On hierarchical two-dimensional models of thermoelastic shells with two relaxation times

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Nonclassical model for thermoelastic bodies, which depend on two relaxation times, is considered. General initial-boundary value problem corresponding to three-dimensional model is studied and in corresponding spaces of vector-valued distributions existence and uniqueness of solution is proved. A hierarchy of dynamical nonclassical two-dimensional models, which depend on two relaxation times, is constructed. The initial-boundary value problems corresponding to the obtained models is investigated. Relationship between constructed models and original three-dimensional one is studied. Convergence of the sequence of vector-functions of three space variables restored from the solutions of the reduced two-dimensional models is proved in corresponding spaces and under suitable conditions modeling error is estimated.