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Electron capture by N^{6+} in collisions with atomic hydrogen[1]
Y. WU, P. STANCIL, University of Georgia, H. LIEBERMANN, P. FUNKE, R. BUENKER, Bergische Universität Wuppertal, Y. HUI, D. SCHULTZ, I. DRAGANI, C. HAVENER, Oak Ridge National Laboratory — Charge transfer due to collisions of ground state $N^{6+}(1s\ ^2S)$ with atomic hydrogen has been investigated using a variety of theoretical and experimental approaches. Total, n-, ℓ-, and S-resolved cross sections are obtained and compared to the limited available data for collision energies between 10 meV/u and 25 keV/u. The quantum-mechanical molecular-orbital close-coupling (QMOCC), classical trajectory Monte Carlo, atomic-orbital close-coupling, and multichannel Landau-Zener methods are applied in order to cover the large range of considered collision energies. The QMOCC calculations utilized adiabatic potential and nonadiabatic couplings obtained with the multi-reference single- and double-excitation configuration interaction approach. In particular, we focus on the triplet-singlet cross section ratios as they have the potential to influence x-ray emission predictions for heliospheric and Martian exosphere spectra due to $\sim$1 keV/u solar wind ion collisions. The absolute total cross sections are constrained by ion-atom merged-beams measurements.

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