

Abstract Submitted  
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**Electron-impact excitation and ionization of atomic boron at low and intermediate energies.**<sup>1</sup> KEDONG WANG, Henan Normal University, P.R. China, OLEG ZATSARINNY, KLAUS BARTSCHAT, Drake University — We present a comprehensive study of electron collisions with neutral boron atoms. The calculations were performed with the *B*-Spline *R*-matrix (close-coupling) method [1], by employing a parallelized version of the associated computer code [2]. Elastic, excitation, and ionization cross sections were obtained for all transitions involving the lowest 11 states of boron, for incident electron energies ranging from threshold to 100 eV. A multiconfiguration Hartree-Fock method with nonorthogonal term-dependent orbitals was used to generate accurate wave functions for the target states. Close-coupling expansions including 13, 51, and 999 physical and pseudo states were set up to check the sensitivity of the predictions to variations in the theoretical model. The cross-section dataset generated in this work is expected to be the most accurate one available today and should be sufficiently comprehensive for most modeling applications involving neutral boron.

[1] O. Zatsarinny and K. Bartschat, *J. Phys. B* 46 (2013) 112001.

[2] O. Zatsarinny, *Comp. Phys. Commun.* 174 (2006) 273.

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Klaus Bartschat  
Drake University

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