

Abstract Submitted  
for the NWS08 Meeting of  
The American Physical Society

**Diffusion Tensor Imaging in Rat Spinal Cord In-Vivo ZEINAB**

AL-REKABI, University of British Columbia — Diffusion Tensor Imaging (DTI), an MRI technique based on probing the structure of tissues at a microscopic level is used to determine regional values of Fractional Anisotropy (FA) and mean diffusivity ( $D_{av}$ ) of excised and in-vivo rat spinal cords. Two pulse sequences: Spin Echo (SE) and Echo Planar Imaging (EPI) are optimized to provide the best image quality, signal-to-noise ratio (SNR) and the greatest spatial resolution at reasonable acquisition times in the rat spinal cord. The study was conducted using a 7T BRUKER BioSpec MRI animal scanner. In the ex-vivo experiments images with the spatial resolution of  $100 \mu\text{m}$  and the SNR of  $1.938 \pm 0.010$  were acquired in 2 minutes. After optimization both methods were applied in-vivo. The values of FA and  $D_{av}$  acquired in this study showed good correlation with the literature values. Furthermore, results from these studies should provide the necessary baseline data for serial DTI in injured spinal cord in future studies.

Zeinab Al-Rekabi  
University of British Columbia

Date submitted: 15 Apr 2008

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