# OBSERVATION OF THE $\tilde{A} - \tilde{X}$ ELECTRONIC TRANSITION OF THE 1-$C_3H_7O_2$ and 2-$C_3H_7O_2$ RADICALS.

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Peroxy radicals are key intermediates in both combustion and atmospheric chemistry. We have studied previously[a] small alkyl peroxy radicals ($CH_3O_2$ and $C_2H_5O_2$) via their near IR electronic transition using cavity ringdown spectroscopy. Longer carbon chain alkyl peroxy radicals are especially important in combustion processes because of their ability to rapidly isomerize thereby opening new branching and propagation channels in the chain reaction.

In this talk we report cavity ringdown spectra of the $\widetilde{A}$ - $\widetilde{X}$ electronic transition of 1-propyl and 2-propyl peroxy radicals. To facilitate spectroscopic assignments several peroxy production mechanisms were implemented to generate 1-propyl and 2-propyl peroxy radicals in mixtures as well as separately. We have also performed extensive *ab initio* calculations to predict the $\tilde{A} - \tilde{X}$ origin frequencies and relative energies of all $\tilde{X}$ state conformers.

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[a]M. B. Pushkarsky, S. J. Zalyubovsky and T. A. Miller, J. Chem. Phys. **112**, 10695(2000)