

Advanced NMR Spectroscopy

This course will cover the theory required to understand and successfully implement the methods of state-of-the-art NMR spectroscopy, with the stress laid on structure elucidation by multidimensional (essentially 2D) NMR techniques. The intention of the course is to provide practical training in important aspects of structure determination by NMR. The emphasis will be on setting up experiments on the spectrometer (optimizing parameters, pulse programs), on processing and analyzing the NMR data and on structure calculations in a hands-on fashion. The course is aimed at PhD students and postdocs who have some working knowledge of NMR theory, i.e. product operator formalism, and who understand the basic principles of NMR pulse sequences.

Topics

- Pulse sequences for assignment and structural information: theory, practical set-up and use
- Monodimensional sequences and data processing
- Multidimensional sequences and data processing
- Resonance assignment
- Relaxation: theory, experiments, data analysis
- Structure calculation and evaluation

Some literature recommendations

R. K. Harris "Nuclear Magnetic Resonance Spectroscopy, A Physicochemical View", Longman Scientific & Technical 1986, ISBN 0-582-44653-8.

J. N. S. Evans "Biomolecular NMR Spectroscopy", Oxford University Press 1995, ISBN 0-198-54766-8 (QP519.9.N83E94 1995).

H. Friebolin, "Basic One- and Two-Dimensional NMR Spectroscopy", VCH, 2nd ed., 1993 (QP519.9/N83/F7513/1993).

J. K. M. Sanders, B. K. Hunter, "Modern NMR Spectroscopy, A Guide for Chemists", Oxford University Press, 2nd ed. 1993.