Abstract Submitted
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Contrast-enhanced imaging at earth's magnetic field[1] ALAN ZANDERS, QING WANG, PETER NIEDBALSKI, LLOYD LUMATA, Univ of Texas, Dallas — Magnetic resonance imaging (MRI) is a non-invasive imaging modality that exploits the magnetic properties of nuclei and their response to magnetic field gradients to encode the spatial information of objects. One of the requirement for high-resolution MRI is the high homogeneity of magnetic field to produce the images. Homogeneous field strengths of 1 Tesla (T) or more are commonly used for clinical purposes. Another source of homogeneous field is the Earth's magnetic field, but its strength is only about 0.00003 T. Moreover, the slow rate of data acquisition in EFMRI, which is associated with the low field makes contrast imaging challenging. In this work, we explore the possibilities of generating image contrast with EFMRI at 0.3 Gauss using an established procedure that is common in clinical setting, namely by doping with trace concentrations of Gd-DOTA. Various images were acquired using common imaging techniques such as Gradient Echo (GE) and Filtered Back Projection (FBP). The echo time (TE) was varied for T2 contrast, and repetition time (TR) was varied for T1 contrast. These MRI results will be discussed in relation to the effectiveness of generating contrast in MRI at earth's magnetic field.

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