ON A HIERARCHICAL MODEL OF ELASTIC RODS
WITH VARIABLE CROSS-SECTIONS

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Abstract

The present paper is devoted to the construction and investigation of one-dimensional hierarchical model of elastic rod with variable non-rectangular cross-sections. The three-dimensional static boundary value problem is reduced to a sequence of one-dimensional ones and the existence and uniqueness of their solutions in suitable spaces are proved. Under the conditions of solvability of the original problem, the convergence of the sequence of vector functions of three variables restored from the solutions of the constructed one-dimensional problems is proved and the rate of convergence is estimated.