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A New Type of Stable Generalized Convex Functions

Abstract:

S-quasiconvex functions (Phu and An, Optimization, Vol. 38, 1996) are stable with respect to the properties: "every lower level set is convex", "each local minimizer is a global minimizer", and "each stationary point is a global minimizer" (i.e., these properties remain true if a sufficiently small linear disturbance is added to a function of this class). In this paper, we introduce a subclass of s-quasiconvex functions, namely strictly s-quasiconvex functions which guarantee the uniqueness of the minimizer. The density of the set of these functions in the set of s-quasiconvex functions and some necessary and sufficient conditions of these functions are presented.

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