

Abstract Submitted
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Breakup of H_2^+ by photon impact¹ DANIEL HAXTON, Lawrence Berkeley National Laboratory — The photoabsorption cross section of the ground rovibrational state of H_2^+ is vastly dominated by breakup, i.e. dissociative ionization and dissociative excitation. To this point the breakup cross section had not been calculated in a formally exact ab initio treatment (without any Born-Oppenheimer approximation). Here such calculations are presented; all terms in the exact non-relativistic Hamiltonian are included along with an exact representation of outgoing flux. The breakup cross section is calculated directly and divided into contributions from dissociative excitation and dissociative ionization channels. Approximate expressions for dissociative ionization that are often used are compared to exact expressions, and the approximate expressions are shown to be remarkably accurate in some cases but deficient in others near onset. See arxiv:1301.0153.

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