

# Cahn-Hilliard models in elastic solids

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The talk is concerned with the Cahn-Hilliard models in deformable continua. In the first part we outline the thermodynamical derivation of a general scheme of such models which is based on the second law in the form of the Müller-Liu entropy inequality with multipliers. We compare the results with the well-known model due to M. E. Gurtin, based on the microforce balance.

In the second part of the talk we consider a simple version of the model corresponding to the case of infinitesimal deformations and material isotropy and homogeneity. It has the form of the Cahn-Hilliard equation coupled with nonstationary elasticity. For such parabolic-hyperbolic system we present recent existence and uniqueness results. The existence proof is based on the Leray-Schauder fixed point theorem.