

Finite element vibration analysis of beams, plates and shells

A bibliography (1994–1998)

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This bibliography lists references to papers, conference proceedings and theses/dissertations dealing with finite element vibration analysis of beams, plates and shells that were published in 1994–1998. It contains 361 citations. Also included, as separated subsections, are vibration analysis of composite materials and vibration analysis of structural elements with cracks/contacts.

1. Introduction

The information is the most valuable, but least valued, tool the professional has. The output of scientific papers is growing and nobody is longer able to be fully up-to-date with all the relevant information. It is also known that a number of channels that researchers/practical engineers have at their disposal for information retrieval increases fast but it is questionable if researchers/practical engineers are willing to spend time for looking for information. It has been pointed out that in engineering, informal knowledge channels are the most frequently used means of obtaining information. Many professionals prefer to rely on personal judgment or on the wisdom of their colleagues whenever they have problems to solve. Hopefully, it is the author's expectation that this bibliography will save time for readers looking for information dealing with subjects described below.

This bibliography provides a list of references on finite element vibration analysis of beams, plates and shells. General solution techniques as well as problem-specific applications are included. The en-

tries have been retrieved from the author's database, MAKEBASE [1,2]. They are grouped into three main sections:

- Beams
- Plates
- Shells

Each main section contains at its end the following two subsections: vibration analysis of *composite* beams, plates and shells; vibration of beams, plates and shells *containing crack/contact*, respectively. The references have been published in scientific journals, conference proceedings, and theses/dissertations between 1994–1998. They are sorted in each category alphabetically according to the first author's name.

2. Beams

The main topics in this category include: developments of beam elements for vibration analysis; linear and nonlinear vibration analyses; free and forced vibrations; random vibrations; in-plane and out-of-plane free vibrations; flexural and longitudinal vibrations; transverse vibrations; torsional vibrations; coupled bending/torsional modes; coupled extensional/flexural/torsional modes; vibration suppression/damping; adaptive methods; error estimation; crack identification from modal response; delamination problems; identification of crack location; elastic and nonlinear elastic foundations; two-parameter elastic foundation.

Types of beams under consideration: simply supported beams; cantilever beams; straight and curved beams; curved beams with shear deformability; curved rods; short beams; slender beams; tapered beams; tapered thin open section beams; deep beams; thin-walled beams; thin-walled beams with nonsymmetric cross section; box beams; flexible latticed beams; lattice girders; layered sandwich beams; channel beams; Timoshenko beams; Bernoulli–Euler beams; Rayleigh–

Timoshenko beams; beam grillages; beam-columns; beam-plate structures; coupled beams; cracked beams; bonded beams; partially embedded beams.

Materials: elastic; viscoelastic; isotropic; anisotropic; composites; laminated composites; fiber reinforced composites; smart materials.

3. Plates

In this section the following topics are included: developments of plate elements for vibration analysis; linear and nonlinear vibration analyses; free and forced vibrations; random vibrations; flexural vibrations; lateral vibrations; transverse vibrations; thermomechanical vibration analyses; adaptive methods; error estimation; determination of mechanical properties; delamination problems; damage detection; flexible support; elastic foundation; Pasternak foundation; two-parameter elastic foundation.

Types of plates analysed: simply supported and clamped plates; plates with a concentrated mass; thin and thick plates; skewed thick plates; moderately thick plates; plates with a free edge; curved and twisted plates; triangular plates; rectangular plates; circular plates; penta- and heptagonal plates; annular plates; rhombic plates; shear deformable plates; variable thickness plates; trapezoidal plates; L-shaped plates; layered plates; stiffened plates; sandwich plates; cellular plates; plates with a hole; perforated plates; plates with voids; Kirchhoff plates; Mindlin plates; Reissner–Mindlin plates; plate assemblies; beam-plate structures; thin-wall panels; bolted plates; bonded plates; cracked plates.

Materials of plates: isotropic; orthotropic; anisotropic; nonlinear hysteretic; nickel-based and superalloys; composites; laminated composites; fiber-reinforced composites; cross-ply laminates; angle-ply laminates; metal-piezoceramic composites; metal matrix composites; smart materials.

4. Shells

Subjects handled in this last category are: developments of shell elements for vibration analysis; linear and nonlinear vibration analyses; free and forced vibrations; thermally induced vibrations; damping analysis; adaptive methods; error estimation.

Types of analysed shells: free and clamped shells; partially supported shells; thin and thick shells; moder-

ately thick shells; skewed shells; open shells; axisymmetric shells; nearly axisymmetric shells; nonuniform shells; cylinders; thin shallow spherical shells; conical shells; spherical shells; toroidal shells; helicoidal shells; rhombic hyper-shells; variable thickness shells; sandwich shells; perforated shells; stiffened shells; layered shells; shell panels; conical panels; spherical caps; cracked shells.

Materials: isotropic; orthotropic; anisotropic; hyperelastic; composites; laminated composites; fiber reinforced composites; metal matrix composites.

Readers interested in the finite element literature in general are referred to [3] or to the author's Internet Finite Element Book Bibliography (<http://www.solid.ikp.liu.se/fe/index.html>).

Acknowledgement

The bibliography presented is by no means complete but it gives a comprehensive representation of different finite element applications on the subjects. The author wishes to apologize for the unintentional exclusions of missing references and would appreciate receiving comments and pointers to other relevant literature for a future update.

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