Schwarz symmetric solutions for E-differentiable functionals

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Let X be a Banach space, E be a dense subspace of X. Let f be a continuous functional defined on X. First we introduce the E-differentiable notion of the function f and prove the existence of a third symmetric invariant critical point of the functional f, having already two different critical points. Then we use this result for a special E-differentiable energy functional $\mathcal{E}_\lambda(u) = J(u) - \lambda\mathcal{F}(u)$, proving that for every λ in a given interval, the energy functional has three different Schwarz symmetric invariant solution. We end with an application of the presented results for a quasilinear eigenvalue problem.

References

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