

Abstract Submitted  
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**Observation of the  $\tilde{A} - \tilde{X}$  Electronic Transition of the Jet-Cooled Methyl Peroxy Radical by High Resolution CRDS** PATRICK DUPRÉ<sup>1</sup>, The Ohio State University, Columbus, SHENGHAI WU, PATRICK RUPPER, TERRY MILLER, The Ohio State University — Reactive intermediates are of crucial importance both for combustion and atmospheric chemistry. By using our new home made Fourier Transform limited (10–30 MHz) Ti:Sa laser source we have probed the vibrationless level of the first electronic state (in the near-IR range) of both CH<sub>3</sub>OO and CD<sub>3</sub>OO radical species. The radicals are formed inside a Ne/He/O<sub>2</sub>/CH<sub>3</sub>I plasma created by a DC or a RF electrical discharge. The supersonic jet expansion necessary for the rotational cooling ( $\sim 20$  K) is obtained by a pulsed slit nozzle ( $\sim 50 \times 0.5$  mm<sup>2</sup>). The near-IR radiation, obtained by Stimulated Raman Scattering (SRS) is injected inside a high finesse cavity. A sensitivity of the order of  $\sim 20 \times 10^{-9}$  /pass/ $\sqrt{\text{Hz}}$  is currently obtained. Spectrum with a resolution  $\sim 350$  MHz for CD<sub>3</sub>OO clearly shows rotational and spin-rotation structure with effects of the internal methyl group rotation possibly evolved.

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