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Minimax theorems for functions involving a real variable and applications. (English)

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Summary: We offer an overview of various applications of certain minimax theorems for functions of two variables one of which runs over a real interval.

MSC:

49K35  Optimality conditions for minimax problems
49K40  Sensitivity, stability, well-posedness
90C47  Minimax problems in mathematical programming
47H10  Fixed-point theorems
47J15  Abstract bifurcation theory involving nonlinear operators
47J30  Variational methods involving nonlinear operators
58E05  Abstract critical point theory (Morse theory, Lyusternik-Shnirel’man theory, etc.) in infinite-dimensional spaces
58E07  Variational problems in abstract bifurcation theory in infinite-dimensional spaces
34B15  Nonlinear boundary value problems for ordinary differential equations
35J65  Nonlinear boundary value problems for linear elliptic equations
54D05  Connected and locally connected spaces (general aspects)

Keywords:

minimax theorems; connectedness; integral functionals on $L^p$ and Sobolev spaces; local and global minima; potential operators; critical points; nonlinear equations; multiplicity, singular set; bifurcation; boundary value problems; well-posedness of constrained minimization problems; Chebyshev sets