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SOME BODY DYNAMICS PROBLEMS OF ELASTICITY AND THERMOELASTICITY

Some body dynamics problems of the theory of elasticity and thermoelasticity are investigated for homogeneous and composite bodies with cavities when all physical factors produced by deformation are polynomially time-dependent.

Algorithms of the solution of the above-mentioned problems are constructed by reducing the latter to the definite three-dimensional problems of statics. Stress and displacement components, which define the state of the considered bodies, are represented as polynomials with respect to time whose coefficients are given by solutions of the three-dimensional problems of statics.

Some examples of bodies (solid and hollow balls) and oscillations (of a round membrane, rod and string) are considered. These examples illustrate the application of the problem solution algorithms.