Sarty, Gordon E.
Natural reconstruction coordinates for imperfect TRASE MRI. (English) Zbl 1467.92111
Linear Algebra Appl. 611, 94-117 (2021).

TRASE MRI (transmit array spatial encoding magnetic resonance imaging) uses spatially varying phases in a nuclear magnetic resonance spin-echo radio frequency pulse sequence. When the TRASE transmit coils are perfect, the spatial isophase contours are straight and orthogonal, and the data lies in a well-understood linear subspace. When the TRASE coils are imperfect, the contours will be non-orthogonal and/or curved.

The author shows that in the imperfect case, the data lies in an alternative subspace relative to non-Cartesian coordinates. Using these natural image space coordinates, a direct image reconstruction transform may be defined.

The algorithm is illustrated by reconstructions from simulated data with imperfect coils.

Reviewer: Fritz Keinert (Ames)

MSC:
92C55 Biomedical imaging and signal processing
43A32 Other transforms and operators of Fourier type

Keywords:
magnetic resonance imaging (MRI); transmit array spatial encoding (TRASE); image reconstruction

Full Text: DOI

References:


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