Method for Water-Fat Separation and T2* Estimation in an MRI System Employing Multiple Fat Spectral Peaks and Fat Spectrum Self-Calibration

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The Invention

NMR signal contributions from water and fat are separated using a model of the fat resonant frequency spectrum that has multiple resonant peaks. The relative frequencies of the multiple fat spectrum peaks are known a priori and their relative amplitudes are determined using a self-calibration process. With the determined relative amplitudes of the fat spectrum peaks, acquired NMR signals are modeled. Using this model and NMR signal data acquired at a plurality of echo times (TE), the signal contribution from multiple fat spectrum peaks is separated from the acquired NMR signal data. A combined image is alternatively produced from weighted contributions of the separated water and fat images. Additionally, a more accurate estimation of the apparent relaxation time and rate (T*2 and R*2, respectively) is alternatively performed.

Additional Information

For More Information About the Inventors
- Scott Reeder

Tech Fields
- Medical Imaging : MRI

For current licensing status, please contact Jeanine Burmania at jeanine@warf.org or 608-960-9846