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Charge transfer collisions of Si^{3+} with H at low energies[1] D.C. JOSEPH, J.P. GU, B.C. SAHA, Derpartment of Physics, Florida A&M University, Tallahassee, FL-32307 — Charge transfer of positively charged ions with atomic hydrogen is important not only in magnetically confined plasmas between impurity ions and H atoms from the chamber walls influences the overall ionization balance and effects the plasma cooling but also in astrophysics, where it plays a key role in determining the properties of the observed gas. It also provides a recombination mechanism for multiply charged ions in X-ray ionized astronomical environments. We report an investigation using the molecular-orbital close-coupling (MOCC) method, both quantum mechanically and semi-classically, in the adiabatic representation. *Ab initio* adiabatic potentials and coupling matrix elements–radial and angular–are calculated using the MRD-CI method. Comparison of our results with other theoretical as well as experimental findings will be discussed.

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