



Volume 4, Issue 4, Article 67

## On Generalized Monotone Multifunctions with Applications to Optimality Conditions in Generalized Convex Programming

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**Keywords:** Generalized monotone multifunction, Generalized convex function, Quasiconvex, Pseudoconvex, Generalized subdifferentials, Normal cone, Level set, Local minimum, Global minimum, Variational inequalities.

**Date Received:** 29/05/02

**Date Accepted:** 16/03/03

**Subject Codes:** 90C26, 26B25, 47H04.

**Editors:** [M. Zuhair Nashed](#),

**Abstract:** Characterization of quasiconvexity and pseudoconvexity of lower semicontinuous functions on Banach spaces are presented in terms of abstract subdifferentials relying on a Mean Value Theorem. We give some properties of the normal cone to the lower level set of  $f$ . We also obtain necessary and sufficient optimality conditions in quasiconvex and pseudoconvex programming via variational inequalities.



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