

About the approximate solution of two practical problems of the elasticity theory

Archil Papukashvili

In this work we consider the issues of the approximate solution for the following two practical problems:

1. The anti-plane problem of the elasticity theory for a composite body weakened by a perpendicular crack of the dividing boundary.

The anti-plane problem of the elasticity theory for a composite (piece-wise homogeneous) orthotropic (in particular, isotropic) plane weakened by a crack, when the crack intersects or reaches the interface, at right angles, is studied by the integral equation method.

2. Non-linear initial-boundary value problem for the J. Ball dynamic beam.

The solution of the problem should be obtained by the algorithm which components are the Galerkin method, the symmetric difference scheme and the Jacobi iterative method.

For both of these problems are constructed the new algorithms of approximate solutions and numerical experiments are done. The results of the computations are presented by tables and diagrams.