

GAS PHASE MICROWAVE MEASUREMENTS OF MONO-FLUOROBENZOIC ACIDS.

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We report the rotational and distortion constants of 3 conformers of 2-fluorobenzoic acid, 2 conformers of 3-fluorobenzoic acid and a single conformer of 4-fluorobenzoic acid fitted from the assignment of pure rotational transitions measured in the microwave region from 4-12 GHz. We also recorded the microwave spectrum and assigned the b-dipole transitions of a very large dimer of 3-fluorobenzoic acid which has very small rotational constants. The b-dipole transitions were split and assigned to the two states 0+ and 0- vibrational states with rotational constants: $A^+ = 1157.01939(75)$ MHz, $B^+ = 95.45061(199)$ MHz and $C^+ = 88.21514(124)$ and $A^- = 1157.02249(46)$, $B^- = 95.45110(74)$ and $C^- = 88.24425(70)$. This large dimer is a milestone in our groups efforts at "climbing" the ladder to very large dimers that contain dynamics information.

