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ONE WORLD OPTIMIZATION SEMINAR

April 19th 2021 @ 15:30 CEST (Central European Summer Time)

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Sensitivity Analysis without Derivatives

Abstract. The classical sensitivity analysis developed in the early days of optimization and control revolves around determining derivatives of optimal values and solutions with respect to parameters in the problem considered. In problems with constraints however, (standard) differentiability typically fails. The idea to obtain implicit function theorems without differentiability goes back to Hildebrandt and Graves in their paper from 1927 and has been developed for optimization problems in the 1980's.

In this talk some major developments in sensitivity analysis of optimization problems in the last several decades are outlined. Estimates for solution dependence on various perturbations are derived based on regularity properties of mappings involved in the description of the problem. Applications to mathematical programming, numerical optimization and optimal control illustrate the theoretical findings.

The link of the zoom-room of the meeting and the corresponding password will be announced the day before the talk on the mailing list of the seminar, to which one can subscribe on https://owos.univie.ac.at.