Balder, E. J.
Lower closure for orientor fields by lower semicontinuity of outer integral functionals.
(English) \[Zbl 0569.49028\]

Basic classical results in optimal control theory rely on the lower semicontinuity of the cost functional and measurability of the control functions. Corresponding assumptions of measurability of set-valued functions appear in the formulation of control systems by differential inclusions. The proof of measurability of these related set-valued functions is usually technically quite involved. The present paper makes such proof unnecessary in many cases, by proving that the lower semicontinuity of the outer integral (which always exists) already guarantees the closure properties which are the usual goal in existence theorems of optimal controls.


Reviewer: E. Roxin

MSC:
93B05 Controllability
49J45 Methods involving semicontinuity and convergence; relaxation
49J27 Existence theories for problems in abstract spaces
28B20 Set-valued set functions and measures; integration of set-valued functions; measurable selections
34A60 Ordinary differential inclusions
54C08 Weak and generalized continuity
54C60 Set-valued maps in general topology

Keywords:
lower semicontinuity; differential inclusions

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