ROTATIONAL SPECTRUM OF BROMINATED RADICALS PRODUCED BY UV LASER PHOTOLYSIS

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Carbenes play an important role in atmospheric chemistry. Among them, brominated radicals has recently received considerable attention because of their role in stratospheric ozone destruction. In 2001, Sears[a] published a theoretical and experimental study of the near-infrared spectrum of the bromomethylene radical HCBr. He obtained rotational constants and some centrifugal distortion constants for both isotopic species in the ground vibrational state. In Lille, we studied the rotational spectrum of HCBr in order to improve the constants of Sears. HCBr was produced by the 193-nm photolysis of bromoform $CHBr_3$. Its spectrum was recorded in the range 420 - 472 GHz using the kinetic detection technique. The measurement of *a* and *b*-type transitions ensured the determination of the rotational constants as well as all the quartic and two sextic centrifugal distortion constants. The hyperfine splittings were analysed. Nuclear quadrupole and spin-rotation coupling constants were derived for both isotopic species.
Some preliminary results on another radical, CH_2Br, may be available at the conference time.

[a] Yu, Gonzalez-Lezana, Marr, Muckerman and Sears, J. Chem. Phys. **115**, 5433-5444 (2001)