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Newton method to recover the phase accumulated during MRI data acquisition. (English)

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Summary: For an internal conductivity image, magnetic resonance electrical impedance tomography (MREIT) injects an electric current into an object and measures the induced magnetic flux density, which appears in the phase part of the acquired MR image data. To maximize signal intensity, the injected current nonlinear encoding (ICNE) method extends the duration of the current injection until the end of the MR data reading. It disturbs the usual linear encoding of the MR k-space data used in the inverse Fourier transform. In this study, we estimate the magnetic flux density, which is recoverable from nonlinearly encoded MR k-space data by applying a Newton method.

MSC:

92C55 Biomedical imaging and signal processing

94A08 Image processing (compression, reconstruction, etc.) in information and communication theory

Keywords:

magnetic resonance electrical impedance tomography; magnetic flux density; internal conductivity image; Newton method; electric current; signal intensity

Full Text: [DOI](#)

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