

Abstract Submitted
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Charge exchange in $C^{5+} + H$ collisions¹ J.L. NOLTE, P.C. STANCIL, University of Georgia, H.-P. LIEBERMANN, R.J. BUENKER, Bergische Universitaet Wuppertal, Y. HUI, D.R. SCHULTZ, I.N. DRAGANIC, C.C. HAVENER, Oak Ridge National Laboratory — Charge exchange between the solar wind ion C^{5+} and neutral interstellar hydrogen is thought to contribute to the heliospheric component of the soft x-ray background, as the highly charged resultant C^{4+} ion emits an x-ray photon through the electron's cascade to the ground state. Accurate state-specific electron capture cross sections are therefore a vital ingredient in the modeling of this diffuse emission. In this study, we calculate n -, l -, S -resolved cross sections for capture into the dominant $n = 3, 4, 5$ manifolds for both singlet and triplet states, over a range of collision energies 0.01-50 keV/u, using the fully quantal molecular orbital close coupling method. We include a comparison with results obtained through classical trajectory Monte Carlo, multichannel Landau-Zener, atomic orbital close, coupling, and merged-beams total cross section measurements.

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