

Geometrically constrained kinklike configurations

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In this work we study kinklike structures, which are localized solutions that appear in models described by real scalar fields. The model to be considered is characterized by two real scalar fields and includes a function of one of the two fields that modifies the kinematics associated to the other field. The investigation brings to light a first order framework that minimizes the energy of the solutions by introducing an auxiliary function that directly contributes to describe the system. We explore an interesting route, in which one field acts independently, entrapping the other field, inducing important modifications in the profile of the localized structure. The procedure may make the solution to spring up as a kinklike configuration with internal structure, engendering the important feature that also appears directly connected with issues of current interest at the nanometric scale, in particular in the electronic transport in molecules in the presence of vibrational degrees of freedom.

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