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TITLE: Inverse problems: Some technical applications and some regularization techniques

ABSTRACT:

In this talk we will introduce the main features of inverse problems especially in the context of partial differential equations and give some examples of industrial applications.

Moreover, we will dwell on regularization strategies for linear and especially also for nonlinear ill-posed problems. Starting from the key step in the convergence proof of the well-known Tikhonov regularization in a Hilbert space setting, we will illustrate its extension in various directions such as:

- adaptive discretization
- regularization in Banach spaces
- iterative regularization by Newton type methods