Wavelet Spectral Finite Element Method for Modeling Wave Propagation in Stiffened Composite Laminates

Dulip Samaratunga, Xuefei Guan, Ratneshwar Jha, Srinivasan Gopalakrishnan

Experimental Identification of Delamination Size and Location Based on Signal Correlations

Xuefei Guan, Dulip Samaratunga, Ruisheng Wang, Ratneshwar Jha

Tensile Testing and Non-destructive Evaluation Scanning of Varied Ply CFRP Laminates with Embedded Magnetostriective Particles

Oliver J. Myers, George Currie, Jonathan Rudd, Dustin Spayde
Aerothermoelastic Response of a Panel Under a High Speed Turbulent Boundary Layer Using Direct Numerical Simulation

Christopher Ostoich, Daniel J. Bytney, Philippe Gauthier

Robust Treatment of Temperature Feedback in Aerothermodynamic Models for Fluid-Thermal-Structural Analysis

Andrew R. Crowell, Brent Miller, Jack M. McNamara

Verification Studies on Hypersonic Structure Thermal/Acoustic Response and Life Prediction Methods

George T. Tzong, Salvatore L. Ligitore

Thermal Acoustic Test and Analysis Model Updating and Correlation

Dale M. Pfitz, Salvatore L. Ligitore, Michael J. Thomas, Nicholas Gurfinkel

Loosely Coupled Time-Marching of Fluid-Thermal-Structural Interactions

Brent Miller, Andrew R. Crowell, Jack M. McNamara

Large Deformation Bending of Thin Composite Tape Spring Laminates

Michael E. Peterson, Thomas W. Murphrey

Four Point Bending of Thin Unidirectional Composite Laminas

Thomas W. Murphrey, Michael E. Peterson, Mikhail M. Grigoriev

Geometry and Moments of Bent Tape Springs

Alan L. Jennings, Jonathan Black, Alyssa N. Gutierrez

Deployable Helical Antennas for CubeSats

Gina Olson, Sergio Pellegrino, Jeremy Bank, Joseph Costantine

Deployment Modeling and Experimental Testing of a Bi-stable Composite Boom for Small Satellites

Paul Mallol, Gunnar Tibert

Deployable CubeSat Truss Structures with Compliant Shape Memory Hinges

Matthew J. Sainter

Effects of the Stealth Requirements on the Aerodynamic Performance of the X-47B

Haiham E. Taha, Muhammad R. Hajj

The Use of MDO and Advanced Manufacturing to Demonstrate Rapid, Agile Construction of a Mission Optimized UAV

Martin J. Murf, Edward J. Kolb, Aaron T. Parkinton, Graham A. Robertson, Carl L. Muldal, Osvaldo Querin, Robert W. Hewson, Vassili Toropov

Multi-Disciplinary Design Optimization of Unconventional Airship Configurations with Heuristic Algorithms

Alessandro Cemti, Vitaly Voloshin, Pier Marzocca

A Collaborative MDO Approach for the Flexible Aircraft

Thomas Zill, Peter Davide Ciampa, Bjorn Nobel

Knowledge Based Approach to Wing Weight and Stiffness Estimation at Early Stages of Aircraft Design

Julien Chaustre, Franck Devaure

Direct Search Optimization of a Flapping Micro Air Vehicle Wing using FEA Characterization of the Manduca Sexta Forewing

Carl R. Parson, James W. Chrisisis, Ryan O'Hara, Anthony N. Palazotto

Sparse Robust Rational Interpolation for Parameter-dependent Aerospace Models

Pranay Seshadri, Paul Constantine, Pedro Gonnet, Geoff T. Parks, Shahrkh Shapour

Calibration of Computer Simulator with Non-Gaussian Prior using Dynamically Bi-orthogonal Field Equations

Piyush M. Tagade, Han-Lim Choi

Dynamically Bi-orthogonal Field Equations for Solution of Two-Dimensional Hyperbolic Partial Differential Equations

Piyush M. Tagade, Han-Lim Choi

Bayesian Calibration of Aerothermal Models for Hypersonic Air Vehicles

Erin C. Decarlo, Sankaran Mahadevan, Benjamin P. Smarslok

Structural Reliability Analysis of the Advanced Composite Cargo Aircraft

Barrett D. Flansburg, Stephen P. Engelstad

Finite Element Analysis of Composite Bridge Deck Joints

Nithi T. Sivaneri, Amil V. Desai

Use of Statistical Learning in a Reliability Program for Risk Assessment of Composite Structures With Defects

Tray Ridle, Patrick Donnelly, Douglas S. Cairns, Jareed Nelson

Multi-Scale Investigation of Composite Aircraft Parts with Holes to Evaluate the Sensitivity of Structural Behavior Relative to Out-of-Plane Laminate Properties

Jonathan Welgand, Geoff Goodmiller, Stephanie C. Terraeth

Conceptual Design and Structural Analysis of an Open Rotor Hybrid Wing Body Aircraft

Frank H. Gern

An Artificial Neural Network Residual Kriging Based Surrogate Model for Shape and Size Optimization of a Stiffened Panel

Mohammad R. Sunny, Sameer R. Mulani, Subhrajit Samoy, Rajkumar S. Punt, Rakesh K. Kapurani

Development of an Integrated Structural Analysis Capability for Airframe Preliminary Design

Steven G. Rossell, Charles Potter, Vadim Kim, Philipp Wintz, Zihmin Liu, Dimitri Marvis

Sensor (Monitoring Points) Layout Method for Fatigue Design Load Extraction

Ha-Rok Bae, Hiroaki Ando, Sangjeong Nam, Sungkum Kim, Christopher Ha
A Unified Real Time Approach to Characterizations of Isotropic Linear Viscoelastic Media from 1-D Experiments without Use of Poisson's Ratios ................................................................. 3824
Michael Michaeli, Abraham Shtrik, Hagay Grubstein, Eli Altsu, Harry H. Hilton

High Fidelity Fluid-Structure Interaction Analysis of a Wind Turbine Blade ...................................................................................................................... 3863
Mark E. Braaten, Charles Seeley, Michael Tooley

On-Condition Evaluation of How Inertial and Aerodynamic Characteristics Affect the Dynamics of a Small Wind Turbine System ......................................................... 3876
Chiara Grappasonni, Giuliano Coppotelli, Tyler Arsenault, Ajit Achuthan, Pier Marzocca

Pitch Error and Shear Web Disbond Detection on Wind Turbine Blades for Offshore Structural Health and Prognostics Management ........................................................................ 3892
Noah J. Myrent, Joshua F. Kusnick, Douglas Adams, Daniel T. Griffith

Alternate Techniques/New Approaches for Identification of Full Field Dynamic Stress Strain from Limited Sets of Measured Data for Wind Turbine Applications ................................................................ 3909
Jennifer Carr, Pawan Pingle, Peter Avitabile, Christopher Nizrecci

Geometric Nonlinear Analysis of Composite Beams using Wiener-Milenkovic? Parameters .......................................................................................... 3919
Qi Wang, Wenbin Yu, Michael Sprague

Power Generation from Galloping-based Piezoelectric Energy Harvesters for Different Cross-Sections ............................................................................ 3933
Abdessattar Abdelkefi, Yan Zhimiao, Muhammad R. Hajj

A Robust ASE Correlation and Analysis Method ........................................................................................................................................... 3945
William D. Anderson, John P. Babish, Charles Hedgecock, David Layton

Full Aircraft Dynamic Response by Simplified Structural Models ................................................................................................................................. 3955
Erasmo Carrera, Enrico Zappino

Dynamic AeroServoelastic Response with Nonlinear Structural Elements ...................................................................................................................... 3971
Moti Karpel, Alexander Shousetrman, Hector Climent, Carlos Maderuelo

3-D Vortex Particle Aerodynamic Modelling and Trajectory Optimization of Perching Maneuvures ........................................................................... 3981
Darrel K. Robertson, Gregory W. Reich

High Order Harmonic Balance Applied to an Aeroelastic T-tail Model with a Control Surface Freeplay .............................................................................. 3999
Fichera Sebastiano, Sergio Ricci

Force and Flowfield Measurements on a Rigid Wing Undergoing Hover-Capable Flapping and Pitching Kinematics in Air at MAV-Scale Reynolds Numbers ...................................................... 4010
Moble Benedict, David Coleman, David B. Mayo, Indrjit Chopra

Aerodynamic-Dynamic Interaction and Longitudinal Stability of Hovering MAVs/Insects ......................................................................................... 4034
Haiham E. Taha, Muhammad R. Hajj, Ali Nayfet

Validation of a Finite Element Analysis of a Flapping Wing against Inertial and Aerelastic Responses ........................................................................... 4048
Justin Mason, Jonathan Black, Alan L. Jennings, Alexander Sharp, Joyce Blandino, Jacob Lysher

Periodic and Average Flapping Wing Force Measurement ......................................................................................................................... 4063
Alan L. Jennings, Alexander Sharp, Daniel Doyle, Jonathan Black

Structural and Aerodynamic Modeling of a Flapping Wing Structure ......................................................................................................................... 4075
Indrajit Mukherjee, Suresh Sundaram

Whirl-tower Open-loop Experiments and Simulations with an Adaptive Pitch Link Device for Helicopter Rotor Vibration Control .......................................................................................... 4088
Fred Nitzsche, Daniel Feszty, Chiara Grappasonni, Giuliano Coppotelli

Investigation of the Divergence Stability Boundary of an Extremely Flexible Helicopter Rotor in Hover ........................................................................ 4101
Jerome Sicard, Jayanti Sirohi

Helicopter Forward Flight Prediction using Geometrically Exact Beam Model and an Advanced Unsteady Aerodynamics ............................................................................... 4115
Hyongyu Ryu, Hae Sung Cho, Woonjong Eun, Song Soon Shin, Joombae Lee, Kwunjang Yee

Elastomeric Damper Models for Rotorcraft Comprehensive Analysis ......................................................................................................................... 4128
Hao Kang, Matt Hasbun, Housein Saberi, Conor Marr, George A. Lesieutre, Edward C. Smith