Optimal design of the beam under Eigen-oscillation frequency constraints

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The problem considered in the work is relevant to the current situation in the field of elastic body shape optimization. The proposed method of solving the problem is suitable for use in practice. Various conditions of end restraint were studied. For the numerical solving the extreme problem the methods of successive approximations and the gradient projection were used. The problem is solved considering various beam parameter constraint conditions naturally arising in solving such problems. To calculate the optimal shape of the beam deflection by the modern information technology, convenient for the user software was developed, allowing the results of calculations to be clearly demonstrated.

Keywords: *optimization of the oscillation frequency, method of descent.*

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