



ANALISYS SESSION

Critical points with prescribed energy for a class of functionals depending on a parameter.

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Monday, February 05, 2024.

14h - 14h40

Anfiteatro 11

Abstract.

Given $c \in \mathbb{R}$ we look for couples $(\lambda, \mu) \in \mathbb{R} \times X$ solving the problem

$$\phi'_\lambda(u) = 0, \phi_\lambda(u) = c$$

Here $\phi_\lambda = I_1 - \lambda I_2$, where I_1 and I_2 are C^1 even functionals on a Banach space X . Under further conditions on I_1 and I_2 we prove the existence of infinitely many couples $(\lambda_{n,c}, u_{n,c})$ solving this problem. More generally, we analyze the structure of the solution set of this problem with respect to λ and c . In particular, we show that the maps $c \mapsto \lambda_{n,c}$ are continuous, which gives rise to a family of *energy curves* for this problem. The analysis of these curves provide us with several bifurcation type results, which are then applied to some elliptic problems. Our approach is based on the *nonlinear generalized Rayleigh quotient* method.

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