1043-49-85   **BAO QUANG TRUONG*** (`btruong@nmu.edu`), Mathematics and Computer Science Department, 1401 Presque Isle Avenue, Marquette, MI 49855. *Some Applications of Mordukhovich Coderivative for Set-Valued Mappings to Multiobjective Optimization.*

Coderivative for general set-valued mappings defined via the basic/limiting/ Mordukhovich normal cone to their graphs was introduced by Mordukhovich in 1980, then further developed to its full and comprehensive calculi. It was motivated by applications to optimal control of differential inclusion $\dot{x} \in F(x,t)$. Recently, there has been an increasing interest in set-valued optimization. It turns out that coderivative for set-valued mappings is the right tool for formulation of optimality conditions.

In this talk we present not only necessary and sufficient conditions for optimal solutions but also conditions ensuring the existence of such solutions to set-valued optimization problems with abstract geometric constraints. Established based on advanced tools of variational analysis and generalized differentiation; in particular, the fundamental *extremal principle* that can be treated as a variational counterpart of the classical separation in the case of nonconvex sets, these conditions are *new* in both finite-dimensional and infinite-dimensional settings.

Dedicated to Professor Boris Mordukhovich in honor of his 60th birthday. (Received August 19, 2008)