



iMRI Invited

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AI-Based Detection of Focal Cortical Dysplasia

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Focal cortical dysplasia (FCD) is a frequent cause of drug-resistant epilepsy, and many lesions remain difficult to detect with conventional MRI such as T1 weighted, T2 weighted images. Accurate, noninvasive characterization of FCD and its subtypes is important for surgical planning and outcome prediction.

This presentation introduces a multiparametric framework based on high-resolution 3D MR fingerprinting (MRF) combined with artificial intelligence to provide quantitative evaluation of cortical abnormalities. MRF produces multiple tissue property maps in a single acquisition, allowing objective assessment of subtle structural changes that are often overlooked in routine visual review.

The presentation will discuss how this approach can distinguish FCD from normal cortex and other pathologies, and how it may contribute to the identification of clinically relevant subtypes. The study suggests that quantitative MRF can be applied as a practical imaging method to support presurgical evaluation and guide individualized treatment strategies in epilepsy.

Keywords: Focal cortical dysplasia, Epilepsy, MR fingerprinting, Quantitative MRI, Artificial intelligence