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Electron scattering from H_2^+ molecule[1] DMITRY V. FURSA, MARK C. ZAMMIT, JEREMY S. SAVAGE, IGOR BRAY, Curtin University — We have extended the *ab initio* convergent close-coupling (CCC) method to electron scattering from molecules within the adiabatic approximation. As a first application of the method we consider the most fundamental molecule: molecular hydrogen ion. Experimentally H_2^+ is produced in a number vibrationally excited states (up to $\nu = 18$ in some experiments). Fixed-nuclear scattering calculations have been performed at a number internuclear distances within the CCC method formulated in both spherical and spheroidal coordinates. We have calculated potential energy curve and the required vibrational wave functions, and produced adiabatic approximation cross sections for dissociative excitation and ionisation processes. Comparison with available experimental and theoretical results will be presented.

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