

On Solving Calm Models of Equilibria and Optimization

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In the talk we will be looking at a mathematical program with equilibrium constraints (MPEC), an optimization problem with parameter-dependent complementarity problems as side constraints and how to solve it.

The basic stability notion of calmness will be used for two reasons: First of all we require calmness (or at least the Abadie Constraint Qualification) of the constraint map $b \mapsto S(b) := \{x \mid g(x) \leq b\}$ in order to obtain an analytical description of the normal cone to $S(0)$ at $x^0 \in S(0)$ in form of the cone spanned by the gradients $Dg_j(x^0)$ of the active inequalities. Furthermore, we require calmness of the (bigger) inequality system which describes the KKT points of an optimization problem or – in similar form – equilibria of a game.