



Water, Noise and Artifact Suppression in fast NMR Spectroscopy

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Abstract

Living in great 21st century, you may feel everything is progressing FAST and moving forward, yet tremendous problems and questions need to be solved or answered as quickly as possible. This is particularly true for nuclear magnetic resonance (NMR) spectroscopy. Chemists need their compounds to be identified instantly by NMR. Biologists want their protein structures to be determined in a week or two by NMR. Biophysicists require protein-drug interactions to be probed in real time by NMR. ... NMR managers want to do these in a simple way, just pushing a button. All these pressures come to NMR physicists. The best thing is that so many people are putting their bet on NMR. It is possible to fulfil these requirements by fast NMR, but it is far from easy.

This presentation will outline our work toward fast NMR, starting with improved methods for fast and efficient water suppression. Water is used as solvent for biological samples, but since the water signal is 4~6 orders of magnitude higher than solutes, it must be eliminated from the NMR spectrum. The second part of this presentation will introduce the method, GFFT-NASR, for solving the problems related to fast NMR data acquisition. Most methods for speeding up NMR experiments are based on reducing the acquired number of data points, which results in lower signal-to-noise ratios and data acquisition related artifacts. GFFT-NASR is demonstrated to be fast and applicable for improving the quality of 1D to *n*D NMR spectra with all kinds of acquisition schemes.

Profile

Dr Maili Liu graduated from the Northwest University, Xi'an, China in 1982. He received Ph.D. with Prof. Jeremy K Nicholson and Prof. John C Lindon from Birkbeck College, University of London, in 1996. Since then, he has worked at the **Wuhan Institute of Physics and Mathematics** and was appointed as research professor in 1998 and in 2003 became the Director of the **State Key Laboratory of Magnetic Resonance and Atomic and Molecular Physics**. His research interests are method development and application of nuclear magnetic resonance (NMR) spectroscopy.

Staff and students at all levels are welcome to attend.

Venue and Time:

This talk will be held on Friday November 1 at 2 pm at the Campbelltown Campus in Lecture Theatre 4 (CA-09.G.02)

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