Abstract Submitted
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B-Spline R-Matrix with Pseudo-States Treatment of Electron Collisions with Neon[1] OLEG ZATSARINNY, 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 1-3 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 RMPS calculations [4,5].

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