

High resolution analysis and quantum dynamics of fluoroform ^{12,13}CHF₃

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The spectroscopy of ¹²CHF₃ has been the basis for the study of time independent and time dependent quantum dynamics for a long time [1-9]. There have also been substantial efforts concerning the *ab initio* potential hypersurface ([10, 11] and references cited therein). We present a survey of our recent analyses ranging from the Terahertz (Far infrared) spectral range to about 3000 cm⁻¹, with particular emphasis on the pure rotational (FIR) spectra measured at the infrared beamline of the Swiss synchrotron Light Source (SLS), ν_3 fundamental (700 cm⁻¹ range), the ν_2 , ν_5 , $\nu_3+\nu_6$ polyad (1200 cm⁻¹ range), the $\nu_4/2\nu_3$ dyad (1400 cm⁻¹), the $2\nu_4$ (A_1 and E) dyad and results on the ¹³CHF₃ isotopomer including the ν_1 fundamental. The implications for the study of intramolecular vibrational energy redistribution (IVR) will be outlined with particular emphasis on ¹³C isotope effects.

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