VIBRATIONAL SPECTROSCOPY OF PHOTOREACTIVE MOLECULES IN ATMOSPHERIC CHEMISTRY

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Vibrational overtone spectra of oxidized atmospheric chromophores are presented and analyzed to energies where chemistry through vibrational overtone pumping is possible. Experimental near infrared and visible spectra complemented by dynamical theory are presented to elucidate the light initiated reaction dynamics of pyruvic and of glyoxilic acid photo-decarboxylation. The role of water is investigated by making use of vibrational spectra of hydrates of the title compounds. Consequences of water and sunlight mediated chemistry to formation of secondary organic aerosol in the atmosphere will be discussed.

K. L. Plath, J. L. Axson, G. C. Nelson, K. Takahashi, R. T. Skodje and V. Vaida em React. Kineti. Catal. Lett. 96, 209 (2009)

V. Vaida *J. Phys. Chem. A* 113, 5 (2009)

K. Takahashi, K. L. Plath, R. T. Skodje and V. Vaida *J. Phys. Chem A* 112 7321 (2008)