

## A LOW-BUDGET, RESEARCH GRADE, BALLE-FLYGARE CAVITY FTMW SPECTROMETER IMPLEMENTED FOR THE TEACHING LABORATORY

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Recent advancements in microwave technology have greatly reduced the prices of microwave circuit hardware and signal processing (digitization components). Using a combination of purchased (refurbished) and existing hardware, a “new” research-grade FTMW spectrometer has been constructed with minimal investment. This instrument has the capability to include multiple microwave excitations/collections (FIDs) on a single gas pulse. These features are hardware controlled, but can easily be integrated into software routines. Testing has been performed to minimize the necessary circuit components while also maximizing signal fidelity. Operation of the instrument, including tests with OCS and Benzonitrile, will be discussed.

