

## Seminar Optimization and Equilibrium

**Speaker:** Prof. Boris Mordukhovich, Distinguished University Professor of Mathematics Wayne State University, USA.

**Title:** Generalized Newton Algorithms for Tilt-Stable Minimizers in Nonsmooth Optimization

**Abstract:** This talk aims at developing two versions of the generalized Newton method to compute local minimizers for nonsmooth problems of unconstrained and constrained optimization that satisfy an important stability property known as tilt stability. We start with unconstrained minimization of continuously differentiable cost functions having Lipschitzian gradients and suggest two second-order algorithms of the Newton type: one involving coderivatives of Lipschitzian gradient mappings, and the other based on graphical derivatives of the latter. Then we proceed with the propagation of these algorithms to minimization of extended-real-valued prox-regular functions, while covering in this way problems of constrained optimization, by using Moreau envelopes. Employing advanced techniques of second-order variational analysis and characterizations of tilt stability allows us to establish the solvability of subproblems in both algorithms and to prove the Q-superlinear convergence of their iterations. Based on joint work with Ebrahim Sarabi (Miami University, USA).

Online via Google Meet [meet.google.com/gyf-mpcb-tre](https://meet.google.com/gyf-mpcb-tre)  
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