ROTATIONAL ANALYSIS OF THE LASER INDUCED FLUORESCENCE EXCITATION SPECTRUM OF JET-COOLED CF_3O AND CF_3S

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The high resolution, rotationally resolved laser induced fluorescence spectra for the $\widetilde{A}\,^2A_1 \leftrightarrow \widetilde{X}\,^2E$ transition of CF_3O and CF_3S were recorded. The $\widetilde{A}$ 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 CF_3O, while for CF_3S 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 CF_3O and CF_3S have C_{3v} symmetry which is consistent with a dynamic Jahn-Teller effect in these radicals. In the asymmetric 5_0^1 band of CF_3O, 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.