THE VISIBLE ABSORPTION SPECTRUM OF THE OIO RADICAL

J. ORPHAL, S. HIMMELMANN, P. SPIETZ, and J. P. BURROWS, *Institute of Environmental Physics, University of Bremen, P. O. Box 330440, 28334 Bremen, Germany*.

There is increased interest in the atmospheric chemistry of iodine in the last years, mainly due to the high reactivity of iodine oxides towards other halogen oxides of stratospheric importance. For this reason, we have studied the photochemistry of IO_x in a time-resolved flash-photolysis set-up, using a grating spectrometer together with a Reticon diode-array detector and a PMT.
Recently, we have observed a new absorption spectrum at the long-wavelength side of the well-known IO electronic bands around 400 nm. The spectrum shows sharp vibronic band structures and can be attributed to the A–X electronic band system of the OIO radical. To our knowledge, this is the first observation of OIO in the gas phase. Spectral assignments, determination of upper-state parameters, and kinetics of the formation of OIO are discussed.