SEMINÁRIO DO DEPARTAMENTO DE GEOFÍSICA

"A New Non-Iterative Reconstruction Method for a Class of Inverse Problems"

Data: 11 de maio de 2017 (quinta-feira)
Horário: 16h30
Local: IAG/USP – Auditório 1

Este ano com Certificado de Participação*

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Several classes of inverse reconstruction problems are written in the form of over-determined boundary value problems. The general idea consists in rewriting then as an optimization problem. In particular, we are interested in the reconstruction of the support of a set of hidden anomalies embedded into a geometrical domain from partial boundary measurements. Therefore, a shape functional measuring the misfit of the solution obtained from the model and the data taken from the measurements is minimized with respect to a set of ball-shaped anomalies by using the concept of topological derivatives. It means that the shape functional is expanded asymptotically and then truncated up to the desired order term. The resulting expression is trivially minimized with respect to the parameters under consideration, leading to a non-iterative second order reconstruction algorithm. As a result, the reconstructionprocess becomes very robust with respect to noisy data and independent of any initial guess.

* Alunos com no mínimo 70% de presença nas palestras receberão um Certificado de Participação no final do ano.