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Jahn-Teller Interactions in the Dissociative Recombination of H_3^+
STEPHEN PRATT, Argonne National Laboratory, CHRISTIAN JUNGEN, Laboratoire Aime Cotton du CNRS — A simple analytical approach is presented to describe the dissociative recombination (DR) of an electron with H_3^+ and its isotopomers. The principal assumption is that resonant capture mediated by the Jahn-Teller interaction dominates the cross section. The only input required comes from spectroscopic data on the 3pE' Rydberg state of H_3 and the ν_2 vibrational frequencies of H_3^+ and its isotopomers. The approach provides an independent prediction of the low-energy DR cross sections and rates, and is in good agreement with the latest experimental[1] and theoretical[2] determinations. Work at Argonne was supported by the U.S. Department of Energy, Office of Science, Office of Basic Energy Sciences, Division of Chemical Sciences, Geosciences, and Biosciences under contract No. DE-AC02-06CH11357. 1. K. Kreckel et al., Phys. Rev. Lett. **95**, 263201 (2005); see also, B. J. McCall et al., Nature **422**, 500 (2003), and B. J. McCall et al., Phys. Rev. A **70**, 052716 (2004). 2. S. Fonseca dos Santos, V. Kokoouline, and C. H. Greene, J. Chem. Phys. **127**, 124309 (2007).

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