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Einladung
zum
Physikalischen Kolloquium

Montag, 04.07.2011
16:15 Uhr in N24/H13

Prof. Dr. Navin Khaneja

Gordon Mc Kay Professor of Electrical Engineering
Havard School of Engineering and Applied Sciences
Cambridge, USA

Multiple Rotating Frame Technique

The talk describes a method to design radio frequency pulse sequences for broadband decoupling, excitation and mixing in high resolution NMR spectroscopy. A ubiquitous problem in NMR spectroscopy is to engineer rf-excitations that can address a large spread in the natural frequencies of the spins arising due to chemical shifts. We show how to design a multiply modulated rf-field, whose effect on the spin dynamics is understood by performing a sequence of coordinate transformations. The coordinate transformations can be thought of as sequence of rotating wave approximations.
Each coordinate transformation demodulates a component of the rf-field and generates a static field. The ratio of the effective chemical shift dispersion to the strength of the static field is reduced with every frame transformation. We show how this methodogy helps to minimize the effect of chemical shift dispersion. Applications of this technique to broadband decoupling of heteronuclear spins and broadband excitation, mixing and transfer of coherence in strongly coupled spin systems is demonstrated.

Ab 15.45 Uhr Kaffee, Tee und Kekse vor dem Hörsaal H13

Organisation: **Prof. Marti, Tel.: 23011**
Dr. Retzker, Tel.: 22832
Host: **Prof. Calarco, Tel.: 22900**