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**IMPROVING THE CONTRAST TO NOISE RATIO OF DIFFUSION TENSOR
IMAGES IN SMALL ANIMALS AT 7T**

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Diffusion tensor imaging is being increasingly used as a means to elucidate the brain's fiber structure. High spatial resolution is needed to capture details of the anatomy for tractography. However, when smaller voxels are selected in order to have a high spatial resolution, the amount of recruited spins decreases and consequently the contrast to noise ratio (CNR) is reduced. On the contrary, when working with bigger voxels, the CNR is increased but then, the system merges structures, thus leading to partial volume effects (PVE). In addition, image quality is also affected by displacements caused by breathing, cardiac pulsations or mechanical vibrations. As a result, image deteriorating factors such as low CNR, PVE and subject's displacements affect the analysis.

In this talk, we will introduce a procedure that uses single subject acquisitions at multiple b-values to diminish the effect of the image deteriorating factors mentioned above.

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