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Title:	Dynamic Spin: A Virtual Spectrometer for Understanding and Designing NMR Experiments
Authors:	Srivastava, Deepansh (/jspui/browse?type=author&value=Srivastava%2C+Deepansh)
Keywords:	Dynamic Spin multi-quantum (MQ)
Issue Date:	5-Jun-2013
Publisher:	IISER M
Abstract:	In this thesis, an analytic description of multi-quantum (MQ) phenomenon involving quadrupolar nuclei is discussed. Employing the concept of effective radio-frequency (RF) Hamiltonians, a new pulse scheme is proposed for exciting MQ transitions in spin $I=1$ and $3/2$ systems. In contrast to existing pulse schemes in the literature, the proposed optimum frequency switched consecutive (o-FSC) pulse scheme, facilitates the creation of MQ coherences at shorter time scales with lesser dependence on MQ relaxation rates. Additionally, to improve our understanding of the underlying spin dynamics, a numerical simulation program (DYNAMIC SPIN (DS)) based on the spherical tensor formalism was developed and is described in the second half of the thesis.
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