

Variational Analysis of Composite Models with Applications to Continuous Optimization

Boris Mordukhovich

Wayne State University, Detroit, Michigan

The talk is devoted to a comprehensive study of composite models in variational analysis and optimization the importance of which for numerous theoretical, algorithmic, and applied issues of operations research is difficult to overstate. The underlying theme of our study is a systematical replacement of conventional metric regularity and related requirements by much weaker metric subregularity ones that lead us to significantly stronger and completely new results of first-order and second-order variational analysis and optimization. In this way we develop extended calculus rules for first-order and second-order generalized differential constructions with paying the main attention in second-order variational theory to the new and rather large class of fully subamenable compositions. Applications to optimization include deriving enhanced no-gap second-order optimality conditions in constrained composite models, complete characterizations of the uniqueness of Lagrange multipliers and strong metric subregularity of solution maps for KKT systems in parametric optimization, etc.

Based on joint work with Ashkan Mohammadi and Ebrahim Sarabi.