**An Iterative Algorithm with Joint Sparsity Constraints for Magnetic Tomography**

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Magnetic tomography is an ill-posed and ill-conditioned inverse problem since, in general, the solution is non-unique and the measured magnetic field is affected by strong noise.
We use a joint sparsity constraint to regularize the magnetic inverse problem. This leads to a minimization problem whose solution can be approximated by an iterative thresholded Landweber algorithm. The algorithm is proved to be convergent and an error estimate is also given.
Numerical tests on a bidimensional problem show that our algorithm outperforms Tikhonov regularization when the measurements are distorted by high noise.