

# Characterization of efficient solutions in nonconvex vector optimization

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This paper presents existence conditions and characterization theorems for minimal points of nonconvex vector optimization problems in reflexive Banach spaces. Characterization theorems use special class of monotonically increasing sublinear scalarizing functions which are defined by means of elements of augmented dual cones. It is shown that the Hartley cone-compactness is necessary and sufficient to guarantee the existence of a properly minimal point of the problem. The necessity is proven in the case of finite dimensional space.

**Keywords:** vector optimization, nonlinear separation theorem, sublinear scalarizing functions, conic scalarization method, proper efficiency, existence theorem