MOCCA: A fast Algorithm for parallel MRI reconstruction using model based coil calibration

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We propose a new fast algorithm for simultaneous recovery of the coil sensitivities and the magnetization image from incomplete Fourier measurements in parallel MRI. Our approach is based on suitable parameter models for both, the magnetization image and the sensitivities. The derived MOCCA algorithm provides perfect reconstruction results if the model assumptions are satisfied. Moreover, it has a low computational complexity and fits real MRI data sufficiently well such that it is applicable in practice. We also present a complete mathematical analysis of the proposed reconstruction method.

References

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