

New Trends in NMR technology : Soft- and Hardware Developments

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NMR has become one of the most versatile analytical tools in chemistry, physics and molecular biology. This is reflected in a number of recent hard- and software developments with impact on many different applications.

In molecular biology, cryogenic probeheads dramatically improve data quality and sample throughput, new software tools for experiment preparation and data acquisition enable the operator to easily acquire series of experiments required for protein structure determination.

Ultra-high field NMR instrumentation provides improved chemical shift dispersion and signal enhancement through TROSY-based NMR experiments.

In natural products research, as well as in some medical applications, NMR hyphenation methods (LC-NMR-MS, capLC-NMR, LC-SPE-NMR) have been established as powerful techniques for the analysis of complex mixtures. Data handling and analysis is directly linked to data acquisition, thus providing semi-automatic sample characterisation.

In addition to these topics, additional hardware features of the AVANCE spectrometer series will be discussed in terms of specific applications.