The wave field in a rectangular area with discontinuities in boundary conditions

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Abstract: In this study, we consider the plane elastic isotropic media with a rectangular cross section of finite size. At the initial time on a certain part of the front of the rectangular field of applied external dynamic is Π - shaped loading and the remainder of this boundary is stress-free. Another side of the rectangular area is defined by boundary conditions. For plane strain conditions, the problem is solved numerically by using the spatial characteristics [1-2]. Especially, we consider the body such that the singular points of the rectangular area of the front boundary conditions have discontinuity of the first kind. Namely, in these critical points the system of equations for the unknown functions are obtained. The stability calculation algorithms for a sufficiently long time is established by numerical implementation. Result of the study in its final form brought to the numerical solution.

Keywords: dynamic loading, plane deformation, singular point, elastic.

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