Ekectron-Impact Excitation of C^{+1} A.J. PEARCE, C.P. BALLANCE, S.D. LOCH, M.S. PINDZOLA, Auburn University — Electron-impact excitation cross sections are calculated for ground and excited states of C$^+$ using the R-matrix with pseudo-states method. We used the configurations $1s^2 2s^2 nl(3s \leq nl \leq 12g)$, $1s^2 2s 2p nl(2p \leq nl \leq 12g)$, $1s^2 2p^2 nl(2p \leq nl \leq 12g)$, $1s^2 2s 3s^2$, and $1s^2 2s 3d^2$, resulting in 890 LS terms and 2048 LSJ levels. Excitation cross sections for the $1s^2 2s^2 2p\ ^2P \rightarrow\ ^4P, ^2D, ^2S$ transitions are in good agreement with experiment. Combined with previous calculations for C and C^{q+} ($q = 2-5$), sufficient excitation, ionization, and recombination atomic data is now available to generate high quality collisional-radiative coefficients for the entire C isonuclear sequence.

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