Magnetic Resonance Spectroscopic Imaging: SASSI developments

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ABSTRACT: Magnetic resonance imaging is a non-invasive, non-destructive tool that can be used to image the human body. Magnetic Resonance Spectroscopy (MRS) and Spectroscopic Imaging (MRSI) allow the differentiation of signals from hydrogen in the nuclei, including brain metabolites such as n-acetylaspartate, choline, creatine, and myo-inositol. However, due to the low concentration of these metabolites, relative to water and lipids whose spectral peaks dominate the received signal, MRSI can be challenging. As component of our research we investigate ways to meet these challenges using specially designed radio-frequency (RF) pulses which can selectively excite only the components of the spectrum that we wish to probe. I will present our new technique, Semi-Adiabatic Spectral-spatial spectroscopic imaging (SASSI) sequence, and the results of experiments comparing SASSI to existing MRSI techniques. Finally, I will explore our initial results as we have begun to integrate this technique into our investigations of neurological diseases such as epilepsy and major depressive disorder.

ALL ARE WELCOME!!!