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Relativistic R -matrix calculations of the electron-impact excitation of W^{46+} CONNOR BALLANCE, DONALD GRIFFIN, Rollins College, STUART LOCH, MICHAEL PINDZOLA, Auburn University, NIGEL BADNELL, Strathclyde University — The current design plans for ITER call for tungsten to be employed for certain plasma facing components in the divertor region. Thus, accurate atomic collision data are needed for emission modeling of tungsten. Electron-impact excitation and radiative rates are of particular importance for Ni-like W, since this ion emits some of the most intense spectral lines of all ionization stages. We report on a fully relativistic 115-level R -matrix calculations of W^{46+} , which includes the effects of radiative damping. These calculations were performed using a newly developed parallel version of the Dirac-Fock atomic R -matrix codes (DARC) that have been modified to include radiation damping. Although radiation damping is very important in most highly ionized species, its effects are reduced in this case because of the closed-shell Ni-like ground state. The rates from these relativistic atomic calculations have been employed for collisional-radiative modeling of this ion.

Prefer Oral Session
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