

Reconstruction of the material parameters of the homogenous isotropic or orthotropic 2D continuum

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Abstract

The paper describes the way how to find the material parameters of the homogenous isotropic or orthotropic 2D continuum from measurements of deformation of selected nodes. The FE method is used for reconstruction of the stiffness matrix. The developed method enables to determine the angle between the material axes of the continuum and the local coordinate system of the used elements.

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1. Introduction

In the paper it is presented the way how to detect material characteristics of the 2D homogenous continuum from the deformation measurement of the defined points. Assured material characteristics are used for reconstruction of the stiffness matrix of the solved construction. In the first approximation it is assumed the linear theory of elasticity and homogenous isotropic or orthotropic material description. The example for the method demonstration is in Fig. 1.

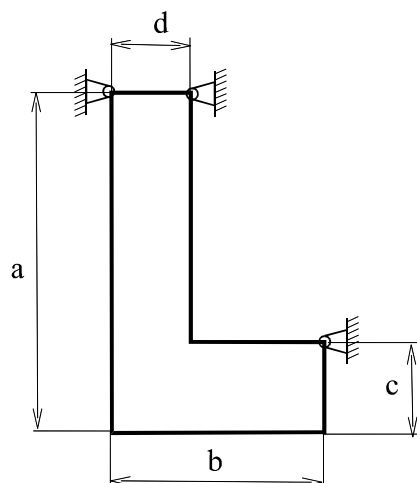


Fig. 1. Solved problem - 2D continuum.

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