

Abstract Submitted
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Simulation of Plasma Spectra Using PrismSPECT NICOLAS PEREYRA, JOSEPH MACFARLANE, PAMELA WOODRUFF, IGOR GOLOVKIN, PING WANG, Prism Computational Sciences, Inc. — PrismSPECT is a collisional-radiative spectral analysis code designed to simulate the atomic and radiative properties of LTE and non-LTE plasmas spanning a wide range of conditions. For a grid of user-specified plasma conditions, PrismSPECT computes spectral properties (emission and absorption), ionization fractions, atomic level populations, atomic transition rates, and line intensities and ratios. In designing PrismSPECT, a strong emphasis has been placed on ease of use for setting up problems, monitoring the progress of simulations, and viewing results. The collisional-radiative modeling in PrismSPECT includes: collisional ionization, recombination, excitation, de-excitation, photoionization, stimulated recombination, photoexcitation, stimulated emission, spontaneous decay, radiative recombination, dielectronic recombination, autoionization, and electron capture. Line profiles include Doppler, natural (incl. autoionization contributions), and Stark broadening. Energy levels, cross sections and rate coefficients are based on the ATBASE suite of codes, which incorporates NIST atomic level energies and oscillator strengths when available.

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