

ENGLISH SUMMARY

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SOLUTION OF TIMOSHENKO BEAM BY THE METHOD OF CHARACTERISTICS

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Flexural elastic wave propagation in Timoshenko beams is analysed. The method of characteristics is used for the numerical solution of the problem. The numerical solution is compared with finite element, difference and general series solution.

ON WEIGHTING FUNCTIONS FOR WEAK FORMS

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Weak forms for the finite element solution of the convection-diffusion problem are derived in a way which should be easy to comprehend. The starting point is the boundary value problem extended with suitable jump conditions. The aim is a convenient form numerical calculations giving accurate nodal values. The weighting functions are selected so that the procedures tend to the Galerkin method when the mesh is refined enough if the trial functions are of the linear type. In the best cases a formulation is achieved giving as the solution the element interpolation to the exact solution. One dimensional special cases of the convection-diffusion problem are considered first in an effort to explain the lines of thought used. Finally the more complicated two dimensional case is studied.