

New Techniques to Enhance Signal-to-Noise Ratio in NMR: A Commercially Available Dynamic Nuclear Polarizer (Hypersense)

Debadeep Bhattacharyya, Oxford Instruments, 300 Baker Avenue, Suite 150, Concord, MA 01742

Use of Hypersense (commercially available Dynamic Nuclear Polariser) manufactured by Oxford Instruments to enhance the NMR signal to noise ratio. This equipment helps us in enhancing the SNR by a factor of ~ 10000 . Data with a variety of small molecules, peptides, and nucleotides will be shown. In addition, novel experiments have been performed with N^{15} , C^{13} , P^{31} and a variety of other spin = $\frac{1}{2}$ nuclei using Hypersense along with pulse programs such as the Frydman sequence and Flash T1. The Hypersense that is a commercially available instrument to perform dynamic nuclear polarization unravels an unexplored path in NMR spectroscopy and provides significant benefit in detection, structural elucidation, understanding the kinetic mechanism, etc of both small and macro molecules.