

On the construction of approximate solutions of some plane boundary value problems for elastic bodies with voids

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The report considers the case of plane deformation for the Cowin-Nunziato model, which describes the static equilibrium of elastic bodies with voids. The general solution of the corresponding system of two-dimensional equations is written using any two harmonic functions and the solution of the Helmholtz equation. Based on the general representation and using the method of fundamental solutions, an algorithm is presented that allows one to approximately solve the corresponding boundary value problems. With above mentioned algorithm, approximate solutions of various boundary value problems are constructed for square domains with circular holes.