High-resolution diffusion-weighted imaging technologies

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Correction of shot-to-shot phase variation with multiplexed sensitivity encoded (MUSE) MRI



















Multi-shot EPI based DTI















Human brain diffusion tensor imaging at submillimeter isotropic resolution on a 3 Tesla clinical MRI scanner (Neuroimage 2015) Chang et al. 2015



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Deep brain stimulation



















- . Networks cost and efficiency
- Segregation and integration
- Structural and functional networks

Motion-immune human DWI

















Improving the scan efficiency of highresolution DWI with multi-band (i.e., simultaneous multi-slice) imaging















Summary

- Principles of DWI

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 The need for improving the spatial-resolution of DWI
 Technical challenges of multi-shot EPI based DWI
 Principles and application of MUSE technology
 Graph theory analyses of DWI based network map
 Reduction of motion-related artifacts in high-resolution DWI
 Improving the scan efficiency with multi-band imaging