DYNAMIC ROTATIONAL SPECTROSCOPY OF VINYL ISOCYANATE: IR-CHIRPED-PULSE FOURIER TRANSFORM MICROWAVE (CP-FTMW) DOUBLE RESONANCE

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The dynamic rotational spectroscopy of vinyl isocyanate will be presented. Vinyl isocyanate has two stable minima, the *cis* and *trans* structures. The infrared spectrum in the 3000 cm^{-1} region of the *trans* species will be presented. This is measured by double-pulse cavity-FTMW-detected IR spectroscopy. Using this zero-background technique, the conformer-specific, rotationally-resolved IR spectrum of vinyl isocyanate has been measured. Second, the dynamic rotational spectrum of vinyl isocyanate at several IR frequencies will be presented. In this measurement, after exciting the C–H stretch with the IR laser, we measure the rotational spectrum of the vibrationally excited molecule using CP-FTMW spectroscopy. The results and interpretation of the spectra will be presented. The nuclear hyperfine splitting of the dynamic rotational spectrum will be compared to that of the pure rotational spectrum.