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Title: Minimizers of nonsmooth functionals on manifolds and nonlinear eigenvalue problems with constraints

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In this paper first we prove a theorem on the relation between $C_0^1(\bar{Z})$ and $W_0^{1,p}(Z)$ local minimizers of a locally Lipschitz functional on a smooth submanifold of codimension one. Our result extends the semilinear, smooth works of Brezis–Nirenberg (CRAS, t.317 (1993), no constraints) and Tehrani (Non. Anal. 26 (1996), on manifolds). Then using this result and nonsmooth critical point theory, we prove a three critical points theorem for locally Lipschitz functionals on manifolds. Finally the results are used to establish three nontrivial solutions for eigenvalue problems with nonsmooth potential and constraints.

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