

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

RABI CHHANTYAL-PUN, JINJUN LIU^a and TERRY A. MILLER, *Laser Spectroscopy Facility, Department of Chemistry, The Ohio State University, 120 W. 18th Avenue, Columbus OH 43210.*

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 \tilde{X} and \tilde{A} states. Isopropoxy ($\text{CH}_3\text{CH}(\text{O})\text{CH}_3$) radical is the simplest secondary alkoxy radical. High resolution laser induced fluorescence (LIF) studies of the $\tilde{B} - \tilde{X}$ transition have been performed previously.^b In this talk we will present results obtained from a moderate resolution LIF study of the $\tilde{B} - \tilde{A}$ transition whose analysis should complement the $\tilde{B} - \tilde{X}$ analysis. The separation between the \tilde{A} and \tilde{X} band origin was found to be $58(\pm 3) \text{ cm}^{-1}$ 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 $\tilde{B} - \tilde{X}$ origin band contour. Analysis of the different band contours of $\tilde{B} - \tilde{A}$ transitions and their implications will be presented.

^aPresent address: Department of Chemistry, University of Louisville, 2320 South Brook Street, Louisville, Kentucky 40292

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