Abstract Submitted
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Analysis of x-ray emission in charge-exchange collisions of C^{6+} ions with He and H_2[1] ANTHONY C.K. LEUNG, T. KIRCHNER, York University — Charge exchange in C^{6+}-He and -H_2 collisions followed by x-ray emission is examined using the two-center basis generator method within the independent electron model. The analysis examines the two collision systems for low to intermediate projectile energies. We perform capture cross section and radiative cascade calculations to obtain Lyman line emission ratios which can be compared to measurements that were carried out at the Oak Ridge National Laboratory Multicharged Ion Research Facility [1,2]. Single-electron capture is considered for the C^{6+}-He system while both single and autoionizing double capture are considered for the C^{6+}-H_2 system. We also examine the effects of a time-dependent screening potential that models target response on the l distribution of the capture cross sections and the emission ratios. Calculated line emission ratios based on the no-response approximation are found to be in satisfactory agreement with the measurements. [1] X. Defay et al., Phys. Rev. A 88, 052702 (2013); [2] M. Fogle et al., Phys. Rev. A 89, 042705 (2014).

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