

The report is devoted to the study of solvability (in weak and strong senses) of a number of initial-boundary value problems appearing both in a classical Jeffrice's model of the motion of visco-elastic media and in its regularized version. The results are obtained by the following approximate-topological method. At first we give the operator treatment of the considered problem reaching the operator equation in some functional space which is natural for this problem. For this equation we suggest a family of auxiliary operator equations defined in a functional space which has the better topological properties. Further, the application of some versions of the topological degree theory in Banach spaces and a priori estimations allows to obtain the solvability of these auxiliary equations. At last, a weak limit passage in the sequence of solutions of auxiliary equations, based on a priori estimates of these solutions in the initial functional space, leads to the solution of the principal operator equation and, hence, to the solution of the considered initial-boundary value problem.