A THEORETICAL RE-EXAMINATION OF THE UV PHOTODISSOCIATION SPECTRA OF HI AND DI

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Since the detailed theoretical study Levy and Shapiro[a] over a decade ago, incisive new experimental studies have been reported which contradict older measurements of the anisotropy parameters associated with the I*($^2P_{1/2}$) dissociation channels, but disagree among themselves regarding the magnitude of the branching ratio between the I($^2P_{3/2}$) and I*($^2P_{1/2}$) channels.[b,c] Previous theoretical studies have also tended to focus on HI, and inconsistently model or overlook apparent discrepancies with the total photodissociation cross-sections for DI. This paper reports our progress on a theoretical re-examination of this system which uses direct least-squares fits to all of the various types of data to attempt to delineate better the underlying potential energy curves and transition moment functions.

[a] I. Levy and M. Shapiro, *J. Chem. Phys.* **89**, 2900 (1988)
[b] S.R. Langford, P.M. Regan, A.J. Orr-Ewing and M.N.R. Ashfold, *Chem. Phys.* **231**, 245 (1998)
[c] D. Gendron and J.W. Hepburn, *J. Chem. Phys.* **109**, 7204 (1998)