Semismooth Newton's Methods for Matrix Equaltions

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Abstract:
The basic ideas of semismooth and smoothing Newton methods for solving symmetric matrix-valued equations (which include the semidefinite programming problem, the Lorentz cone optimization problem, and the semidefinite complementarity problem as special cases) are discussed. Interesting research problems and some new results are addressed, which may include the semismoothness of matrix-valued complementarity functions, sufficient condiotions for quadratic rate of local convergence, and sensitivity analysis of matrix-valued complementarity problems.