

# **Structures of Local Minimizers of a One-Dimensional Higher Order Variational Problem**

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## **Abstract**

We present results on the structures of local minimizers of a one-dimensional variational problem. The energy functional under investigation is motivated by the study of coherent solid-solid phase transformations and the competition between the effects from the regularization and formation of small scale structures. We can prove the periodicity of all local minimizers with low enough energy. This is due to some intricate interactions between the boundaries of different phases.