATION CROSS SECTIONS FOR THE $S //$ TRANSITIONS
 $3s^2 3p^3 4S^0 \rightarrow 3s^2 3p^3 2D^0, 3s^2 3p^3 2P^0$ and $3s 3p^4 4P$

A. Chutjian and Steven J. Smith

Jet Propulsion Laboratory, California Institute of Technology, Pasadena, CA 91109

Experimental excitation cross sections are reported for the References

transitions $3s^2 3p^3 4S^0 \rightarrow 3s^2 3p^3 2D^0, 3s^2 3p^3 2P^0$ and $3s 3p^4 4P$ in $S //$. Use is made of electron energy-loss and merged-beams methods. The transition wavelengths (energies) are $\lambda = 6731 \text{ \AA}$ (1.844 eV), $\lambda = 4076 \text{ \AA}$ (3.04 eV), and $\lambda = 1256 \text{ \AA}$ (9.866 eV), respectively,

The energy ranges covered extend from below the thresholds of each transition to approximately 4 times threshold. As in previous work with $O //$ [11], care was taken to assess and minimize the metastable fraction in the $S //$ beam. All data were collected with individual dead-time corrections applied to each of the four ion and electron beam modulation phases. All inelastically back-scattered electrons were collected with the use of an electrostatic mirror placed in the merged beams axis. The mirror will be described in detail.

Comparison is made between present experiments and 6-state R -Matrix calculations [2], [3] and 12-state R -Matrix calculations [4] for each transition,

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[11] M. Zuo, S. J. Smith, A. Chutjian, I. D. Williams, S. S. Tayal, and B. M. McLaughlin, *Ap. J.* 444, 0000 (1995) (in press).

[2] S. S. Tayal and R. J. W. Henry, *Ap. J.* 313, 487 (1987),

[3] Y. K. Ho and R. J. W. Henry, *Ap. J.* 351, 701 (1990).

[4] W. Cai and A. K. Pradhan, *Ap. J. Suppl. Ser.* 88, 329 (1993).