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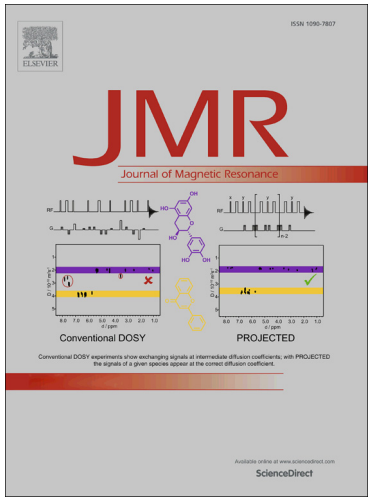

Structural Biology Applications of Solid State MAS DNP NMR

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Abstract.

Dynamic Nuclear Polarization (DNP) has long been an aim for increasing sensitivity of nuclear magnetic resonance (NMR) spectroscopy, delivering spectra in shorter experiment times or of smaller sample amounts. In recent years, it has been applied in magic angle spinning (MAS) solid-state NMR to a large range of samples, including biological macromolecules and functional materials. New research directions in structural biology can be envisaged by DNP, facilitating investigations on very large complexes or very heterogeneous samples. Here we present a summary of state of the art DNP MAS NMR spectroscopy and its applications to structural biology, discussing the technical challenges and factors affecting DNP performance.

Keywords.

Dynamic nuclear polarization (DNP), solid state MAS NMR, structural biology, hyperpolarization.