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Electron Impact Excitation Collision Strengths for EUV Lines of Fe VII[1] SWARAJ TAYAL, Clark Atlanta University, OLEG ZATSARINNY, Drake University — New extensive calculations are performed for electron collision strengths, rate coefficients and transitions probabilities for the astrophysically important lines in Fe VII. The collision strengths were calculated in the close-coupling approximation using the B-spline Breit-Pauli R-matrix method. The multiconfiguration Hartree-Fock method with term-dependent non-orthogonal orbitals is employed for an accurate representation of the target wave functions. The close-coupling expansion includes 189 fine-structure levels of Fe VIII covering all possible terms of the ground $3p^6 3d^2$ and one-electron excited configurations $3p^5 3d^3$, $3p^6 3d4l$, $3p^5 3d5s$, and $3p^6 3d5p$. The effective collision strengths are obtained by averaging the electron collision strengths over a Maxwellian distribution of velocities at electron temperatures in the range from 10^4 to 10^7 K. There is an overall good agreement with the previous R-matrix frame-transformation calculations, but significant differences are also noted for some transitions. The corrections to the previous results come mainly due to more extensive expansions for the Fe VII target states.

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