THE NEAR-IR HIGH RESOLUTION SPECTRUM OF JET-COOLED ETHYL PEROXY RADICALS

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The jet-cooled high resolution CRDS spectra of the ethyl peroxy radicals, $\mathrm{C_2H_5OO}$ and $\mathrm{C_2D_5OO}$ have been recently obtained for the $\tilde{A}\,^2A' \leftarrow \tilde{X}\,^2A''$ 0_0^0 band. The observation of this weak transition: signal of a few ppm/pass for the most populated G conformer has been possible by using a narrow linewidth (Fourier-transform-limited) laser source[a] and a hydrogen Raman shifter (resolution: $250 - 300\,\mathrm{MHz}$). The radicals are produced by creating a plasma (by using a DC or a RF discharge) inside a pulsed slit nozzle[b]. We will discuss the analysis of these complex spectra.

[a] P. Dupré and T.A. Miller, Rev. Sci. Instrum. 78, 033102 (2007)

[b] S. Wu, P. Dupré and T.A. Miller, Phys. Chem. Chem. Phys. 8, 1682 (2006)