## Accelerated $^{1}$H-MRSI: artifact reduction by target-driven reconstruction

*T. Kirchner[1], K.P. Prüssmann[1], P. Boesiger[1] and A. Henning[1]*

*1 Institute of Biomedical Engineering, University of Zürich and ETH*

Since 2D MRSI examinations typically last excessively long, the use of acceleration techniques such as SENSE [1,2,3] is of great importance. However, in parallel MRSI, where the number of ***k***-space sampling points is extremely low, the spectra in a particular voxel often contain contributions by signal originating elsewhere. For instance, in a voxel near the center of the brain, contaminating fat peaks stemming from subcranial fat tissue may occur. In order to address this issue, we propose a novel reconstruction method [4]: The reconstruction matrix, which is subsequently applied to raw ***k***-space data, is calculated as the minimum of a custom-tailored cost function for each voxel. There, SNR and the deviation of the resulting Spatial Response Function (SRF) from an initially chosen target are minimized simultaneously. We demonstrate this method for human *in vivo* brain MRSI at 3T and show that a suitable choice of target SRF can help suppress fat artifacts near the center of the brain.

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[3] J Sánchez-González *et al*. MRM **55**, 287-295 (2006)
[4] KP Pruessmann, US patent No. 7.342.397