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Optimization and Control of Nonsmooth and Complementarity-Based Systems: Theory and Numerics

Optimal Control of VIs of the Second Kind

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Abstract: The talk is concerned with optimal control problems governed by VIs of the second kind. We will show that, under suitable structural assumptions, the solution mapping associated with the VI is (weakly) directionally differentiable, where the directional derivative is given by a VI of the first kind. This allows to derive optimality systems which can be interpreted as strong stationarity conditions known from the discussion of mathematical programs with equilibrium constraints. The VIs under consideration cover simplified friction problems as well as simplified Bingham flows.

This is joint work with Juan Carlos de los Reyes (EPN Quito).