

Abstract Submitted
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Atomic Physics Uncertainties on Plasma Spectral Diagnostics

ZECHUN YANG, MICHAEL PINDZOLA, Auburn University, Auburn, AL, RANDALL SMITH, ADAM FOSTER, Harvard Smithsonian Center for Astrophysics, Boston, MA, CONNOR BALLANCE, Queen's University Belfast, Belfast, United Kingdom, ROBERT SUTHERLAND, Purdue University, West Lafayette, IN, STUART LOCH, Auburn University, Auburn, AL — Spectral diagnostics of astrophysical plasmas represents one of the main sources of information on those object. These diagnostics, such as using a line intensity ratio to determine plasma electron temperature, usually do not allow for the effect of uncertainties in the atomic rate coefficients. We present methods to assign baseline uncertainties on the electron-impact excitation, ionization, and recombination rate coefficients. These are propagated through a collisional-radiative model to produce uncertainties on the well know G and R-ratios for a He-like system. In this way, a range of values can be placed on the diagnosed temperature and density of a plasma.

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