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Boris Mordukhovich and **Nghia Tran*** (nghia@math.wayne.edu), 1150 FAB, 656 W. Kirby, Detroit, MI 48202. *Second-order variational analysis and characterizations of tilt-stable optimal solutions in finite and infinite dimensions.*

The paper is devoted to developing second-order tools of variational analysis and their applications to characterizing tilt-stable local minimizers of constrained optimization problems in finite-dimensional and infinite-dimensional spaces. The importance of tilt stability has been well recognized from both theoretical and numerical aspects of optimization. Based on second-order generalized differentiation, we obtain qualitative and quantitative characterizations of tilt stability in general frameworks of constrained optimization and establish its relationships with strong metric regularity of subgradient mappings and uniform second-order growth conditions. The results obtained are applied to deriving new necessary and sufficient conditions for tilt-stable minimizers in problems of nonlinear programming with twice continuously differentiable data in Hilbert and Euclidean spaces. (Received September 07, 2012)