ON A GENERIC EXISTENCE RESULT IN OPTIMIZATION

Alexander J. Zaslavski

Abstract

In this talk we discuss the minimization problem $f(x) + h(x) \to \min$, $x \in X$ with $f \in C_l(X)$ and $h \in M$. Here X is a complete metric space, $C_l(X)$ is the space of all lower semicontinuous bounded from below functions on X endowed with an appropriate uniform structure and M is a countable union of compact subsets of $C_l(X)$. We show the existence of a set $\mathcal{F} \subset C_l(X)$ which is a countable intersection of open everywhere dense sets in $C_l(X)$ such that for each $f \in \mathcal{F}$ and each $h \in M$ the minimization problem has a solution and, moreover, the set of its solutions is compact. In particular this result is valid when M is a countable union of a convex hull of finite sets in $C_l(X)$ satisfying certain assumptions.

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