

Original Articles

# On First Order Optimality Conditions for Vector Optimization

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**摘要** We develop first order optimality conditions for constrained vector optimization. The partial orders for the objective and the constraints are induced by closed and convex cones with nonempty interior. After presenting some well known existence results for these problems, based on a scalarization approach, we establish necessity of the optimality conditions under a Slater-like constraint qualification, and then sufficiency for the K-convex case. We present two alternative sets of optimality conditions, with the same properties in connection with necessity and sufficiency, but which are different with respect to the dimension of the spaces to which the dual multipliers belong. We introduce a duality scheme, with a point-to-set dual objective, for which strong duality holds. Some examples and open problems for future research are also presented.

**关键词** [cone constraints](#) [vector optimization](#)

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**Key words** [cone constraints](#) [vector optimization](#)

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