

Some Basic Problems for the Elastic Material with Voids in the Case of Approximation $N=1$ of Vekua's Theory

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Abstract : In this work, we consider some boundary value problems for the plate. The plate is the elastic material with voids. The state of plate equilibrium is described by the system of differential equations that is derived from three-dimensional equations of equilibrium of an elastic material with voids (Cowin-Nunziato model) by Vekua's reduction method. Its general solution is represented by means of analytic functions of a complex variable and solutions of Helmholtz equations. The problem is solved analytically by the method of the theory of functions of a complex variable.

Keywords : the elastic material with voids, boundary value problems, Vekua's reduction method, a complex variable

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