LASER INDUCED FLUORESCENCE STUDY OF $\widetilde{B}$ - $\widetilde{A}$ TRANSITION OF ISOPROPOXY RADICAL

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Alkoxy radicals are important intermediates in combustion and atmospheric chemistry. Alkoxy radicals are also of significant spectroscopic interest for the study of Jahn-Teller and pseudo-Jahn-Teller effects, involving the $\widetilde{X}$ and $\widetilde{A}$ states. Isopropoxy ($CH_3CH(O)CH_3$) radical is the simplest secondary alkoxy radical. High resolution laser induced fluorescence (LIF) studies of the $\widetilde{B}$ - $\widetilde{X}$ transition have been performed previously.[b] In this talk we will present results obtained from a moderate resolution LIF study of the $\widetilde{B}$ - $\widetilde{A}$ transition whose analysis should complement the $\widetilde{B}$ - $\widetilde{X}$ analysis. The separation between the $\widetilde{A}$ and $\widetilde{X}$ band origin was found to be 58($\pm$3) cm^{-1} which is more precise but consistent with the previous dispersed fluorescence experiment.[c] We are also able to observe transitions corresponding to CO stretch progressions and a low frequency fundamental vibrational mode. The origin band and CO stretch progressions were found to have similar rotational contours which differ from the $\widetilde{B}$ - $\widetilde{X}$ origin band contour. Analysis of the different band contours of $\widetilde{B}$ - $\widetilde{A}$ transitions and their implications will be presented.

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[b] J. Liu and T. A. Miller, 65th OSU International Symposium on Molecular Spectroscopy, The Ohio State University, Columbus, Ohio, 2010, TG-14

[c] J. Jin, I. Sioutis, G. Tarczay, S. Gopalakrishnan, A. Bezant, and T. A. Miller, J. Chem. Phys. 121, 11780 (2004)