Numerical Solution for Solving Least Squares Problems with Constraints

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Abstract: This talk is concerned with the numerical solution of least squares problems, which appear frequently and are fundamental in many areas of science and engineering. Least squares problems arise in many flavors, among which we mention unconstrained and constrained problems, total least squares, regularized least squares, and other classes of problems.

The talk will describe stable and efficient numerical techniques for solving the above mentioned variety of problems. I will describe SVD-related approaches, augmented system approaches and other methodologies, and will provide details on the numerical properties of the underlying linear systems of equations.