

Abstract Submitted
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Efficient computation of collisional ℓ -mixing rate coefficients in astrophysical plasmas¹ D. VRINCEANU, Texas Southern University, R. ONOFRIO, Dipartimento di Fisica Galileo Galilei, Università di Padova,, H. R. SADEGHPOUR, ITAMP, Harvard-Smithsonian Center for Astrophysics — We present analytical expressions for direct evaluation of ℓ -mixing rate coefficients in angular momentum-changing transitions of excited hydrogen atoms colliding with protons and describe a software package for their efficient numerical evaluation. Comparisons between rate coefficients calculated with various levels of approximation are discussed, highlighting their range of validity. These rate coefficients are benchmarked with calculations of level populations in radio recombination of protons and departure coefficients from local thermal equilibrium.

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