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Volume 50, Issue 10, Pages 1507-1858 (15 May 2013)

Highlights

► Dynamic stresses for two equal collinear cracks are solved using couple-stress theory. ► Time-harmonic stress waves impinge normal to the cracks in an infinite medium. ► Dual integral equations are solved using the Schmidt method.

Fabrizio Greco

Highlights

► Stability and uniqueness criteria for microcracked periodic composites are given. ► Crack unilateral self-contact is included leading to a non-self adjoint problem. ► Linear comparison problems give upper and lower bounds to instability and bifurcation. ► The theoretical results can be also adopted for generic non-periodic RVEs. ► Periodicity loss and size effect of the homogenized response appear in the results.

On superelastic bending of shape memory alloy beams

Original Research Article

Pages 1664-1680

Reza Mirzaeifar, Reginald DesRoches, Arash Yavari, Ken Gall

On principal shear axes for correction factors in Timoshenko beam theory

Original Research Article

Pages 1681-1688

S.B. Dong, S. Çarbaş, E. Taciroglu

Experimental and numerical dynamic analysis of a live tree stem impacted by a Charpy pendulum

Original Research Article

Pages 1689-1698

D. Bertrand, F. Bourrier, I. Olmedo, M. Brun, F. Berger, A. Limam

Microstructure-induced hotspots in the thermal and elastic responses of granular media

Original Research Article

Pages 1699-1709

François Willot, Luc Gillibert, Dominique Jeulin

The Proper Generalized Decomposition (PGD) as a numerical procedure to solve 3D cracked plates in linear elastic fracture mechanics

Original Research Article

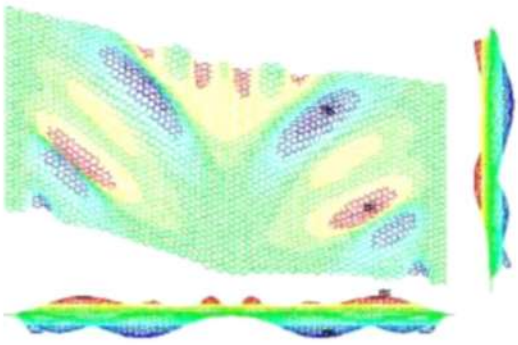
Pages 1710-1720

Eugenio Giner, Brice Bognet, Juan J. Ródenas, Adrien Leygue, F. Javier Fuenmayor, Francisco Chinesta

Highlights

► A 3D crack problem is decomposed into 2D and 1D domains plus extra-coordinates. ► The Poisson's ratio and the plate thickness are considered as extra-coordinates. ► A single solution solves for a given range of Poisson's ratio and plate thickness. ► The problem is solved at roughly the cost of a series expansion of 2D analyses. ► Refined discretizations are affordable, capturing the corner singularity behavior.

Graphical abstract



The 8th mode shape of wrinkled SLGS under 1 nm tension displacement (68.02GHz)

Highlights

► We propose a pseudo beam method using MSM model and 3-node beam elements. ► We analyze the characteristics of the primary and secondary wrinkling bifurcation of SLGS. ► We evaluate the effects of the wrinkles on the vibration characteristics of SLGS. ► We understand the effects of aspect ratio on the vibration behaviors of wrinkled SLGS. ► We propose a prediction model to estimate the natural frequency of wrinkled SLGS.

Overall response of viscoelastic composites and polycrystals: exact asymptotic relations and approximate estimates

Original Research Article

Pages 1824-1838

R. Brenner, P. Suquet

Circular prismatic dislocation loops in elastic bodies with spherical free surfaces

Original Research Article

Pages 1839-1857

A.L. Kolesnikova, M.Yu. Gutkin, S.A. Krasnitckii, A.E. Romanov