



universität
wien

Fakultät für Mathematik
Oskar-Morgenstern-Platz 1
A-1090 Vienna
Austria

<https://owos.univie.ac.at>

ONE WORLD OPTIMIZATION SEMINAR

October 12th 2020 @ 15:30 CEST (Central European Summer Time)

R. TYRRELL ROCKAFELLAR

(University of Washington)

Augmented Lagrangians and Hidden Convexity in Sufficient Conditions for Local Optimality

Abstract. Second-order sufficient conditions for local optimality have long been central to designing solution algorithms and justifying claims about their convergence. In this talk a far-reaching extension of such conditions, called variational sufficiency, will be explained in territory beyond just nonlinear programming. Variational sufficiency is already known to support multiplier methods that are able, even without convexity, to achieve problem decomposition, but further insight has been needed to see how it coordinates with other sufficient conditions. In fact it characterizes local optimality in terms of having a convex-concave-type local saddle point of an augmented Lagrangian function.

A stronger version of variational sufficiency corresponds in turn to local strong convexity in the primal argument of that function and a property of augmented tilt stability which offers crucial aid to Lagrange multiplier methods at a fundamental level of analysis. Moreover, that strong version can be translated through second-order variational analysis into statements which may readily be compared to existing sufficient conditions in nonlinear programming, second-order cone programming, and other problem formulations that are able to incorporate nonsmooth objectives and regularization terms.

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>.