

Seminar

Hyperpolarization in NMR and MRI: Dissolution Dynamic Nuclear Polarization

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NMR is an inherently insensitive spectroscopic method due to the small energy differences of the nuclear spin states. Since the early days of NMR, a lot of effort has been put into finding ways to make the population differences larger than the thermal equilibrium (Boltzmann) population. Over the years many methods have been investigated but none of them is universal and can be used for all NMR experiments. In first part, I will give an overview over the methods that have been proposed over the past 50 years.

Dynamic-nuclear polarization (DNP) is one such methods that uses the higher Boltzmann population of electrons in connection with low temperatures to generate higher nuclear population differences. In connection with a fast dissolution process, dissolution DNP has become an important method for in-vivo spectroscopy and to a lower extent also for analytical NMR. I will show our efforts towards making dissolution NMR more efficient and faster by developing dedicated hardware and experimental techniques.

Tuesday, Feb 14th 2017

4:00 PM (Tea/Coffee at 3:45 PM)

Seminar Hall, TCIS