McGill Computational Science and Engineering Seminar

Friday April 6th at 14:00 in Burnside Hall room 1205

Nonlinear Multigrid for Imaging Electrical Conductivity and Permittivity at low Frequency

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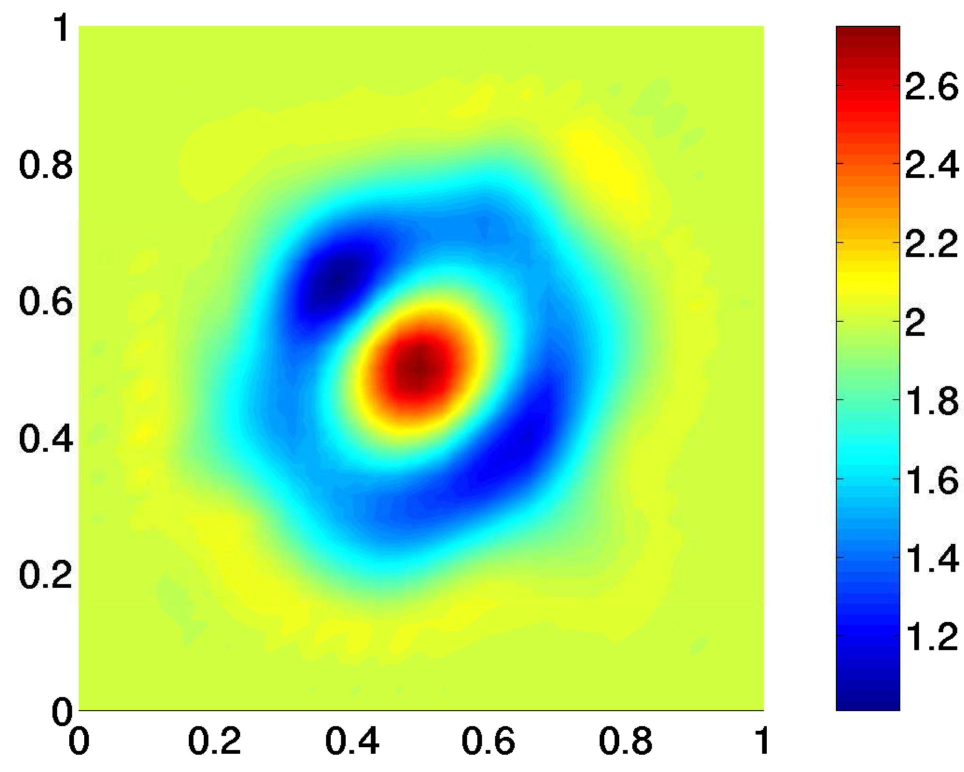
We propose a nonlinear multigrid approach for imaging the electrical conductivity and permittivity of a body, given partial, usually noisy knowledge of the Neumann to Dirichlet map at the boundary. The algorithm is a nested iteration, where the image is constructed on a sequence of grids, starting from the coarse grid and advancing towards the finest one. We show various numerical examples that demonstrate the effectiveness and robustness of the algorithm and prove local convergence.



Example of a reconstruction of a two-dimensional conductivity function.

Coffee and desserts are served after the seminar at 15:00 in the lounge, Burnside Hall 1024