ANALYTICAL APPLICATIONS WITH THE FAST SCAN SUBMILLIMETER SPECTROSCOPIC TECHNIQUE (FASSST): IDENTIFICATION OF INDIVIDUAL COMPONENTS IN MIXTURES

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Due to its high resolution, the Fast Scan Submillimeter Spectroscopic Technique[a] makes it possible to record the spectra of mixtures of molecules (e.g. aromatic or heterocyclic compounds) and provides an easy identification of the individual component compounds. The avoidance of complicated separation methods in the analysis of mixtures of compounds illustrates FASSST as an advantageous analytical instrument in the field of analytical chemistry. The spectral range of FASSST has been extended up to 650 GHz through the installation of new Backward Wave Oscillators (BWOs). FASSST now provides the possibility to obtain continuous submillimeter wave spectra in the region between 250–650 GHz in a short amount of time. The spectra of aromatic and heterocyclic compounds like trimethyl sulfane, pyridine and ethylene oxide, as well as those of molecules with internal rotation like ethylmethyl ketone and methyl formate, have been recorded in this 400 GHz range. Patterns in the rotational spectra are clearly visible.

[a] D.T. PETKIE, T.M. GOYETTE, R.P.A. BETTENS, S.P. BELOV, S. ALBERT, P. HELMINGER AND F.C. DE LUCIA, Rev. Sci. Instrum. **68**,1675 (1997)