

Department of Mathematical Sciences
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SEMINAR

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October 23, 2003
304 Whitehead Hall
Refreshments: 3:30 p.m.
Seminar: 4:00 p.m.

**FEASIBLE LAGRANGE–NEWTON INTERIOR-POINT ALGORITHMS
FOR INDEFINITE QUADRATIC PROGRAMMING AND
NON-CONVEX NONLINEAR PROGRAMMING**

ABSTRACT

The primal–dual interior-point framework for linear programming is first reviewed. Extension to indefinite (i.e., nonconvex) quadratic programming is then considered: difficulties are pointed out and remedies suggested, featuring feasibility of all iterates and monotone descent of the objective function. “Affine scaling” and “barrier-based” variants of an algorithm are proposed. The algorithms enjoy global convergence and local quadratic convergence to Karush–Kuhn–Tucker points. Extension to general nonlinear programming is briefly considered. Numerical results on test problems of medium size are reported.