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Title: *Relaxation of nonlocal variational problems with double-well potentials*

Abstract:

In nonlocal variational problems, like those appearing in peridynamics, the energy functional object of the study is given by a double integral. If the integrand is not convex, the functional is not lower semicontinuous the weak topology of L^p, and a usual approach consists in computing the relaxation, i.e. the lower semicontinuous envelope.

In this talk I will present some results obtained in collabotration with Carlos Mora-Corral (Universidad AutÃ³noma de Madrid), showing that, for a scalar problem with a double-well integrand, the relaxation is nontrivial, and, contrary to the local case, it cannot be represented through an integral form similar to the one of the original problem. Nonetheless, some analogies with the local case are maintained, since the relaxation can be expressed in terms of the energy of a suitable truncation of the considered potential.