

## DUAL EXCITATION-EMISSION PROPAGATION (DEEP) IMPACT- FTMW SPECTROMETER

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The in-phase/quadrature phase modulation passage-acquired coherence technique (IMPACT) Fourier-transform microwave (FT-MW) spectrometer utilizing two off-axis parabolic reflectors delivers broadband capabilities at a spectral resolution similar to the resolving power of the narrowband but more sensitive coaxial beam-resonator arrangement (CO-BRA) FT-MW spectroscopy.

Nevertheless, due to the signal pathway in the dual-path reflector arrangement, the high-frequency setup imposes a maximum applicable excitation power, thus limiting the polarization efficiency. Hence, less polar molecules were difficult to study.

In a novel approach this disadvantage could be circumvented by rotating of the field vector direction of the linearly polarized microwave radiation. The setup prevails the high spectral resolution but increases the sensitivity dramatically while allowing the utilisation of very high power tube amplifiers.

In this contribution we present the novel apparatus in detail as well as experimental results obtained with the modified spectrometer.