

HABILITATIONSVORTRAG

EINLADUNG

Dr. Ernő Robert Csetnek
(Fakultät für Mathematik, Universität Wien)

**„Approaching nonsmooth and nonconvex
optimization problems through continuous and
discrete proximal-type algorithms“**

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Abstract:

We consider the nonconvex optimization problem consisting in minimizing the sum of a smooth function with a nonsmooth one from the perspective of a continuous dynamical system of forward-backward type. The latter is formulated by means of the gradient of the smooth function and of the proximal point operator of the nonsmooth one.

The aim is to recover critical points of the objective function, that is elements satisfying the first order optimality conditions expressed via the limiting subdifferential. The trajectory generated by the dynamical system is proved to asymptotically converge to a critical point of the objective, provided a regularization of the latter satisfies the Kurdyka-Lojasiewicz property. Convergence rates for the trajectory in terms of the Lojasiewicz exponent of the regularized objective function are also provided.

In the second part of the talk we consider a discretized version of the investigated dynamical system and present the convergence properties of an iteratively generated sequence for solving optimization problems where both functions from the objective are nonconvex. We illustrate the theoretical results by considering two numerical experiments.

**Vortrag: Mittwoch, 2. März 2016,
10.00 Uhr -11.00 Uhr**

**Ort: Fakultät für Mathematik,
HS 11, 2. OG, Oskar-Morgenstern-Platz 1**

Otmar Scherzer
Harald Rindler