VIBRATIONAL OVERTONE EXCITATION OF METHYL HYDROPEROXIDE AND HYDROXYL RADICAL FORMATION

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Laser photoacoustic spectra of methyl hydroperoxide in the regions of exciting four and five quanta of O-H stretch show features due to excitation of torsional motion about the O-O bond in addition to O-H stretch. Detection of OH radicals by laser-induced fluorescence confirms that states near five quanta of O-H stretch dissociate along the O-O bond. Photoacoustic and action spectra are compared with simulations from a simple model that assumes adiabatic separation of torsion and O-H stretch and that takes into account the dipole moment dependence on dihedral angle.