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Time-Dependent Close-Coupling Calculations for Electron-Impact Ionization of H_2^+ S.D. LOCH, M.S. PINDZOLA, Auburn University, J. P. COLGAN, LANL — The time-dependent close-coupling method for two electron molecular systems is used to calculate electron-impact dissociative excitation and ionization cross sections for H_2^+. A perturbative distorted-wave method is also formulated to calculate the same cross sections for H_2^+. For low total azimuthal symmetry, a 6 coupled-channels non-perturbative calculation on a 9.4 million point radial and angular lattice yields partial cross sections that are in reasonable agreement with the first-order perturbation theory results. When the non-perturbative results for low symmetry are combined with the perturbative results for high symmetry, the resulting dissociative ionization cross section is in excellent agreement with experiment.

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