

Publication

A variational problem for multifunctions with interaction between leaves

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We discuss a variational problem defined on couples of functions that are constrained to take values into the 2-dimensional unit sphere. The energy functional contains, besides standard Dirichlet energies, a non-local interaction term that depends on the distance between the gradients of the two functions. Different gradients are preferred or penalized in this model, in dependence of the sign of the interaction term. In this paper we study the lower semicontinuity and the coercivity of the energy and we find an explicit representation formula for the relaxed energy. Moreover, we discuss the behavior of the energy in the case when we consider multifunctions with two leaves rather than couples of functions.

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