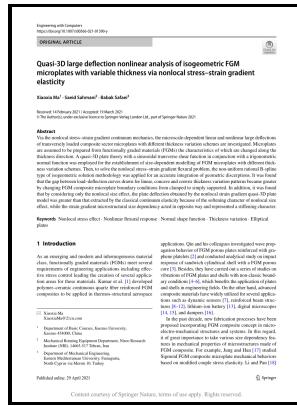


Thin plates with large deflections including the effect of the third-order elastic constants.

Academy of Sciences - Mathematical modeling of physically nonlinear 3D beams and plates made of multimodulus materials



Description: -

Education -- Cyprus.

Education.

Strains and stresses

Elastic plates and shellsThin plates with large deflections including the effect of the third-order elastic constants.

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New York Academy of Sciences. Annals, v. 147, art. 6Thin plates with large deflections including the effect of the third-order elastic constants.

Notes: Bibliography: p. 236.

This edition was published in 1968



Filesize: 41.23 MB

Tags: #Mathematical #modeling #of #physically #nonlinear #3D #beams #and #plates #made #of #multimodulus #materials

Thin plate theory including surface effects

Column 1 describes the boundary conditions BC. When developing composite structures that include multimodulus materials, one should create mathematical models that would correspond to an adequate stress—strain state of the investigated objects. A so-called line criterion was proposed to certify the number and position of neutral axis.

Large deflection of a rectangular magnetoelectroelastic thin plate

Geometric nonlinearity was introduced according to Kármán's theory, and the shells were flat. To solve the continuum boundary value problem, the differential quadrature DQ approach is employed in the context of a variational formulation, and the discretized weak form of the equilibrium equation is obtained. The regularities of the stress intensity distribution in the plate were analyzed.

Third

The stiff thin film is modeled as a nonlocal orthotropic plate which contains small scale effects.

Thin plate theory including surface effects

The first order shear deformation theory and the von Karman stress function approach are employed.

Nonlinear instability of a thin laminated composite circular plate subjected to a tensile periodic load

Ambartsumian's bimodulus model is formulated for isotropic materials and evaluates different moduli in tension and compression based on positive—negative signs of fundamental stresses, which is especially important for the analysis and design of structures.

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