

MAR07-2006-002779

Abstract for an Invited Paper
for the MAR07 Meeting of
the American Physical Society

Double Quantum Filtered NMR Spectroscopy and Imaging

GIL NAVON, Tel Aviv University

As a result of the anisotropic motion of water molecules interacting with ordered biological tissues the proton-proton dipolar interaction and the deuteron quadrupolar interaction do not average to zero leaving some residual splittings. The technique of double quantum filtered (DQF) NMR capitalizes on this phenomenon, opening new possibilities to probe biological processes and to obtain a new kind of contrast in MRI. In the talk new applications of the DQF pulse sequences to the study of nerves, enabling the measurement of intercompartmental water exchange in sciatic and optic nerves, the study of the fiber architecture in cartilage under normal, compressed and diseased conditions and the imaging of tendons, enabling the monitoring their healing process following injury.