EXPERIMENTAL STUDIES OF THE ASYMMETRICALLY DEUTERATED METHOXY RADICALS WITH THE FASSST TECHNIQUE

DMITRY G. MELNIK, VADIM STAKHURSKY, VLADIMIR A. LOZOVSKY, TERRY A. MILLER and C. BRADLEY MOORE, *The Ohio State University, Dept. of Chemistry, Laser Spectroscopy Facility, 120 W. 18th Avenue, Columbus, Ohio 43210*; FRANK C. DE LUCIA, *The Ohio State University, Dept. of Physics, Microwave Laboratory, 174 W. 18th Avenue, Columbus OH 43210*.

Asymmetrically deuterated methoxy radicals were experimentally studied in a direct absorption experiment using the pulsed jet FASSST spectrometer[a] in the range of 153-251 GHz . The radical species were produced in a gas discharge in a supersonic jet by a Stark-free coaxial electrode arrangement, mounted on a top of the nozzle. Observed transitions were attributed to methoxy only if they satisfied the following criteria:

i) originated from a transient species, observable only under discharge conditions;

ii) appeared in spectra recorded with both precursors used (methanol and methyl nitrite);

iii) matched no reported transitions in other molecules (e.g. formaldehyde) found in discharge;

iv) exhibited paramagnetic properties.

The spectra were assigned by comparison of the experimentally obtained pattern with ones produced by the SpecView program using the available[b] Hamiltonian and molecular constants with a subsequent fit of the experimental data to the theoretical model.

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[a] D.Melnik, S.Gopalakrishnan, T.A.Miller, S.P.Belov and F.C.De Lucia, *J.Chem.Phys.*, **114**, 6100 (2001)

[b] I.Kalinovki, "Laser Induced Fluorescence Spectroscopy of CHD_2O and CH_2DO and High Resolution Spectroscopy of CH_3O and HFCO", *Ph.D. Thesis*, U.of California, Berkeley, 2001