

ROTATIONAL ANALYSIS OF THE LASER INDUCED FLUORESCENCE EXCITATION SPECTRUM OF JET-COOLED  $\text{CF}_3\text{O}$  AND  $\text{CF}_3\text{S}$

MIN-CHIEH YANG, J. M. WILLIAMSON, AND TERRY A. MILLER, *Laser Spectroscopy Facility, Department of Chemistry, The Ohio State University, Columbus, OH 43210.*

The high resolution, rotationally resolved laser induced fluorescence spectra for the  $\tilde{A}^2 A_1 \leftrightarrow \tilde{X}^2 E$  transition of  $\text{CF}_3\text{O}$  and  $\text{CF}_3\text{S}$  were recorded. The  $\tilde{A}$  electronic state symmetric vibrational bands  $0_0^0$  and  $3_0^1$  and the asymmetric bands  $5_0^1$  and  $6_0^1$  were analyzed for  $\text{CF}_3\text{O}$ , while for  $\text{CF}_3\text{S}$  the symmetric bands  $0_0^0$ ,  $1_0^1$ ,  $2_0^1$  and  $3_0^1$ , as well as the asymmetric bands  $6_0^1$ ,  $3_0^1 5_0^1$ , and  $3_0^1 6_0^1$  were analyzed. The results of the analysis show that the ground states of both  $\text{CF}_3\text{O}$  and  $\text{CF}_3\text{S}$  have  $\text{C}_{3v}$  symmetry which is consistent with a dynamic Jahn-Teller effect in these radicals. In the asymmetric  $5_0^1$  band of  $\text{CF}_3\text{O}$ , both perpendicular and parallel type transitions were observed while for the other asymmetric bands, only perpendicular type transitions were observed. The molecular parameters and the details of the analysis of all these bands will be presented.