

OVERTONE SPECTROSCOPY OF PEROXYACETIC ACID AND PEROXYFORMIC ACID : INFLUENCE OF INTRAMOLECULAR HYDROGEN BONDING

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The absorption of solar radiation by hydrogen-bonded (H-bonded) complex, particularly those containing water, is important in atmospheric chemistry. However, because of their low concentration, intermolecular hydrogen bonded complexes of atmospheric interest are difficult to study in the gas phase. Consequently, our initial efforts have been directed towards investigating the spectroscopy of molecules with internal hydrogen bonds. In this talk, we present the vapor phase vibrational overtone spectra of peroxyacetic acid (PAA) and peroxyformic acid (PFA), two molecules of atmospheric importance, and discuss the effect of intramolecular hydrogen-bonding on their OH stretching overtone transition strength and band positions. A comparison of the results of PAA and PFA with those of other intramolecular H-bonded and non-H-bonded molecules provides a useful gauge of the extent of hydrogen bonding in these peroxyacids.