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4.2 Displacement Fields of Structural Rod Elements4.3 Theories of Beams; 4.4 Displacement Fields of Structural Beam Elements; 4.5 Dispersion Curves; 4.6 Certain Numerical Considerations; 4.6.1 Natural Frequencies; 4.6.2 Wave Propagation; 4.7 Examples of Numerical Calculations; 4.7.1 Propagation of Longitudinal Elastic Waves in a Cracked Rod; 4.7.2 Propagation of Flexural Elastic Waves in a Rod; 4.7.3 Propagation of Coupled Longitudinal and Flexural Elastic Waves in a Rod; References; 5 Two-Dimensional Structural Elements; 5.1 Theories of Membranes, Plates and Shells
5.2 Displacement Fields of Structural Membrane Elements

Sommario/riassunto

Understanding and analysing the complex phenomena related to elastic wave propagation has been the subject of intense research for many years and has enabled application in numerous fields of technology, including structural health monitoring (SHM). In the course of the rapid advancement of diagnostic methods utilising elastic wave propagation, it has become clear that existing methods of elastic wave modeling and analysis are not always very useful; developing numerical methods aimed at modeling and analysing these phenomena has become a necessity. Furthermore, any methods developed need to b