

ELECTRON-DRIVEN COLLISIONAL PROCESSES IN WEAKLY IONIZED ASTROPHYSICAL PLASMAS

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This contribution emphasizes the growing significance of atomic and molecular data in interpreting, diagnosing, and modeling complex physical processes. It focuses on electron-driven collisions involving small molecules, which are critical for accurate simulations. We present dissociative recombination rate coefficients for a broad parameter range, offering valuable data for diverse scientific applications. These rates help reveal molecular ion presence and inform on excited-state populations, ionization, and optical properties in weakly ionized media and cold astrophysical plasmas, improving the understanding and modeling of such environments.

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