CAVITY RINGDOWN SPECTROSCOPY OF THE $\widetilde{A}^2\mathrm{A}'$ - $\widetilde{X}^2\mathrm{A}''$ ELECTRONIC TRANSITION OF THE PHENYL PEROXY RADICAL

GABRIEL M.P. JUST, ERIN N. SHARP, SERGEY J. ZALYUBOVSKY, AND TERRY A. MILLER, *Laser Spectroscopy Facility, Department of Chemistry, The Ohio State University, Columbus, OH 43210.*

Peroxy radicals are key intermediates in both combustion and atmospheric chemistry. We have previously studied small alkyl peroxy radicals (methyl, ethyl peroxy[a], 1- and 2-propyl peroxy[b]) via their near IR electronic transition using cavity ringdown spectroscopy (CRDS). The reaction of phenyl radical (C_6H_5) with oxygen is postulated to play a particulary important role in the soot formation process inherent in hydrocarbon combustion. In this talk, we report CRDS of the near IR $\widetilde{A}^2\mathrm{A}'$-$\widetilde{X}^2\mathrm{A}''$ electronic transition of phenyl peroxy radical. *Ab initio* calculations have been carried out to help assign T_{00} band origin, as well as other vibrational bands.

[a] M. B. Pushkarsky, S. J. Zalyubovsky, and T. A. Miller, *J. Chem. Phys* **112**, 10695, (2000).
[b] S. Zalyubovsky, B. Glover, T. A. Miller, C. Hayes, J. K. Merle, and C. M. Hadad, *J. Chem. Phys* accepted