T2 Mapping from Super-Resolution-Reconstructed Clinical Fast Spin Echo Magnetic Resonance Acquisitions

Lajous et al., 10.5281/zenodo.3931812

BIRTH

T1, T2

In utero brain maturation

In vitro feasibility study

MnCl₂ array

NIST

Kulikova et al., PLoS ONE (2016)

Reference SE
0.98 x 0.98 x 6.0 mm³

Reference MESE
0.98 x 0.98 x 6.0 mm³

HASTE in 3 orthogonal orientations
1.125 x 1.125 x 3.0 mm³

3D SR reconstruction
1.125 x 1.125 x 1.125 mm³

MRI SETTINGS

Red boxes indicate in-plane acquisition.

Tourbier et al., NeuroImage (2015)
Tourbier et al., 10.5281/zenodo.2598448

T2 MODEL FITTING

\[ \chi_{TEi} = \arg\min_{\chi} \sum_{k} \left[ \|H_{0}X - X_{\chi,TEi}\|^{2} + \|X\|_{TV} \right] \]

\[ \chi_{TEi} = M_{0} e^{\frac{TE}{T_{2}}} \]

T2 MAPPING

Reference T2 SE

Reference T2 MESE

Tourbier et al., NeuroImage (2015)
Tourbier et al., 10.5281/zenodo.2598448

BIRTH

MnCl₂ array

In vitro feasibility study

NIST

Kulikova et al., PLoS ONE (2016)

TE: echo time
SR: super-resolution
SE: single-echo spin echo
MESE: multi-echo spin echo
NIST: National Institute for Standards and Technology
HASTE: Half-Fourier Acquisition Single-shot Turbo spin Echo

© CIBM | Center for Biomedical Imaging