1035-49-90 **Bao Quang Truong*** (tqbao@math.wayne.edu), 656 W. Kirby, Room 1104 Faculty/Administration Bldg., Detroit, MI , and **Boris S Mordukhovich** (boris@math.wayne.edu), 656 West Kirby Avenue, 1150 Faculty/Administration Bldg, Detroit, MI. *Necessary and sufficient conditions for global weak Pareto solutions in constrained multiobjective optimization.*

This talk concerns new subdifferential necessary and sufficient conditions for global weak Pareto solutions to multiobjective constrained optimization problems of the type:

$$\text{minimize} \quad F(x) \quad \text{subject to} \quad x \in \Omega,$$

where $F : X \rightrightarrows Z$ is a set-valued mapping, where Ω is a subset of a Banach space X admitting a Féchet smooth renorm, and where the image space Z is a Banach space partially ordered by a closed, convex, and pointed cone. The new conditions are 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. We present some applications of the results obtained to problems in operations research and economics.

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