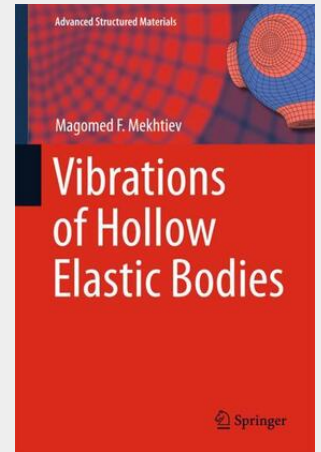


Vibrations of Hollow Elastic Bodies

This book focuses on the justification and refinement of highly diverse approximate dynamic models for engineering structures arising in modern technology, including high-tech domains involving nano- and meta-materials. It proposes a classification for vibration spectra over a broad frequency domain and evaluates the range of validity of various existing 2D theories for thin-walled shells by comparing them with 3D benchmark solutions. The dynamic equations in 3D elasticity are applied to the analysis of harmonic vibrations in hollow bodies with canonical shapes. New exact homogeneous and inhomogeneous solutions are derived for cylinders, spheres and cones (including spherical and conical layers), as well as for plates of variable thickness. The book includes a wealth of numerical examples, as well as refined versions of 2D dynamic formulations. Boundary value problems for hollow bodies are also addressed.

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