A Semi-Smooth Newton Method for Projection Equations

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In this talk, a special semi-smooth equation associated with the second order cone is presented. It is shown that, under mild assumptions, the semi-smooth Newton method applied to this equation is well-defined and the generated sequence is globally and Q-linearly convergent to a solution. As an application, the obtained results are used to study the linear second-order cone complementarity problem, with special emphasis on the particular case of positive definite matrices. Several open problems are formulated.