Abstract Submitted
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Fine Structure effective collision strengths for the electron impact excitation of S V[1] CLAIRE HUDSON, KENNETH BELL, Queens University Belfast — A 14-state R-matrix calculation has been carried out to determine fine structure effective collision strengths for the electron impact excitation of S v. The target states are represented by configuration interaction wavefunctions and consist of the 14 lowest LS states, having configurations $(2p^6)3s^2$, 3s3p, $3p^2$, 3s3d, 3s4s, 3p3d. These target states give rise to 26 fine structure levels and 325 possible transitions. The fine structure collision strengths have been obtained by transforming to a jj-coupling scheme using the JAJOM program of Saraph [1] and have been determined using a sufficiently fine energy mesh which properly delineates the resonance structure. The effective collision strengths were calculated by averaging the electron collision strengths over a Maxwellian distribution of velocities. The non-zero effective collision strengths for transitions between both the LS states and the fine structure levels have been tabulated for electron temperatures (T_e) in the range $\log_{10} T_e(\mathrm{K}) = 4.0 - 6.0$. Comparisons are made with the earlier 8-state R-matrix calculation of Dufton & Kingston [2] and distorted-wave evaluations of Christensen et al [3] and Pradhan [4]. [1] Comp. Phys. Commun., 15, 247 (1978); [2] J. Phys. B, 17, 3321 (1984); [3] Phys. Rev. A, 34, 4704 (1986); [4] Atomic Data & Nuclear Data Tables, 40, 335 (1988).

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