Marielba Rojas
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will speak on

**Trust Regions in Large-Scale Optimization and Regularization**

**ABSTRACT:** Trust Regions yield efficient methods in optimization and in the regularization of discrete forms of ill-posed problems. The main calculation required by these methods is the solution of the so-called Trust-Region Subproblem (TRS):

$$\min \frac{1}{2}x^THx + g^Tx \quad s.t. \quad \|x\|_2 \leq \Delta$$

where $H$ is an $n \times n$ real, symmetric matrix, $g$ is an $n$-dimensional, real, non-zero vector, and $\Delta > 0$.

We describe the TRS, its properties and solution strategies. We discuss and compare state-of-the-art methods for the large-scale TRS and present applications from large-scale inverse problems.

**Monday, 6 October 2008**
**Lecture at 4:00 pm**
**Coffee, tea, and refreshments from 3-5 pm**
**Room 617, Wachman Building**
**Department of Mathematics**