FOURIER TRANSFORM SPECTRA OF THE $A\,^2\Pi - X\,^2\Sigma^+$ TRANSITION OF MgBr NEAR 380 NM

T. HIRAO and P. F. BERNATH, *Centre of Molecular Beam and Laser Chemistry, Department of Chemistry, University of Waterloo, Waterloo, Ontario N2L 3G1, Canada*.

It is well-known that the $A\,^2\Pi$ state of the magnesium monohalide radicals (Mg*X*, *X*= F, Cl, Br, I) are predissociated. Spectroscopic results of this predissociation are available, however, only for MgF and MgCl. In this study, the high-resolution emission spectra of the gaseous magnesium bromide (MgBr) radical have been detected. The spectra of MgBr were recorded by using Bruker IFS120HR Fourier transform spectrometer, modified to record double-sided interferograms. The MgBr radical was generated in the microwave discharge of Ar buffer gas (1.5 Torr) with a trace of the vaporized $MgBr_2$ salt. The vapor of the $MgBr_2$ salt was obtained in a quartz tube heated to about 400°C with a heating tape. The (0,0) and (1,1) vibrational bands for the $A\,^2\Pi_{1/2}$ - $X\,^2\Sigma^+$ were clearly identified near 380 nm, but only the (0,0) sub-band for the $A\,^2\Pi_{3/2}$ - $X\,^2\Sigma^+$ was detected, probably due to a predissociation. The assignment is in progress.