

THE MICROWAVE SPECTRA OF THE FLUOROBENZENE-KRYPTON VAN DER WAALS COMPLEX

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The microwave spectra of the Kr-fluorobenzene van der Waals complex have been recorded in the frequency region 1-15 GHz, using pulsed molecular beam Fourier transform microwave spectrometers employing either a cylindrical cavity driven in the H_{01} -mode (1-6 GHz) or a confocal Fabry-Perot resonator (6-20 GHz). The spectra of four isotopomers, involving ^{82}Kr , ^{83}Kr , ^{84}Kr and ^{86}Kr , were observed in natural abundance.

The spectra analyses yielded rotational and centrifugal distortion constants. Structural data were derived from the rotational constants and the Krypton atom was found to be located 3.65 Å above the ring plane. For the ^{83}Kr containing complex, the nuclear quadrupole coupling hyperfine structures were resolved and analyzed.