NEW CHIRPED-PULSE THZ FOURIER TRANSFORM TECHNIQIES FOR DETERMINATION OF LINESHAPE PARAMETERS FOR ATMOSPHERIC SPIECIES

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We will discuss the implementation of the recently developed Chirped-Pulse Fourier Transform THz spectrometer for the measurement of important atmospheric species. We will discuss how the method is used to obtain high-precision and high-sensitivity measurements of shapes, intensities, and broadening parameters directly from the rotational free induction decay signal. The current system measures a bandwidth of 10.6 GHz in a single measurement step with a resolution of 20 kHz and achieves high sensitivity in 30 seconds. Measurements of nitrous oxide, OCS, and other atmospheric species in the HITRAN database will be presented.