Meeting: 1003, Atlanta, Georgia, SS 4A, AMS-SIAM Special Session on Theoretical and Computational Aspects of Inverse Problems, I

1003-35-179 **Liliana Borcea*** (borcea@caam.rice.edu), Computational and Applied Mathematics, MS 134, Rice University, 6100 Main Street, Houston, TX 77005-1892. *Optimal parametrizations for the numerical solution of some ill-posed inverse problems.*

In many inverse problems, we seek the coefficients in a partial differential equation, inside some domain, given the Neumann to Dirichlet map. These problems are ill posed, so proper parametrizations are paramount in any inversion scheme. I will discuss a finite volume approach to inversion, on so-called "optimal grids". The proof of convergence of the discrete solution to the true, continuum one, will be given, for one dimensional (layered media) problems. Extensions to multi-dimensions, will be briefly discussed. (Received August 18, 2004)