STIMULATED EMISSION PUMPING SPECTROSCOPY OF THE X^1A' STATE OF CHF

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Building upon the seminal work of Suzuki and Hirota[a], in our first application of stimulated emission pumping spectroscopy to a halocarbene we report the spectroscopy of the X^1A' state of CHF, previously examined by our group using single vibronic level emission spectroscopy.[b], By exciting selected rovibronic levels in the A^1A'' state belonging to the progressions 2_0^n, $1_0^1 2_0^n$, and $2_0^n 3_0^1$, a variety of X^1A' state levels have been observed, including several not previously observed in our emission study. The data provide precise ground state rotational constants and term energies, allowing a more complete modeling of the extensive anharmonic interactions in the X^1A' state. The analysis of these interactions and the continuing search for triplet state levels will be emphasized.

[a] T. Suzuki and E. Hirota, J. Chem. Phys. 88, 5541 (1986).

[b] H. Fan, C. Mukarakate, M. Deselnicu, C .Tao, and S. A. Reid, J. Chem. Phys. 123, 014314 (2005).