

Speaker: Dr. Rainer Kuemmerle, Vice President and Head of NMR Applications at Bruker BioSpin

[Part 1: 14:00-14:40]

Title: NMR spectroscopy on small molecules and natural products

Summary:

NMR has an atomic level resolution. NMR signal assignment will be done for structural analysis of small molecules and natural products. Several 2D spectra will be measured in order to complete an unambiguous assignment automatically or manually. Here I would like propose automatic procedure of the measurements, processing and analysis by software.

There is an AV Neo 500 spectrometer equipped with a high sensitive detector, so called CryoProbe, here in OIST, which makes it faster experimental time. Recently, some of experiments have been published for multi receive experiments, which are available on modern NMR spectrometers. I would also like to show the experiments in this presentation.

[Part 2: 14:50-15:30]

Title: NMR spectroscopy on biological macromolecules and a new era of ultra-high field NMR

Summary:

NMR spectroscopy enables you to analyze biological macromolecules such proteins and nucleic acids. Triple resonance experiments combination with stable-isotopic labelling of amino acids make it possible to unambiguously assign the signals.

Assignment becomes difficult if molecular weight is more than 30 kDa due to signals overlap and relaxation time. In order to overcome the problem, TROSY method has developed and won the Nobel Prize by Professor Wuethrich. Here I would like to show more challenging molecule, intrinsically disordered proteins by a newly developed ultra-high field NMR.

