

Abstract Submitted
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Electron Impact Excitation and Ionization of Neon¹ OLEG ZAT-SARINNY, KLAUS BARTSCHAT, Drake University — We have further developed the *B*-Spline *R*-matrix (BSR) code [1] to allow for a large number of pseudo-states in the close-coupling expansion. In the present work, the BSRMPS approach [2] was employed to perform semi-relativistic (Breit-Pauli) close-coupling calculations for elastic scattering, excitation, and ionization of neon from both the ground state and the metastable excited states. Coupling to the ionization continuum through the pseudo-states is important for low-energy elastic scattering (to represent polarizability effects), for excitation in the “intermediate” energy regime of about 1-5 times the ionization potential, and to allow for the calculation of ionization processes by transforming the results obtained for excitation of the positive-energy pseudo-states. The current results represent a significant extension of our earlier near-threshold work [3] and previous non-relativistic RMPS calculations [4,5].

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[4] C. P. Ballance and D. C. Griffin, *J. Phys. B* **37** (2004) 2943.

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