

INVESTIGATION OF NONLINEAR MODELS IN THE  
THEORY OF ELASTIC MIXTURES

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*Abstract*

In this paper a statical nonlinear model for multicomponent mixture is constructed and general expressions for response functions of the stress tensors of the constituents for isotropic elastic mixtures are given. For one nonlinear model of two-component elastic mixture a theorem on existence and uniqueness of local solution to corresponding boundary value problem is obtained. In the case of multicomponent hyperelastic mixture the Dirichlet boundary value problem is considered and the existence of global solution in suitable spaces is proved.

*Key words and phrases:* nonlinear models of elastic mixtures, boundary value problems.

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