Title:
Interior point methods for large scale optimization

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Abstract:

In this talk I will discuss an impact made by interior point methods (IPMs) for optimization. IPMs deliver efficient and reliable solution techniques for linear, quadratic, nonlinear, second-order cone and semidefinite programming problems and excel when dimensions of problems are large [1,2].
They also provide an inspiration for a design of more general schemes for solving other classes of optimization problems by using an inexact Newton method embedded into a continuation scheme.

IPMs have been aplied to solve a plethora of engineering applications. In this talk I will briefly mention two of them:

(i) Sparse approximations arising when solving inverse problems in signal/image processing and machine learning [3]; and

(ii) Truss layout optimization problems arising in structural optimization [4], including cases when a global stability of the truss structure is taken into account [5].

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