

ANALYSIS OF THE CAVITY RINGDOWN SPECTRA OF THE SMALLEST JET-COOLED ALKYL PEROXY RADICALS

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Alkyl peroxy radicals long have been well known to be key intermediates in atmospheric chemistry as well as in low temperature combustion. For the last several years, our group has generated a data set for these radicals using room temperature cavity ringdown spectroscopy. We have recently extended our investigations of these radicals to obtain a similar data set of spectra under jet cooled conditions using a quasi-Fourier-transform-limited laser source, a supersonic slit jet expansion and a discharge. We have observed isomer and conformer specific spectra of the following species : methyl peroxy, CH_3O_2 , ethyl peroxy, $\text{C}_2\text{H}_5\text{O}_2$, propyl peroxy, $\text{C}_3\text{H}_7\text{O}_2$, and phenyl peroxy, $\text{C}_6\text{H}_5\text{O}_2$. This presentation will focus on the analysis of these spectra and demonstrate the valuable capabilities of our setup.