

CHIRPED-PULSE FOURIER TRANSFORM MICROWAVE SPECTRUM OF THE LOW GLOBAL WARMING POTENTIAL REFRIGERANT ALTERNATIVE, 2,3,3,3-TETRAFLUOROPROPENE

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A newly-constructed, chirped-pulse Fourier transform microwave spectrometer is used to obtain the microwave spectrum of 2,3,3,3-tetrafluoropropene, which has been proposed as an alternative to HFC-134a for use as a mobile air conditioning refrigerant. With a bandwidth of 6 GHz, this instrument has the potential to provide complete coverage of the microwave spectrum from 6 to 18 GHz in two steps, although smaller intervals may be utilized to increase the available power per unit bandwidth. Aided by *ab initio* calculations, the rotational spectrum of the normal isotopologue of 2,3,3,3-tetrafluoropropene is assigned and analyzed to give rotational and centrifugal distortion constants. With moderate signal averaging, the signal-to-noise ratio of the spectrum indicates that it should be possible to observe singly substituted  $^{13}\text{C}$  isotopologues in natural abundance.