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Electron impact excitation of the Ne II and Ne III fine structure levels[1] Q. WANG, S.D. LOCH, M.S. PINDZOLA, Auburn Univ, R. CUMBEE, P.C STANCIL, University of Georgia, C.P. BALLANCE, B.M. MCLAUGHLIN, Queen's University of Belfast — Electron impact excitation cross sections and rate coefficients of the low lying levels of the Ne II and Ne III ions are of great interest in cool molecular environments including young stellar objects, photodissociation regions, active galactic nuclei, and X-ray dominated regions. We have carried out details computations for cross sections and rate coefficients using the Dirac R-matrix codes (DARC), the Breit-Pauli R-matrix codes (BP) and the Intermediate Coupling Frame Transformation (ICFT) codes, for both Ne II and Ne III. We also compare our results with previous calculations. We are primarily interested in rate coefficients in the temperature range below 1000 K, and the focus is on obtaining the most accurate rate coefficients for those temperatures. We present both a recommended set of effective collision strengths and an indication of the uncertainties on these values.

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