Abstract Submitted
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Transition probabilities and collision strengths for electron excitation of Fe IX A.M.S. SOSSAH, S.S. TAYAL, Clark Atlanta University — We present transition probabilities and effective collision strengths for electron-impact excitation of the astrophysically important Fe IX ions. The collision strengths are calculated in the close-coupling approximation using the B-spline Breit-Pauli R-matrix method. The multi-configuration Hartree-Fock method with term-dependant non-orthogonal orbitals is employed for an accurate description of the target wave functions. The lowest 116 fine-structure levels belonging to the 50 LS states of $3s^2 3p^6$, $3s 3p^6 3d$, $3s^2 3p^5 3d$, $3s^2 3p^5 4s$, and $3s^2 3p^4 3d^2$ configurations are included in the close-coupling approximation. The effective collision strengths are obtained by averaging the electron collision strengths over a Maxwellian distribution of velocities. Our results are compared with previous theoretical results and available experimental data. There is very good agreement between length and velocity values of oscillator strengths. This work was supported by NASA grant NNX11AB62G from the Solar and Heliophysics Program.

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