ON THE INVESTIGATION OF STATIC HIERARCHIC MODEL FOR ELASTIC RODS [1]

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Abstract

In the present paper static one-dimensional hierarchical model for elastic cusped rod is constructed. The corresponding boundary value problem is studied and the uniqueness and existence of its solution in suitable weighted Sobolev spaces is proved. The convergence of the sequence of approximate solutions restored from the solutions of one-dimensional problems to the solution of original three-dimensional problem is proved and under regularity conditions the rate of approximation is estimated.

Key words and phrases: Mathematical modelling of linearly elastic cusped rods, *a priori* error estimation.

AMS subject classification: 74K10, 65N30, 42C10.

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[1]Dedicated to the memory of Professor Victor Kupradze on the occasion of the 100th anniversary of his birth