Docket #: S04-230

"IDEAL" MRI: Homodyne Reconstruction with Dixon Fat-Water Separation

Homodyne image reconstruction is combined with an iterative decomposition of water and fat from MR signals obtained from a partial k-space signal acquisition in order to maximize the resolution of calculated water and fat images. The method includes asymmetrical acquisition of under-sampled MRI data, obtaining low resolution images, and then estimating a magnetic field map and phase maps of water and fat image signals from the low resolution images. The acquired data is again filtered and Fourier transformed to obtain an estimate of combined fat and water signals using the estimated magnetic field map and phase maps. Water and fat images are then estimated from which phases of the water and fat images are determined. The real parts of the water and fat images are then used in calculating water and fat images using a homodyne process.

Patents

- Published Application: 20060250132

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