

**54th AIAA/ASME/ASCE/AHS/ASC  
Structures, Structural Dynamics and  
Materials Conference 2013**

**Boston, Massachusetts, USA  
8-11 April 2013**

**Volume 1 of 9**

ISBN: 978-1-62748-890-7

**Printed from e-media with permission by:**

Curran Associates, Inc.  
57 Morehouse Lane  
Red Hook, NY 12571



**Some format issues inherent in the e-media version may also appear in this print version.**

The contents of this work are copyrighted and additional reproduction in whole or in part are expressly prohibited without the prior written permission of the Publisher or copyright holder. The resale of the entire proceeding as received from CURRAN is permitted.

For reprint permission, please contact AIAA's Business Manager, Technical Papers. Contact by phone at 703-264-7500; fax at 703-264-7551 or by mail at 1801 Alexander Bell Drive, Reston, VA 20191, USA.

# TABLE OF CONTENTS

## VOLUME 1

<b>Performance Evaluation of a Morphing Joined Wing Aircraft Configuration</b> .....	1
<i>Joao Cardoso, Afzal Suleman, Jonathan E. Cooper</i>	
<b>Variable Wing Span Using the Compliant Spar Concept</b> .....	15
<i>Rafic M. Ajaj, Erick Saavedra Flores, M. Friswell, Askin T. Isikveren, Hamdi Chaouk</i>	
<b>Study of an Articulated Winglet Mechanism</b> .....	40
<i>Alexandra Gomes, Luis Falcao, Afzal Suleman</i>	
<b>Optimal Control and Energy Balance Evaluation of a Morphing Aircraft</b> .....	54
<i>Jose Vale, Fernando Lau, Afzal Suleman</i>	
<b>Multidisciplinary Design Optimization of Medium-Range Transonic Truss-Braced Wing Aircraft with Flutter Constraint</b> .....	66
<i>Wrik Mallik, Rakesh K. Kapania, Joseph A. Schetz</i>	
<b>Efficient Prediction of Transonic Flutter Boundaries with Linearized Aerostochastic Reduced-Order Models</b> .....	77
<i>James M. Gariffo, Oddvar O. Bendiksen</i>	
<b>h—Adaptive Stabilized Finite-Element Solver for Calculation of Generalized Aerodynamic Forces</b> .....	99
<i>Manav Bhatia, Philip S. Beran</i>	
<b>Structural Response and Service Life Prediction Concerns in the Design of Hypersonic Flight Vehicle Hot-Structure</b> .....	127
<i>Brian J. Zuchowski, R. Wittman, K. Leung, J. Favela</i>	
<b>MOIRE Space Telescope—Challenges and Solutions in Large Scale Testing</b> .....	154
<i>William D. Tandy, Paul Atcheson, Jeanette L. Domber, Jeff Kommers</i>	
<b>Design and Testing of Self-Deploying Membrane Optic Support Structure Using Rollable Composite Tape Springs</b> .....	163
<i>Joseph N. Foidale, Thomas W. Murphey, Michael E. Peterson</i>	
<b>Simulation and Measurement of In-plane Vibrations of an Ultra Lightweight Membrane Using a Newly Designed 6DOF Laser Scanning Head Performing Conical Scan Measurements</b> .....	175
<i>Dario Di Maio</i>	
<b>Non-contact Point Excitation of Ultra Lightweight Structures: Membranes</b> .....	197
<i>Pablo A. Tarazaga, Nima Ameri, Sriram V. V. N. Malladi, Ethan F. Robinson, Bryan Joyce</i>	
<b>Multidisciplinary Design Optimization of Dynamic Engineering Systems</b> .....	207
<i>James Allison, Daniel R. Herber</i>	
<b>Multidisciplinary Optimization of Microwave Antennas</b> .....	237
<i>Baoyan Duan, Meng Wang</i>	
<b>A Multiobjective, Multidisciplinary Design Optimization of Solid Propellant Based Space Launch Vehicle</b> .....	247
<i>Naeem Zafar, He Linshu, Xu Danjun</i>	
<b>Aircraft Tolerance Optimization Considering Quality, Manufacturing &amp; Performance</b> .....	262
<i>Kanwardeep S. Bhachu, Garrett Waycaster, Raphael T. Haftka, Nam Ho Kim</i>	
<b>Topology Optimization of Thermal Structures with Stress Constraints</b> .....	284
<i>Joshua D. Deaton, Ramana V. Grandhi</i>	
<b>Two-Level Domain Decomposition Method for Uncertainty Quantification</b> .....	297
<i>Waad Subber, Abhijit Sarkar</i>	
<b>Data Assimilation for Large-Scale Computational Models</b> .....	301
<i>Mohammad Khalil, Abhijit Sarkar, Waad Subber</i>	
<b>Interval Field Implementations for Spatial Uncertainty Processing in Non-Deterministic FE Analysis</b> .....	306
<i>Wim Verhaeghe, W. Desmet, Dirk Vandepitte, David Moens</i>	
<b>Dynamic Adaptive Sampling Based on Kriging Surrogate Models for Efficient Uncertainty Quantification</b> .....	320
<i>Koji Shimoyama, Soshi Kawai, Juan J. Alonso</i>	
<b>An New Technique in Analytical Reliability Estimation Involving Multi-modal Distributions: An Extended Laplace Approximation Approach</b> .....	348
<i>Xuefei Guan, Ratneshwar Jha, Jingdan Zhang, Kevin Zhou</i>	
<b>Representative Structural Element: a New Paradigm for Multiscale Structural Modeling</b> .....	358
<i>Wenbin Yu</i>	
<b>A Study of the Adhesive Joints and Crack Propagation Using a Global-local Finite Element Method</b> .....	375
<i>Mohammad M. Islam, Rakesh K. Kapania</i>	
<b>On Multiscale Modeling: Preserving Energy Dissipation across the Scales with Consistent Handshaking Methods</b> .....	390
<i>Evan J. Pineda, Brett A. Bednarczyk, Steven M. Arnold, Anthony M. Waas</i>	
<b>A Damage Tolerance Study of Curvilinearly Stiffened Panels with Different Crack Lengths Using a Global-local Finite Element Method</b> .....	413
<i>Mohammad M. Islam, Rakesh K. Kapania</i>	
<b>Fracture Mechanics Analyses for Interface Crack Problems - A Review</b> .....	440
<i>Ronald Krueger, Kunigal N. Shivakumar, Ivatury S. Raju</i>	
<b>Crack Growth Prediction in Fully-Coupled Thermal and Deformation Fields Using Peridynamic Theory</b> .....	462
<i>Selda Oterkus, Edogan Madenci</i>	
<b>Two Stage Damage Tolerance Evaluation of an Aircraft Fuselage Panel with a Circumferential Crack and a Broken Stringer</b> .....	474
<i>Burak M. Sayar, Altan Kayran</i>	

<b>Optimization of Propellant Tanks Supported by Optimized Laminated Composite Tubular Struts</b> .....	494
<i>David Bushnell, Michael S. Jacoby, Charles C. Rankin</i>	
<b>Optimization of Propellant Tanks Supported by One or Two Optimized Laminated Composite Skirts</b> .....	628
<i>David Bushnell, Michael S. Jacoby, Charles C. Rankin</i>	
<b>Feasible Region of Lamination Parameters for optimization of Variable Angle Tow (VAT) Composite Plates</b> .....	696
<i>Zhangming Wu, Gangadharan Raju, Paul Weaver</i>	
<b>Transient Response of a Multi-layered Composite Rotating Airfoil Under Slicing-impact Loading</b> .....	706
<i>Sunil K. Sinha</i>	
<b>Simulation of Orbital Debris Impact on Porous Ceramic Tiles</b> .....	728
<i>Kwon Joong Son, Eric P. Fahrenthold</i>	
<b>Survivability Analysis of the Satellite Electrical Power Subsystem Architecture</b> .....	742
<i>Bryan E. Kaiser, Svetlana Poroseva</i>	
<b>Robust Aeroelastic Control of Very Flexible Wings using Intrinsic Models</b> .....	748
<i>Yinan Wang, Rafael Palacios, Andrew Wynn</i>	
<b>Effects of the Aerodynamic Data in a MIMO System Identification Framework for Aeroelastic Analyses</b> .....	767
<i>Joao Henrique Azevedo, Joao Luiz F. Azevedo, Roberto A. Da Silva</i>	
<b>Control Surface Efficiency Analysis and Utilization of an Elastic Airplane for Maneuver Loads Alleviation</b> .....	804
<i>Youxu Yang, Zhigang Wu, Chao Yang</i>	
<b>Membrane Wing Gust Response in Low Reynolds Numbers</b> .....	811
<i>Sonya Tiomkin, Daniella E. Raveh</i>	

## VOLUME 2

<b>Passive Gust Load Alleviation Through Bend-Twist Coupling of Composite Beams on Typical Commercial Airplane Wings</b> .....	822
<i>Sebastien Gauthier Perron, Mark Drela</i>	
<b>Model Reduction of High-Fidelity Models for Gust Load Alleviation</b> .....	842
<i>Andrea Da Ronch, Kenneth J. Badcock, N. D. Tantaroudas</i>	
<b>A New Approach to Computational Fluid Dynamics-Based Gust Loads Analysis</b> .....	861
<i>Andrea Da Ronch, Kenneth J. Badcock, N. D. Tantaroudas, S. Timme</i>	
<b>Fast-GLP: a Fast Tool for the Prediction of Worst Case Gust Loads based on Neural Networks</b> .....	879
<i>Luca Cavagna, Sergio Ricci, Luca Riccobene</i>	
<b>Coupled Magnetic and Structural Numerical Simulation and Experimental Validation of the Electro Impulse De-Icing</b> .....	892
<i>Enrico Moehle, Matthias Haupt, Peter Horst</i>	
<b>Nonlinear Response Prediction of Cracked Rotor Based On EMD</b> .....	902
<i>Yongfeng Yang, Xingmin Ren, Weiyang Qin</i>	
<b>Trigonometric Collocation for Computation of Harmonic Response of a Cracked Beam</b> .....	912
<i>Oleg V. Shiryayev, Bakeer Bakeer</i>	
<b>Modal-Based Damage Detection of a Composite Helicopter Main Rotor Blade</b> .....	922
<i>Fabio Luis Marques Dos Santos, Bart Peeters, Herman Van Der Auweraer, Luiz Góes</i>	
<b>Improving Spectral Signature Profiles for Fatigue Crack Identification in Beams</b> .....	932
<i>Phillip E. Cooley, Joseph C. Slater, Oleg V. Shiryayev</i>	
<b>Subcycle Fatigue Crack Growth Mechanism Investigation for Aluminum Alloys and Steel</b> .....	946
<i>Jian Yang, Wei Zhang, Yongming Liu</i>	
<b>Concurrent Structural and Material Fatigue Damage Prognosis Integrating Sensor Data</b> .....	953
<i>Jingjing He, Xuefei Guan, Yongming Liu</i>	
<b>Experimental Investigation of Cyclic Hygrothermal Aging of Aircraft Lightning Protection</b> .....	962
<i>Jalal El Yagoubi, Gilles Lubineau, Shahid Saghir, Lakshmi Selvakumaran, Abe Askari, Arlene Brown</i>	
<b>Aircraft Wind Tunnel Characterization using Modern Design of Experiments</b> .....	971
<i>Joao Dias, Afzal Suleman, Benjamin Broughton</i>	
<b>Wing Design as a Symphony of Geographically Dispersed, Multi-disciplinary Undergraduate Students</b> .....	984
<i>Fabian Zender, Daniel Schrage, Michael Richey, Greg Jensen, Alden Black, John Sullivan, Steve Gorrell</i>	
<b>Efficient Multidisciplinary Aerodynamic Optimization Design Based on Discrete Adjoint Method</b> .....	996
<i>Yingtao Zuo, Jingjing Lu, Gang Chen, Yueming Li, Zhenghong Gao</i>	
<b>3D Finite Element Modeling of High-Speed Sliding Wear</b> .....	1008
<i>Rodolfo G. Buentello Hernandez, Anthony N. Palazotto, Kathleen H. Le</i>	
<b>Understanding Effect of Grain Boundaries in the Fracture Behavior of Polycrystalline Tungsten under Mode-I Loading</b> .....	1028
<i>Hongsuk Lee, Vikas Tomar</i>	
<b>Computational Plasticity Model for Hydrostatic Pressure Dependent Foam Materials</b> .....	1039
<i>Xiuhua Chen, Hai Wang, Zhong You</i>	
<b>Construction of Kernel for Nonlocal Elasticity from One-dimensional Dispersion Data in Reciprocal Space</b> .....	1049
<i>Susanta Ghosh, Veera Sundararaghavan, Anthony M. Waas</i>	
<b>Evaluation of Ice Adhesion Strength on Erosion Resistant Materials</b> .....	1055
<i>Jared Soltis, Jose Palacios, Douglas Wolfe, Timothy Eden</i>	
<b>Adaptive Camber-Morphing Wing using 0-v Honeycomb</b> .....	1074
<i>Ashley Dale, Jonathan E. Cooper, Anthony Mosquera</i>	

<b>A Reconfigurable Wing for Biomimetic Aircraft</b> .....	1092
<i>Christopher R. Marks, James J. Joo, Gregory W. Reich</i>	
<b>Synergistic Smart Morphing Aileron</b> .....	1103
<i>Alexander Pankontien, Cassio T. Faria, Daniel Inman</i>	
<b>Advanced Kinematic Tailoring for Morphing Aircraft Actuation</b> .....	1114
<i>Benjamin K. Woods, Norman M. Wereley, Michael Friswell</i>	
<b>Performance Evaluation of a 3D Morphing Wing and Comparison with a Conventional Wing</b> .....	1131
<i>Francesco Previtali, Andres F. Arrieta, Paolo Ermanni</i>	
<b>Low Reynolds Number Behavior of a Solid-State Piezocomposite Variable-Camber Wing</b> .....	1147
<i>Onur Bilgen, Michael Friswell, Drew Landman</i>	
<b>Flight Testing of Novel Compliant Spines for Passive Wing Morphing on Ornithopters</b> .....	1159
<i>Aimy Wissa, Nelson Guerreiro, Jared A. Grauer, James Hubbard, Mary Frecker, Cornelia Altenbuchner, Yashwanth Tummala, Richard Roberts</i>	
<b>A Coupled Approach for Modeling Damage within a Reduced-Order Model Framework</b> .....	1176
<i>Pat J. O'Hara, Joseph J. Hollkamp</i>	
<b>Modeling Damage Within a Reduced-Order Model Framework: An Application</b> .....	1191
<i>Joseph J. Hollkamp, Pat J. O'Hara, Travis A. Wyen</i>	
<b>Towards a Coupled Loads-Response-Life Prediction Framework for Hypersonic Structures in Combined Extreme Environments</b> .....	1205
<i>James C. Sobotka, Alpay Oral, Adam J. Culler</i>	
<b>Nonlinear Reduced Order Modeling of Complex Wing Models</b> .....	1224
<i>X. Q. Wang, Ricardo A. Perez, Marc P. Mignolet, Remi Capillon, Christian Soize</i>	
<b>Nonlinear Modal Substructuring of Systems with Geometric Nonlinearities</b> .....	1238
<i>Robert J. Kuether, Matthew S. Allen</i>	
<b>Design of a Morphing Skin Using Flexible Fiber Composites for Space-Reconfigurable Reflectors</b> .....	1257
<i>Leri S. Datashvili, Horst Baier, Bin Wei, Stephan Endler, Ludovic Schreider</i>	
<b>Ultra-Thin Highly Deformable Composite Mirrors</b> .....	1268
<i>John Steeves, Sergio Pellegrino</i>	
<b>Structural Determinancy and Design Implications for Tensioned Precision Deployable Structures</b> .....	1282
<i>Sungeun K. Jeon, Thomas W. Murphey, Emil V. Ardelean</i>	
<b>Controlling Wavefront in Lightweight Reflector Systems using Piezocomposite Actuator Arrays</b> .....	1294
<i>Samuel Case Bradford, Greg S. Agnes, Catherine M. Ohara, Joseph J. Green, Fang Shi, Hanying Zhou, Lee D. Peterson, William Keats Wilkie</i>	
<b>Offset-Feed Surface Mesh Generation for Design of Space Deployable Mesh Reflectors</b> .....	1305
<i>Hang Shi, Bingyan Yang, Houfei Fang</i>	
<b>Temperature Dependent Frequency Response of a Constant Tension Membrane</b> .....	1318
<i>Timothy M. Hodges, Joseph R. Blandino, David Rochow</i>	
<b>Aero-Structural Optimization of 3-D Adaptive Wings with Embedded Smart Actuators</b> .....	1328
<i>Giulio Molinari, Andres F. Arrieta, Paolo Ermanni</i>	
<b>Aeroelastic Shape Optimization of a Flapping Wing</b> .....	1344
<i>Eric C. Stewart, Mayuresh Patil, Robert A. Canfield, Richard D. Snyder</i>	
<b>An Adjoint-based Derivative Evaluation Method for Time-dependent Aeroelastic Optimization of Flexible Aircraft</b> .....	1355
<i>Graeme Kennedy, Joaquim Martins</i>	
<b>Aero-Structural Blade Design of a High-Power Wind Turbine</b> .....	1374
<i>Bruno M. Tojo, Andre C. Marta</i>	
<b>Fast Wind Turbine Design via Geometric Programming</b> .....	1388
<i>Warren Hoberg, Pieter Abbeel</i>	
<b>Simultaneous Structural and Control System Design for Horizontal Axis Wind Turbines</b> .....	1395
<i>Anand Deshmukh, James Allison</i>	
<b>Dynamic Design Space Partitioning for Optimization of an Integrated Thermal Protection System</b> .....	1406
<i>Diane C. Villanueva, Rodolphe Le Riche, Gauthier Picard, Raphael T. Haftka</i>	
<b>Differential Geometry and Design Coupling in MDO</b> .....	1426
<i>Craig K. Bakker, Geoff T. Parks, Jerome P. Jarrett</i>	
<b>Uncertainty Quantification for Multidimensional Dynamical Systems Based on Adaptive Numerical Solution of Liouville Equation</b> .....	1449
<i>Mani Razi, Peter Attar, Prakash Vedula</i>	
<b>Uncertainty Quantification in Remaining Useful Life of Aerospace Components using State Space Models and Inverse FORM</b> .....	1473
<i>Shankar Sankararaman, Kai Goebel</i>	
<b>Uncertainty Propagation Using Random Eigenfunction Expansion Method</b> .....	1483
<i>Sondipon Adhikari</i>	
<b>Prediction of Composite Laminate Strength Properties Using a Refined Zigzag Plate Element</b> .....	1501
<i>Atila Barut, Edogan Madenci, Alexander Tessler</i>	
<b>Closed-Form Analytical Method for Analyzing Laminated Composite Tubes in Hygrothermal Environment</b> .....	1513
<i>Shanu Mahadev, Wensheng Chan</i>	
<b>Evaluation of Failure Parameters in Composite Structures by Component-Wise Approach</b> .....	1531
<i>Erasmus Carrera, Marianna Maiaru, Marco Petrolo</i>	
<b>Efficient Higher Order Plate Theory for Viscoelastic Composite Laminates</b> .....	1548
<i>Ngoc Nguyen Sy, Jaehun Lee, Maenghyo Cho</i>	

<b>On a Fourier Spectral Variational Asymptotic Method for Cellular Composite Structures .....</b>	<b>1557</b>
<i>Marcelo Kobayashi, Melike Nikbay</i>	
<b>Effect of Viscoelastic Interface on the Behavior of Nanocomposites .....</b>	<b>1573</b>
<i>Zeid F. Hasan, Aditi Chattopadhyay, Yingtao Liu</i>	
<b>Numerical Investigation of Tapered Sandwich Closeouts with Isotropic Functionally Graded Cores .....</b>	<b>1606</b>
<i>Katherine R. Wagschal, Satchi Venkataraman</i>	
<b>Strength of Composite Foam Core Sandwich Structures Subjected to Thermomechanical Loading .....</b>	<b>1639</b>
<i>Chad E. Foerster, Vinay K. Goyal, Jacob Rome, Dhruv N. Patel, Gary L. Steckel</i>	

### VOLUME 3

<b>Determining Effective Interface Fracture Properties of 3D Fiber Reinforced Foam Core Sandwich Structures .....</b>	<b>1650</b>
<i>Zachary T. Kier, Anthony M. Waas</i>	
<b>Modeling of Pin-facesheet Interactions in K-Cor Sandwich Structures Under Compressive Loading .....</b>	<b>1659</b>
<i>Ananth Virakthi, Sung Lee, Sandip Haldar, Hguh Bruck, Anisur Rahman</i>	
<b>Testing of Sandwich Composite Edge Closeouts with Functionally Graded Honeycomb Cores .....</b>	<b>1673</b>
<i>Andrew L. Christensen, Brett T. Sens, Scott James, Satchi Venkataraman</i>	
<b>Compression After Impact of Thick Sandwich Composite Structures .....</b>	<b>1689</b>
<i>Benjamin Hasseldine, Alan T. Zehnder, Bryan D. Keating, Abhendra K. Singh, Barry Davidson</i>	
<b>Failure Prediction in Sandwich Panels under Blast Loading Using a Refined Zigzag Element .....</b>	<b>1701</b>
<i>Mehmet Dorduncu, Atila Barut, Edogan Madenci</i>	
<b>Aeroelastic Modeling of Large Off-shore Vertical-axis Wind Turbines: Development of the Offshore Wind Energy Simulation Toolkit .....</b>	<b>1712</b>
<i>Brian Owens, John E. Hurtado, Joshua A. Paquette, Daniel T. Griffith, Matthew F. Barone</i>	
<b>Fundamental Understanding of the Physics of a Small-Scale Vertical Axis Wind Turbine with Dynamic Blade Pitching: An Experimental and Computational Approach .....</b>	<b>1726</b>
<i>Moble Benedict, Vinod Lakshminarayan, Johnathan Pino, Inderjit Chopra</i>	
<b>Carbon Design Studies for Large Blades: Performance and Cost Tradeoffs for the Sandia 100-meter Wind Turbine Blade .....</b>	<b>1747</b>
<i>Daniel T. Griffith, Wade Johanns</i>	
<b>A Finite Element-multibody Dynamics Co-simulation Methodology Applied to FAST .....</b>	<b>1759</b>
<i>Vishvas S. Suryakumar, Thomas W. Strganac</i>	
<b>Sustainability Assessment of a Wind Turbine Blade: An Engineering Framework .....</b>	<b>1777</b>
<i>Brian Owens, Jamie Weber, Billy F. Yancey, Linqi Zhuang, Ramesh Talreja</i>	
<b>Simulating the Response of External Stores on Aircraft Using Linear and Nonlinear Vibroacoustics .....</b>	<b>1795</b>
<i>Michael R. Ross, Timothy Walsh, Jerry W. Rouse, D. G. Tipton, Eric Stasiunas, James Freymiller, Mathew Lavry</i>	
<b>Risks of Linear Design of Joined Wings: a Nonlinear Dynamic Perspective in the Presence of Follower Forces .....</b>	<b>1814</b>
<i>Rauno Cavallaro, Luciano Demasi, Federica Bertucelli</i>	
<b>Post-Critical Analysis of Joined Wings: the Concept of Snap-Divergence as a Characterization of the Instability .....</b>	<b>1850</b>
<i>Luciano Demasi, Rauno Cavallaro, Federica Bertucelli</i>	
<b>Aeroelastic Design of Propellers with Optimized Load-Distribution Characteristics .....</b>	<b>1882</b>
<i>Jurij Sodja, Radovan Drazumeric, Tadej Kosel, Pier Marzocca</i>	
<b>Vibration Testing of Aeroelastic Structures Containing Geometric Stiffness Nonlinearities .....</b>	<b>1901</b>
<i>Georg Charmbalis, Jonathan E. Cooper, Julian Londono</i>	
<b>Unsteady Aeroelastic Response of Rigid Airfoils with Nonzero Angles of Attack .....</b>	<b>1915</b>
<i>Youssef Bichiou, Abdullah O. Nuhait, Abdessattar Abdelkefi, Muhammad R. Hajj</i>	
<b>Design of a Scaled Flight Test Vehicle Including Linear Aeroelastic Effects .....</b>	<b>1926</b>
<i>Charles A. Eger, Anthony Ricciardi, Robert A. Canfield, Mayuresh Patil</i>	
<b>A Dynamic Model for Thin-Walled Composite Beams via Asymptotic Strain Energy Transformation .....</b>	<b>1937</b>
<i>Jun-Sik Kim</i>	
<b>Composite Laminates with Linearly Varying Fiber Angles Under Static and Dynamic Loads .....</b>	<b>1944</b>
<i>Hamed Akhavan, Pedro L. Ribeiro, Marcelo F. Moura</i>	
<b>A Rayleigh-Ritz Model for Dynamic Response and Buckling Analysis of Delaminated Composite Timoshenko Beams .....</b>	<b>1952</b>
<i>Jared D. Hobeck, Matthew B. Obenchain</i>	
<b>Hygrothermal Effect of Composite Beams Subjected to Moving Loads .....</b>	<b>1964</b>
<i>Nithi T. Sivaneri, Praveen Kavipurapu</i>	
<b>Nonlinear Analysis of Piezoelectric Energy Harvesters from Ambient and Galloping Vibrations .....</b>	<b>1971</b>
<i>Yan Zhimiao, Abdessattar Abdelkefi, Muhammad R. Hajj</i>	
<b>Aeroelastic Trim Analysis of Very Flexible Aircraft Based on 3-D Lifting-Line Theory .....</b>	<b>1984</b>
<i>Changchuan Xie, Yi Liu, Chao Yang</i>	
<b>Passive Morphing of Flying Wing Aircraft - Part I: Z Configuration .....</b>	<b>1998</b>
<i>Pezhman Mardanpour, Dewey H. Hodges</i>	
<b>Effect of Multiple Engine Placement on Aeroelastic Trim and Stability of Flying Wing Aircraft .....</b>	<b>2017</b>
<i>Pezhman Mardanpour, Phillip W. Richards, Omid Nabipour, Dewey H. Hodges</i>	
<b>Characterizing Wheel-Soil Interaction Loads Using Meshfree Finite Element Methods: A Sensitivity Analysis for Design Trade Studies .....</b>	<b>2043</b>
<i>Michael Contreras, Brian Trease, Cezary Bojanowski, Ronald F. Kulak</i>	

<b>Structural Design and History of the Hexagon Reconnaissance Camera</b> .....	2052
<i>Philip Pressel</i>	
<b>Practical Considerations for using Constant Force Springs in Space-Based Mechanisms</b> .....	2060
<i>R. Brett Williams, Charles D. Fisher, John C. Gallon</i>	
<b>Structural Concept and Design for Modular and Serviceable Spacecraft Systems</b> .....	2069
<i>Andre Adomeit, Hans-Günther Reimerdes, M. Lakshmanan, T. Schervan, A. Dafnis</i>	
<b>Mesh Reflector Antennas: Form-finding Analysis Review</b> .....	2080
<i>Xiaofei Ma, Yanping Song, Zhengjun Li, Tuanjie Li, Zuowei Wang, Deng Hangqing</i>	
<b>Multi-physics Response of Structural Composites and Framework for Modeling Using Material Geometry</b> .....	2091
<i>Prasun K. Majumdar, Mohammad Faisalhaider, Kenneth Reifsnider</i>	
<b>Multiphysics Stimulated Simulation Digital Twin Methods for Fleet Management</b> .....	2099
<i>Kenneth Reifsnider, Prasun Majumdar</i>	
<b>Application of the Complex Variable Finite Element Method, ZFEM, to Structural Mechanics Sensitivity Analysis</b> .....	2110
<i>Harry R. Millwater, Carolina Quintana, Jose Garza, David Wagner</i>	
<b>Sensitivity Analysis in Structural Dynamics using the ZFEM Complex Variable Finite Element Method</b> .....	2121
<i>Jose E. Garza, Harry R. Millwater</i>	
<b>Processing and Characterization of Cyanate Ester-MWNT Nanocomposites</b> .....	2137
<i>Si Chon Lao, Tess J. Moon, Joseph H. Koo, Zsolt E. Horvath</i>	
<b>Phenomenological Characterization of the Fabrication of Aligned Carbon Nanotube Nanocomposites via Dielectrophoresis Under AC Electric Field</b> .....	2152
<i>Engin C. Sengezer, Gary D. Seidel</i>	
<b>Processing and Mechanical Property Characterization of Aligned Carbon Nanotube Carbon Matrix Nanocomposites</b> .....	2164
<i>Itai Y. Stein, Hanna M. Vincent, Stephen A. Steiner, Elena Colombini, Brian L. Wardle</i>	
<b>Methodology for Assessment of Morphological and Thermal Characteristics of Nanographene Platelets</b> .....	2171
<i>Joseph H. Koo, Daniel Pinero, Ayoun Hao, Si Chon Lao, Blake Johnson, Min G. Baek, Jinyong Lee, Louis Pilato</i>	
<b>Creep Compliance Characterization of Vapor-Grown Carbon Nanofiber/Vinyl Ester Nanocomposites Using a Central Composite Design of Experiments</b> .....	2206
<i>Daniel A. Drake, Jutima Simsirirong, Rani W. Sullivan, Hossein Toghiani, Sasan Nouranian, Janis Dubien, Thomas E. Lacy, Charles U. Pittman</i>	
<b>Low-Velocity Impact Response of Woven Carbon Epoxy Composites with MWCNTs</b> .....	2223
<i>Nusrat Jahan, Mahesh V. Hosur, Shaik Jeelani</i>	
<b>Evaluation Strength of Stitched Foam Sandwich Structures</b> .....	2230
<i>Ramraj Santhanakrishnan, Mohan Monisha, Sanjeeviraja Thangavel, Stanley Darius</i>	
<b>Variable Thermal Conductivity, Contact-Aided Cellular Structures for Spacecraft Thermal Control</b> .....	2243
<i>Rebecca Stavelly, George A. Lesieutre, Mary I. Frecker, James H. Adair</i>	
<b>Evaluation of Fluidic-Based Mechanisms for Electromagnetic Compensation from Mechanical Bending and Thermoregulation of Flexible Patch Antenna</b> .....	2253
<i>Gregory Huff, Stephen Long, Frank Drummond, Nick Brennan, Amanda Couch</i>	
<b>Analysis of Transonic Limit Cycle Oscillation Using Aerodynamic Describing Functions and Superposition Principle</b> .....	2260
<i>Shun He, Yingsong Gu, Zhichun Yang</i>	
<b>Aerothermoelastic and Aeroelastic Studies of Hypersonic Vehicles using CFD</b> .....	2271
<i>Nicolas Lamorte, Peretz P. Friedmann</i>	
<b>Aerothermal Mode and Dynamic Analysis of Hypersonic Vehicle</b> .....	2295
<i>Hongyong Chen, Jizhen Wang, Haibo Chen</i>	
<b>Transonic Single-Degree-of-Freedom Flutter and Natural Mode Instabilities</b> .....	2306
<i>Oddvar O. Bendiksen</i>	
<b>Origami Sunshield Concepts for Space Telescopes</b> .....	2321
<i>Lee Wilson, Sergio Pellegrino, Rolf Damer</i>	
<b>Fold Line Based on Mechanical Properties of Crease in Wrapping Fold Membrane</b> .....	2333
<i>Yasutaka Satou, Hiroshi Furuya</i>	
<b>Deployable Membrane Structures with Rolled-up Booms and Their Deployment Characteristics</b> .....	2345
<i>M. C. Natori, Nobuhisa Katsumata, Nobukatsu Okuizumi, Akihito Watanabe, Hiroshi Yamakawa</i>	
<b>Numerical Study and Design of Foldable and Expandable Space Structures</b> .....	2354
<i>Jonathan Hinkle, Cliff E. Willey, Daniel Kling, Ryan Cook</i>	
<b>Tradespace Exploration of Reconfigurability using Surrogate Points to Simplify Dominance Determination</b> .....	2364
<i>Jason Denhart, Thomas Gemmer, Scott M. Ferguson, Andre Mazzoleni</i>	
<b>Large-Scale MDO of a Small Satellite using a Novel Framework for the Solution of Coupled Systems and their Derivatives</b> .....	2379
<i>John Hwang, Dae Young Lee, James Cutler, Joaquim Martins</i>	
<b>Tailored Seeding Geometries for the Multi-Fidelity Design of Compression Systems</b> .....	2402
<i>Jeremy P. Eastwood, Tiziano Ghisu, Jerome P. Jarrett</i>	
<b>Aero-Acoustic Optimization of Airfoils for Wind Turbines</b> .....	2419
<i>Jaime F. Coimbra, Andre C. Marta</i>	
<b>A Confidence Bound Approach for Fatigue Failure Prediction and Forecasting</b> .....	2432
<i>Tony Yi Tong</i>	
<b>Probabilistic Damage Tolerance for Small Airplanes Using a Linear-Elastic Crack Growth Fracture Mechanics Surrogate Model</b> .....	2441
<i>Juan D. Ocampo, Harry R. Millwater</i>	

<b>Single Flight Probability of Failure in Probabilistic Damage Tolerance Analysis</b> .....	2457
<i>Keith Halbert, Leroy M. Fitzwater, Herb Smith, Tony Yi Torng</i>	
<b>Characterization of Micro-anomalies from Macro-scale Response</b> .....	2471
<i>Sonjoy Das, Sourish Chakravarty</i>	

#### VOLUME 4

<b>Uncertainty Quantification in Fatigue Lifetime Data Analysis: A Possibilistic Approach</b> .....	2486
<i>Li-Ping He, Hong-Zhong Huang, Shunpeng Zhu, Dan Ling</i>	
<b>Optimal Energy Harvesting From A Membrane Attached To A Tensegrity Structure</b> .....	2499
<i>Mohammad R. Sunny, Cornel Sultan, Rakesh K. Kapania</i>	
<b>Homogenization of Piecewise Straight Corrugated Plates</b> .....	2525
<i>Zheng Ye, Wenbin Yu</i>	
<b>Identification of Damage and Damage Parameters in Structures using Daubechies Wavelets with Spectral Element Method</b> .....	2539
<i>Mukul Atri, Chandrashekhar Upadhyay, Ravindra Dhama</i>	
<b>Asymptotic Approach to Oblique Cross-Sectional Analysis of Beams</b> .....	2549
<i>Anurag Rajagopal, Dewey H. Hodges</i>	
<b>Analysis of Two-dimensional Improved Finite Element Domain Decomposition Method Using Local and Mixed Lagrange Multipliers</b> .....	2573
<i>Junyoung Kwak, Haeseong Cho, Sang Joon Shin, Olivier A. Bauchau</i>	
<b>Interlaminar Fracture Toughness of Laminated Woven Composites Reinforced with Aligned Nanoscale Fibers: Mechanisms at the Macro, Micro, and Nano Scales</b> .....	2590
<i>Sunny S. Wicks, Brian L. Wardle</i>	
<b>A Unified Model for Predicting the Open Hole Tensile and Compressive Strengths of Composite Laminates for Aerospace Applications</b> .....	2599
<i>Paul Davidson, Evan J. Pineda, Christian Henrich, Anthony M. Waas</i>	
<b>Modeling Matrix Cracking in Composite Rotor Blades within VABS Framework</b> .....	2625
<i>Hemaraju Pollayi, Wenbin Yu</i>	
<b>Stochastic Critical Stress Intensity Factor Response of Single Edge Notched Laminated Composite Plate</b> .....	2653
<i>Achchhe Lal, Rakesh K. Kapania</i>	
<b>Effect Of Coupling Of Damage Mechanisms In The Degradation Model Of Composite Laminates</b> .....	2676
<i>Ravindra Dhama, Chandrashekhar Upadhyay, V. Murari</i>	
<b>Impact Response of CFRP Laminates with CNT Buckypaper Layers</b> .....	2690
<i>Christopher B. Hill, Yeqing Wang, Olesya I. Zhupanska</i>	
<b>Improved Subcell Model for the Prediction of Braided Composite Response</b> .....	2706
<i>Christopher R. Cater, Robert K. Goldberg, Xinran Xiao, Lee W. Kohlman</i>	
<b>Quantifying Effects of Voids in Woven Ceramic Matrix Composites</b> .....	2723
<i>Marlana B. Goldsmith, Bhavani V. Sankar, Raphael T. Haftka, Robert K. Goldberg</i>	
<b>Low-Velocity Impact Test of a Composite Wing Box and Analytical Prediction of Contact Indentation</b> .....	2738
<i>Zhefeng Yu, Pengyue Yi, Hai Wang</i>	
<b>Towards Mechanisms-guided Resistivity-based Monitoring of Damage in Laminated Composites</b> .....	2745
<i>Gilles Lubineau, Hedi Nouri, Lakshmi Selvakumaran</i>	
<b>Conceptual Implementation of an Automated Structural Health Monitoring System</b> .....	2756
<i>Zeaid F. Hasan, Ghassan M. Atmeh</i>	
<b>Damage Detection in a Hybrid Composite Panel Using Arrays of Piezoelectric Actuators/Sensors</b> .....	2777
<i>Fuhgwo Yuan, Richard M. Chapman</i>	
<b>Crack Growth Detection with Magnetostrictive Sensors</b> .....	2791
<i>Zachary Esau, Kinder McCullough, Kenneth Montel, Matthew Cosmo, Donald Rhymer, Dale A. Cope, Clinton Thwing</i>	
<b>Structural Integrity Assessment via Structural Response Predictions using a Certified Reduced Basis Model</b> .....	2805
<i>Kyunghoon Lee, Karen E. Willcox</i>	
<b>Modeling of an Arch Dam Long-Term Static Deformation for Structural Health Monitoring</b> .....	2822
<i>Jiann-Shiu Lew, Chin-Hsiung Loh</i>	
<b>Effects of Defects Part A: Stochastic Finite Element Modeling of Wind Turbine Blades with Manufacturing Defects for Reliability Estimation</b> .....	2834
<i>Trey Riddle, Douglas S. Cairns, Jared Nelson</i>	
<b>Effects of Defects: Part B—Progressive Damage Modeling of Fiberglass/Epoxy Composite Structures with Manufacturing Induced Flaws Utilizing Cohesive Zone Elements</b> .....	2850
<i>Kyeongsik Woo, Jared Nelson, Douglas Cairns, Trey Riddle</i>	
<b>An Implicit Model for Lagrangian Vortex Dynamics for Horizontal Axis Wind Turbine Design Optimization</b> .....	2864
<i>Michael K. McWilliam, Stephen Lawton, Manuel Fluck, Ghulam Mustafa, Curran A. Crawford</i>	
<b>Creep/Fatigue Behavior of Resin Infused Biaxial Glass Fabric Laminates</b> .....	2887
<i>John F. Mandell, David Miller, Daniel Samborsky</i>	
<b>Micromechanics Investigation of Wind Turbine Blade Fatigue Behavior Considering Multi-Axial Loading</b> .....	2902
<i>Curran A. Crawford, Ghulam Mustafa, Michael K. McWilliam</i>	
<b>System Analysis and Synthesis for the Dimensioning of Variant Lightweight Cabin Interior</b> .....	2916
<i>Benedikt Plaumann, Olaf Rasmussen, Dieter Krause</i>	
<b>Fundamental Bending Frequencies of Tapered Wings</b> .....	2931
<i>Luis Campos, Andre C. Marta</i>	



<b>Numerical Aspects of Nonlinear Flexible Aircraft Flight Dynamics Modeling</b> .....	2944
<i>Robert J. Simpson, Rafael Palacios</i>	
<b>Aeroelastic Analysis of a Folding Wing: Comparison of Simple and Higher Fidelity Models for a Wide Range of Fold Angles</b> .....	2969
<i>Ivan Wang, Samuel C. Gibbs, Earl Dowell</i>	
<b>On the Significance of a Novel Midpoint Rule with Midpoint Acceleration Technique for Index 3 DAE Multibody Dynamical Systems</b> .....	2990
<i>Kumar Tamma, Andrew Hoitink, Masao Shimada</i>	
<b>Experiments in Aeroelastic Response and Control under Gust</b> .....	3008
<i>Yogesh Babbar, Vishvas S. Suryakumar, Thomas W. Strganac</i>	
<b>Aerodynamic Gust Response in High Angles of Attack</b> .....	3018
<i>Daniella E. Raveh</i>	
<b>Propagation of Structural Uncertainty to Worst Case Gust Loads Predictions</b> .....	3028
<i>Hamed Khodaparast, Jonathan E. Cooper</i>	
<b>Experimental and Finite Element Analysis for a Multifunctional Beam with Frequency-dependent Viscoelastic Behavior</b> .....	3042
<i>Ya Wang, Daniel Inman</i>	
<b>Complex Modes in Damped Sandwich Beams Using Beam and Elasticity Theories</b> .....	3058
<i>Naveed Ahmad, Rakesh K. Kapania</i>	
<b>A Legendre Spectral Finite Element Implementation of Geometrically Exact Beam Theory</b> .....	3073
<i>Qi Wang, Michael Sprague</i>	
<b>Mechanics-Based Explanation of the Second Frequency Branch of Timoshenko Beam Theory</b> .....	3081
<i>Akash Dixit</i>	
<b>CFD-CSD Coupled Aeroelastic Analysis Of Flexible Flapping Wings For MAV Applications</b> .....	3096
<i>Ria P. Malhan, Pierangelo Masarati, James Baeder, Inderjit Chopra</i>	
<b>Reduced Order Model for Unsteady Aerodynamics of Flapping Wing Micro Air Vehicle in Hover</b> .....	3128
<i>Mandar D. Kulkarni, Mayuresh Patil, Richard D. Snyder</i>	
<b>Optimization of the Kinematics of a Flapping Wing MAV in Hover for Enhanced Performance</b> .....	3148
<i>Abhijit Gogulapati, Peretz P. Friedmann, Joaquim Martins</i>	
<b>Exploitation of the Saturation Phenomenon for Actuation of a Flapping MAV in Hovering and Forward Flight</b> .....	3169
<i>Haitham E. Taha, Ali Nayfeh, Muhammad R. Hajj</i>	
<b>Effect of Structural Anisotropy and Geometric Nonlinearity on Forward Flapping Wing Flight</b> .....	3181
<i>Luciano Demasi, Raymond E. Gordnier, Enrico Santarpia, Antonio Dipace</i>	
<b>A Probabilistic Framework for Low Cycle Fatigue Life Prediction and Uncertainty Modeling of Turbine Disk Alloys</b> .....	3209
<i>Shunpeng Zhu, Hong-Zhong Huang, Reuel Smith, Victor Ontiveros, Li-Ping He, Mohammad Modarres</i>	
<b>Numerical Analysis of Fatigue Behaviors Under Variable Amplitude Loading</b> .....	3222
<i>Zizi Lu, Jifeng Xu, Linjuan Wang</i>	
<b>A Time-based Formulation for Real-time Fatigue Damage Prognosis Under Variable Amplitude Loadings</b> .....	3231
<i>Wei Zhang, Yongming Liu</i>	
<b>Fatigue Damage Diagnosis and Prognosis Using Bayesian Updating</b> .....	3242
<i>Tishun Peng, Jingjing He, Yongming Liu, Abhinav Saxena, Jose Celaya, Kai Goebel</i>	
<b>Fatigue Damage Initiation Life Prediction for Heterogeneous Metals</b> .....	3253
<i>Yibin Xue, Tong Li, Frank Abdi</i>	
<b>Investigation of Magnetostrictive Sensor Capabilities for Crack Growth Prediction in Second-Layer Structure</b> .....	3257
<i>Laura Domyancic, Juan D. Ocampo, Kyle Robinson</i>	
<b>Band-limited Green's Functions for the Quantitative Evaluation of Acoustic Emission using the Finite Element Method</b> .....	3266
<i>William P. Leser, Fuhgwo Yuan, John A. Newman</i>	
<b>Random Fiber Micromechanics of Fatigue Damage</b> .....	3281
<i>Mark Garnich, Ray S. Fertig, Evan M. Anderson</i>	
<b>X-FEM Co-Simulation of Delamination and Matrix Cracking in Fiber Metal Laminated Structures under Fatigue Loading</b> .....	3290
<i>Eugene Fang, Michael Stuebner, Jim Lua</i>	
<b>Hybrid Global Matrix/Local Interaction Simulation Approach for Wave Propagation Simulation in Composite Laminates</b> .....	3300
<i>Matthew B. Obenchain, Kalyan S. Nadella, Carlos E. Cesnik</i>	

## VOLUME 5

<b>Wavelet Spectral Finite Element Method for Modeling Wave Propagation in Stiffened Composite Laminates</b> .....	3317
<i>Dulip Samaratunga, Xuefei Guan, Rameshwar Jha, Srinivasan Gopalakrishnan</i>	
<b>Experimental Identification of Delamination Size and Location Based on Signal Correlations</b> .....	3336
<i>Xuefei Guan, Dulip Samaratunga, Ruisheng Wang, Rameshwar Jha</i>	
<b>Tensile Testing and Non-destructive Evaluation Scanning of Varied Ply CFRP Laminates with Embedded Magnetostrictive Particles</b> .....	3343
<i>Oliver J. Myers, George Currie, Jonathan Rudd, Dustin Spayde</i>	

<b>Aerothermoelastic Response of a Panel Under a High Speed Turbulent Boundary Layer Using Direct Numerical Simulation</b> .....	3355
<i>Christopher Ostoich, Daniel J. Bodony, Philippe Geubelle</i>	
<b>Robust Treatment of Temperature Feedback in Aerothermodynamic Models for Fluid-Thermal-Structural Analysis</b> .....	3382
<i>Andrew R. Crowell, Brent Miller, Jack J. McNamara</i>	
<b>Verification Studies on Hypersonic Structure Thermal/Acoustic Response and Life Prediction Methods</b> .....	3416
<i>George T. Tzong, Salvatore L. Liguore</i>	
<b>Thermal Acoustic Test and Analysis Model Updating and Correlation</b> .....	3430
<i>Dale M. Pitt, Salvatore L. Liguore, Michael J. Thomas, Nicholas Gurtowski</i>	
<b>Loosely Coupled Time-Marching of Fluid-Thermal-Structural Interactions</b> .....	3443
<i>Brent Miller, Andrew R. Crowell, Jack J. McNamara</i>	
<b>Large Deformation Bending of Thin Composite Tape Spring Laminates</b> .....	3461
<i>Michael E. Peterson, Thomas W. Murphey</i>	
<b>Four Point Bending of Thin Unidirectional Composite Laminas</b> .....	3475
<i>Thomas W. Murphey, Michael E. Peterson, Mikhail M. Grigoriev</i>	
<b>Geometry and Moments of Bent Tape Springs</b> .....	3496
<i>Alan L. Jennings, Jonathan Black, Alyssa N. Gutierrez</i>	
<b>Verification of Deployment Precision and Stability Requirements for the GEMS Telescope Optical Boom</b> .....	3505
<i>Michael E. McEachen</i>	
<b>Deployable Helical Antennas for Cubesats</b> .....	3514
<i>Gina Olson, Sergio Pellegrino, Jeremy Banik, Joseph Costantine</i>	
<b>Deployment Modeling and Experimental Testing of a Bi-stable Composite Boom for Small Satellites</b> .....	3528
<i>Pau Mallol, Gunnar Tibert</i>	
<b>Deployable CubeSat Truss Structures with Compliant Shape Memory Hinges</b> .....	3551
<i>Matthew J. Santer</i>	
<b>Effects of the Stealth Requirements on the Aerodynamic Performance of the X-47B</b> .....	3562
<i>Haitham E. Taha, Muhammad R. Hajj</i>	
<b>The Use of MDO and Advanced Manufacturing to Demonstrate Rapid, Agile Construction of a Mission Optimized UAV</b> .....	3580
<i>Martin J. Muir, Edward J. Kolb, Aaron T. Parkinson, Graham A. Robertson, Carl L. Muldal, Osvaldo Querin, Robert W. Hewson, Vassili Toropov</i>	
<b>Multi-Disciplinary Design Optimization of Unconventional Airship Configurations with Heuristic Algorithms</b> .....	3601
<i>Alessandro Ceruti, Vitaly Voloshin, Pier Marzocca</i>	
<b>A Collaborative MDO Approach for the Flexible Aircraft</b> .....	3621
<i>Thomas Zill, Pier Davide Ciampa, Bjoern Nagel</i>	
<b>Knowledge Based Approach to Wing Weight and Stiffness Estimation at Early Stages of Aircraft Design</b> .....	3633
<i>Julien Chaussee, Franck Dervault</i>	
<b>Direct Search Optimization of a Flapping Micro Air Vehicle Wing using FEA Characterization of the Manduca Sexta Forewing</b> .....	3648
<i>Carl R. Parson, James W. Chrissis, Ryan O'Hara, Anthony N. Palazotto</i>	
<b>Sparse Robust Rational Interpolation for Parameter-dependent Aerospace Models</b> .....	3658
<i>Pranay Seshadri, Paul Constantine, Pedro Gonnet, Geoff T. Parks, Shahrokh Shahpar</i>	
<b>Calibration of Computer Simulator with Non-Gaussian Prior using Dynamically Bi-orthogonal Field Equations</b> .....	3671
<i>Piyush M. Tagade, Han-Lim Choi</i>	
<b>Dynamically Bi-orthogonal Field Equations for Solution of Two-Dimensional Hyperbolic Partial Differential Equations</b> .....	3680
<i>Piyush M. Tagade, Han-Lim Choi</i>	
<b>Bayesian Calibration of Aerothermal Models for Hypersonic Air Vehicles</b> .....	3690
<i>Erin C. Decarlo, Sankaran Mahadevan, Benjamin P. Smarslok</i>	
<b>Structural Reliability Analysis of the Advanced Composite Cargo Aircraft</b> .....	3706
<i>Barrett D. Flansburg, Stephen P. Engelstad</i>	
<b>Finite Element Analysis of Composite Bridge Deck Joints</b> .....	3733
<i>Nithi T. Siveneri, Amit V. Desai</i>	
<b>Use of Statistical Learning in a Reliability Program for Risk Assessment of Composite Structures With Defects</b> .....	3742
<i>Trey Riddle, Patrick Donnelly, Douglas S. Cairns, Jared Nelson</i>	
<b>Multi-Scale Investigation of Composite Aircraft Parts with Holes to Evaluate the Sensitivity of Structural Behavior Relative to Out-of-Plane Laminate Properties</b> .....	3755
<i>Jonathan Weigand, Geoff Goodmiller, Stephanie C. Termaath</i>	
<b>Conceptual Design and Structural Analysis of an Open Rotor Hybrid Wing Body Aircraft</b> .....	3760
<i>Frank H. Gern</i>	
<b>An Artificial Neural Network Residual Kriging Based Surrogate Model for Shape and Size Optimization of a Stiffened Panel</b> .....	3774
<i>Mohammad R. Sunny, Sameer B. Mulani, Subrata Sanyal, Rajkumar S. Pant, Rakesh K. Kapania</i>	
<b>Development of an Integrated Structural Analysis Capability for Airframe Preliminary Design</b> .....	3788
<i>Steven G. Russell, Charles Potter, Vadim Kim, Philipp Witte, Zhimin Liu, Dimitri Mavris</i>	
<b>Sensor (Monitoring Points) Layout Method for Fatigue Design Load Extraction</b> .....	3804
<i>Ha-Rok Bae, Hiroaki Ando, Sangjeong Nam, Sangkyum Kim, Christopher Ha</i>	

<b>A Unified Real Time Approach to Characterizations of Isotropic Linear Viscoelastic Media from 1-D Experiments without Use of Poisson's Ratios</b> .....	3824
<i>Michael Michaeli, Abraham Shtark, Hagay Grosbein, Eli Altus, Harry H. Hilton</i>	
<b>High Fidelity Fluid-Structure Interaction Analysis of a Wind Turbine Blade</b> .....	3863
<i>Mark E. Braaten, Charles Seeley, Michael Tooley</i>	
<b>On-Condition Evaluation of How Inertial and Aerodynamic Characteristics Affect the Dynamics of a Small Wind Turbine System</b> .....	3876
<i>Chiara Grappasonni, Giuliano Coppotelli, Tyler Arsenaault, Ajit Achuthan, Pier Marzocca</i>	
<b>Pitch Error and Shear Web Disbond Detection on Wind Turbine Blades for Offshore Structural Health and Prognostics Management</b> .....	3892
<i>Noah J. Myrent, Joshua F. Kusnick, Douglas Adams, Daniel T. Griffith</i>	
<b>Alternate Techniques/New Approaches for Identification of Full Field Dynamic Stress Strain from Limited Sets of Measured Data for Wind Turbine Applications</b> .....	3909
<i>Jennifer Carr, Pawan Pingle, Peter Avitabile, Christopher Niezrecki</i>	
<b>Geometric Nonlinear Analysis of Composite Beams using Wiener-Milenkovi? Parameters</b> .....	3919
<i>Qi Wang, Wenbin Yu, Michael Sprague</i>	
<b>Power Generation from Galloping-based Piezoaeroelastic Energy Harvesters for Different Cross-Section Geometries</b> .....	3933
<i>Abdessattar Abdelkefi, Yan Zhimiao, Muhammad R. Hajj</i>	
<b>A Robust ASE Correlation and Analysis Method</b> .....	3945
<i>William D. Anderson, John P. Babish, Charles Hedgecock, David Layton</i>	
<b>Full Aircraft Dynamic Response by Simplified Structural Models</b> .....	3955
<i>Erasmus Carrera, Enrico Zappino</i>	
<b>Dynamic Aeroelastodynamic Response with Nonlinear Structural Elements</b> .....	3971
<i>Moti Karpel, Alexander Shousetman, Hector Climent, Carlos Maderuelo</i>	
<b>3-D Vortex Particle Aerodynamic Modelling and Trajectory Optimization of Perching Manoeuvres</b> .....	3981
<i>Darrel K. Robertson, Gregory W. Reich</i>	
<b>High Order Harmonic Balance Applied to an Aeroelastic T-tail Model with a Control Surface Freeplay</b> .....	3999
<i>Fichera Sebastiano, Sergio Ricci</i>	
<b>Force and Flowfield Measurements on a Rigid Wing Undergoing Hover-Capable Flapping and Pitching Kinematics in Air at MAV-Scale Reynolds Numbers</b> .....	4010
<i>Moble Benedict, David Coleman, David B. Mayo, Inderjit Chopra</i>	
<b>Aerodynamic-Dynamic Interaction and Longitudinal Stability of Hovering MAVs/Insects</b> .....	4034
<i>Haitham E. Taha, Muhammad R. Hajj, Ali Nayfeh</i>	
<b>Validation of a Finite Element Analysis of a Flapping Wing against Inertial and Aeroelastic Responses</b> .....	4048
<i>Justin Mason, Jonathan Black, Alan L. Jennings, Alexander Sharp, Joyce Blandino, Jacob Lysner</i>	
<b>Periodic and Average Flapping Wing Force Measurement</b> .....	4063
<i>Alan L. Jennings, Alexander Sharp, Daniel Doyle, Jonathan Black</i>	
<b>Structural and Aerodynamic Modeling of a Flapping Wing Structure</b> .....	4075
<i>Indrajit Mukherjee, Suresh Sundaram</i>	
<b>Whirl-tower Open-loop Experiments and Simulations with an Adaptive Pitch Link Device for Helicopter Rotor Vibration Control</b> .....	4088
<i>Fred Nitzsche, Daniel Feszty, Chiara Grappasonni, Giuliano Coppotelli</i>	
<b>Investigation of the Divergence Stability Boundary of an Extremely Flexible Helicopter Rotor in Hover</b> .....	4101
<i>Jerome Sicard, Jayant Sirohi</i>	
<b>Helicopter Forward Flight Prediction using Geometrically Exact Beam Model and an Advanced Unsteady Aerodynamics</b> .....	4115
<i>Hanyeol Ryu, Haeseong Cho, Wonjong Eun, Sang Joon Shin, Joonbae Lee, Kwanjung Yee</i>	
<b>Elastomeric Damper Models for Rotorcraft Comprehensive Analysis</b> .....	4128
<i>Hao Kang, Matt Hasbun, Hossein Saberi, Conor Marr, George A. Lesieutre, Edward C. Smith</i>	

## VOLUME 6

<b>Blade Sailing Phenomenon Modeling for Feedback Control</b> .....	4140
<i>Mohammad Riazi, Fred Afagh</i>	
<b>ModelCenter-Integrated Reduced Order Multi-fidelity Optimization Scheme for NASA MDAO Framework</b> .....	4160
<i>Satyajit S. Ghoman, Darius Sarhaddi, Zhicun Wang, Ping-Chih Chen</i>	
<b>Hybrid Wing Body Pressurized Fuselage and Bulkhead Design and Optimization</b> .....	4177
<i>Vivekanand Mukhopadhyay</i>	
<b>Design Improvements and Analytical Validation for the A-10 Wing Replacement Program (WRP)</b> .....	4190
<i>Paul N. Clark, Randal E. Heller, Mark Thomsen, L. C. Stoker</i>	
<b>Semi-Analytical Weight Estimation Method for Fuselages with Oval Cross-Section</b> .....	4218
<i>Roelof Vos, Maurice Hoogreef</i>	
<b>Two-level Conceptual Design of Morphing Wings</b> .....	4233
<i>Noud Werter, Roeland De Breuker, Michael Friswell, Wulf Dettmer, Christopher S. Beaverstock</i>	
<b>A Preliminary Study of Wing Substructure Layouts Using a Parametric Structures Evaluation Tool</b> .....	4246
<i>Charles Potter, Steven G. Russell, Vadim Kim, Philipp Witte, Zhimin Liu, Dimitri Mavris</i>	
<b>Effects of Nonuniform Elastic Fuselage Modeling on Flight Dynamics of Hypersonic Vehicles</b> .....	4258
<i>Kaichun Zeng, Jinwu Xiang</i>	

<b>On the Use of Volume Average Constituent Stresses for Predicting Composite Failure .....</b>	<b>4275</b>
<i>Kedar A. Malusare, Ray S. Fertig</i>	
<b>Failure Mode Predictions in the Compressive Response of Laminated Composites .....</b>	<b>4288</b>
<i>Pavana Prabhakar, Anthony M. Waas</i>	
<b>Modeling Fiber-Matrix Splitting Failure through a Mesh-Objective Continuum-Decohesive Finite Element Method .....</b>	<b>4303</b>
<i>Pavana Prabhakar, Anthony M. Waas</i>	
<b>The Effect of Scale Dependent Discretization on the Progressive Failure of Composite Materials Using Multiscale Analyses .....</b>	<b>4317</b>
<i>Trenton M. Ricks, Thomas E. Lacy, Evan J. Pineda, Brett A. Bednarcyk, Steven M. Arnold</i>	
<b>A Predictive Model for the Compressive Strength of 3D Woven Textile Composites .....</b>	<b>4325</b>
<i>Wooseok Ji, Anthony M. Waas</i>	
<b>Nano-Modified Adhesives by Graphene: The Effect Ageing Investigation .....</b>	<b>4336</b>
<i>Almir Silva Neto, Diego T. Cruz, Antonio F. Avila</i>	
<b>Electrothermal Icing Protection of Aerosurfaces Using Conductive Polymer Nanocomposites .....</b>	<b>4348</b>
<i>Samuel T. Buschhorn, Seth S. Kessler, Noa Lachmann, Jennifer Gavin, Greg Thomas, Brian L. Wardle</i>	
<b>CNT-grafted Carbon Fibers with Preserved Strength Assessed at the Single Fiber and Unidirectional Composite Scales .....</b>	<b>4356</b>
<i>Richard Li, Stephen A. Steiner, Peter Florin, Brian L. Wardle</i>	
<b>Computational Micromechanics Analysis of Electron Hopping Induced Piezoresistive Response in Carbon Nanotube-polymer Nanocomposites .....</b>	<b>4364</b>
<i>Adarsh K. Chaurasia, Gary D. Seidel</i>	
<b>Multi-scale Modeling of Debond Behavior in Nano-Particle Reinforced Polymers .....</b>	<b>4387</b>
<i>Avinash Akepati, Nicholas Hayes, Samit Roy</i>	
<b>Understanding the Influence of Nickel Doping in a Tungsten Grain Boundary on Mechanical Strength.....</b>	<b>4396</b>
<i>Hongsuk Lee, Vikas Tomar</i>	
<b>Analysis of a Hybrid Wing Body Center Section Test Article.....</b>	<b>4403</b>
<i>Hsi-Yung T. Wu, Peter Shaw, Adam Przekop</i>	
<b>Testing and Analysis Validation of a Metallic Repair Applied to a PRSEUS Tension Panel.....</b>	<b>4419</b>
<i>Adam Przekop, Dawn C. Jegley</i>	
<b>Nonlinear Analysis and Post-Test Correlation for a Curved PRSEUS Panel .....</b>	<b>4443</b>
<i>Kevin Gould, Andrew E. Lovejoy, Dawn Jegley, Albert L. Neal, Kim A. Linton, Andrew C. Bergan, John G. Bakuckas</i>	
<b>Preliminary Design and Analysis of an In-plane PRSEUS Joint .....</b>	<b>4471</b>
<i>Andrew E. Lovejoy, Steven Poplawski</i>	
<b>Behavior of Frame-Stiffened Composite Panels with Damage.....</b>	<b>4488</b>
<i>Dawn C. Jegley</i>	
<b>Generalized Predictive Control for Aircraft with Structural Damage .....</b>	<b>4501</b>
<i>Jiann-Shiuh Lew, Jer-Nan Juang</i>	
<b>Feedforward and Feedback Control of Double Panel Partition with Active Trim Panel .....</b>	<b>4515</b>
<i>Hans P. Monner, Thomas Haase, Malte Misol, Stephan Algermissen</i>	
<b>Modal Filtering for Control of Flexible Aircraft .....</b>	<b>4523</b>
<i>Peter Suh, Dimitri Mavris</i>	
<b>A Gyro-feedback Concept for Tailoring the Dynamic Performance of Metamaterial-based Adaptive Systems .....</b>	<b>4561</b>
<i>Kwangchun Park, Ilkwon Oh</i>	
<b>Response of Skin Panels to Combined Self and Boundary Layer Induced Fluctuating Pressure.....</b>	<b>4567</b>
<i>Rohit Deshmukh, Jack J. McNamara, Adam J. Culler</i>	
<b>Assessing Hypersonic Boundary Layer Stability in the Presence of Panel Scale Protuberances .....</b>	<b>4585</b>
<i>Zachary B. Riley, Jack J. McNamara</i>	
<b>Demonstration of Multiphysics Analysis Tools on Representative Hypersonic Vehicle Structures .....</b>	<b>4607</b>
<i>Eric Blades, Parthiv N. Shah, Michael Nucci, Scott Miskovich</i>	
<b>A Structures Perspective on the Challenges Associated with Analyzing a Reusable Hypersonic Platform .....</b>	<b>4624</b>
<i>Thomas G. Eason, Stephen Spottswood, Ravi Chona, Ravi Penmetsa</i>	
<b>The Smart Normal Constraint Method for Directly Generating a Smart Pareto Set .....</b>	<b>4639</b>
<i>Braden J. Hancock, Christopher A. Mattson</i>	
<b>Estimating Feasibility Using Multiple Surrogates and ROC Curves .....</b>	<b>4659</b>
<i>Anirban Chaudhuri, Rodolphe Le Riche, Mickael Meunier</i>	
<b>Parallel Coordinates in Computational Engineering Design.....</b>	<b>4673</b>
<i>T. Kipouros, Alfred Inselberg, Geoffrey Parks, A Mark Savill</i>	
<b>Quantifying Regional Error in Surrogates by Modeling its Relationship with Sample Density .....</b>	<b>4684</b>
<i>Souma Chowdhury, Ali Mehmani, Jie Zhang, Achille Messac, Weiyang Tong</i>	
<b>A Model for Quantifying System Evolvability Based on Excess and Modularity .....</b>	<b>4705</b>
<i>Morgan W. Tackett, Christopher A. Mattson, Scott M. Ferguson</i>	
<b>Simultaneous Design of a Stiffened Fuselage Panel and Number of Structural Tests.....</b>	<b>4721</b>
<i>Erdem Acar, Rabia C. Usta</i>	
<b>Optimization Under Mixed Aleatory/Epistemic Uncertainty Using Derivatives .....</b>	<b>4746</b>
<i>Markus P. Rumpfkeil</i>	
<b>Dynamic Reliability-Based Robust Design with Time-Variant Probabilistic Constraints.....</b>	<b>4758</b>
<i>Zequn Wang, Abdulaziz T. Almaktoom, Pingfeng Wang</i>	
<b>Surrogate-based Maximisation of Belief Function for Robust Design Optimisation .....</b>	<b>4772</b>
<i>Simone Alicino, Massimiliano Vasile</i>	

<b>Development and Validation of a Structural Model for Textile Composite Materials</b> .....	4792
<i>Chiara Bisagni, Marco S. Pigazzini</i>	
<b>Comparison Between Different Cellular Cores and Finite Element Modeling Techniques</b> .....	4802
<i>Hazem E. Soliman, Rakesh K. Kapania</i>	
<b>Strain Energy Method to Model Composite Structures Damping</b> .....	4819
<i>Chiara Bisagni, Eduardo Catapano</i>	
<b>Residual Strength of Composite Laminates with a Hole by Using Peridynamic Theory</b> .....	4829
<i>Kyle Colavito, Attila Barut, Edogan Madenci, Nam Phan</i>	
<b>Modelling of Composite Laminates Based on Isogeometric Layerwise Theory</b> .....	4841
<i>Yujie Guo, Attila P. Nagy, Zafer Gurdal</i>	
<b>Modeling Rate Dependent Damage Evolution in Composite Structures</b> .....	4858
<i>Michael Bogdanor, Robert D. Crouch, Stephen B. Clay, Caglar Oskay</i>	
<b>Study of Surface and Sub-surface Damage Initiation and Propagation in Carbon Epoxy Composites</b> .....	4868
<i>Masoud Yekani Fard, Seid Mohammad Ali Sadat, Aditi Chattopadhyay, Brian Raji</i>	
<b>Modelling of Fiber/Matrix Debonding of Composites under Cyclic Loading</b> .....	4879
<i>Paria Naghipour, Evan J. Pineda, Brett A. Bednarczyk, Steven M. Arnold</i>	
<b>Progressive Failure of Plain Weave Textiles Under Multiaxial Loading</b> .....	4890
<i>Wesley R. McLendon, John D. Whitcomb</i>	
<b>Delamination Modeling in Noodle Region of Composite T-Joints</b> .....	4917
<i>Suhasini Gururaja, Md Alauddin Ansari</i>	
<b>Design and Testing of Imperfection-insensitive Monocoque Cylindrical Shells</b> .....	4929
<i>Xin Ning, Sergio Pellegrino</i>	

## VOLUME 7

<b>Structural Assessment of Advanced Tow-Steered Shells</b> .....	4963
<i>K Chauncey Wu, Bret K. Stanford, Glenn A. Hrinda, Zhuosong Wang, Robert A. Martin, Hyunsun A. Kim</i>	
<b>A New Theoretical Framework for the Formulation of General, Nonlinear, Single-Scale Shell Theories</b> .....	4983
<i>Todd O. Williams</i>	
<b>Imperfection Sensitivity of Circular Cylindrical Shells of Varying Length Subjected to Axial Compression</b> .....	4988
<i>Linus Friedrich, Hans-Günther Reimerdes</i>	
<b>Blade Stress Estimation During Multiple Vibratory Modes</b> .....	4998
<i>Kan Ni, X. Q. Wang, Marc Mignolet</i>	
<b>Unsteady Aerodynamic Analysis of a Bird-Damaged Turbofan</b> .....	5019
<i>Eric R. Muir, Peretz P. Friedmann</i>	
<b>New Hybrid Optimization for Design of Active Twist Rotors</b> .....	5040
<i>Devesh Kumar, Carlos E. Cesnik</i>	
<b>Component Mode Reduced Order Models for Geometric Mistuning of Integrally Bladed Rotors</b> .....	5069
<i>Joseph Beck, Jeffrey M. Brown, Joseph C. Slater, Charles Cross</i>	
<b>Ground Structural Coupling Testing and Data Processing Methods for Frequency Response Function Estimation</b> .....	5089
<i>Renjia Zhang, Zhigang Wu, Chao Yang</i>	
<b>Ground Vibration Testing of Future responsive Access to Space Airframe Ground Experiment</b> .....	5104
<i>Paul Scott Zink, Ben Clark, Eduardo Salcedo, Chi Le, John Ahrens, Robert Biggs, Kenneth E. Griffin, Edmund Pendleton</i>	
<b>Experimental Investigation of Dynamic out of Plane Displacement Error in 3D Digital Image Correlation</b> .....	5122
<i>David A. Ehrhardt, Timothy Bebernis</i>	
<b>Through-the-thickness Response of Hybrid 2D and 3D Woven Composites</b> .....	5135
<i>Mark Pankow, Anthony M. Waas, Chian-Fong Yen, Brian Justusson</i>	
<b>Ab Initio Micromechanics Based Multiscale Model of Woven Ceramic Matrix Composites</b> .....	5149
<i>Luke Borkowski, Aditi Chattopadhyay</i>	
<b>Global-Local Analysis of Composite Plate With Thin Notch</b> .....	5163
<i>Mohamed Jrad, Mohammad R. Sunny, Rakesh K. Kapania</i>	
<b>Nonlinear Analysis of Fiber-Reinforced Composite Laminates Subjected to Uniaxial Compressive Load</b> .....	5178
<i>Hsuan-Teh Hu, Wen-Pin Lin, Long-Sam Ke</i>	
<b>Experimental Investigation of Performance of a Wing-Propeller System for a Quad-Rotor-Biplane Micro Air Vehicle</b> .....	5194
<i>Vikram Hrishikeshavan, Christopher Bogdanowicz, Inderjit Chopra</i>	
<b>Nonlinear Aeroelastic Scaled Model Optimization Using Equivalent Static Loads</b> .....	5213
<i>Anthony Ricciardi, Robert A. Canfield, Mayuresh Patil, Charles A. Eger</i>	
<b>Design and Evaluation of Aeroelastically Tuned Joined-Wing SensorCraft Flight Test Article</b> .....	5228
<i>Jenner Richards, Jeffrey S. Garnand-Royo, Afzal Suleman, Robert A. Canfield, Craig A. Woolsey, A. Ricciardi</i>	
<b>Peak Input Torque Minimization of a Flapping Wing Mechanism for MAVs</b> .....	5246
<i>Haijun Su, Mark Ryan, Venkatasubramanian Kalpathy Venkiteswaran</i>	
<b>Design and Perching Experiments of Bird-like Remote Controlled Planes</b> .....	5259
<i>Darrel K. Robertson, Gregory W. Reich</i>	
<b>Engineered Thin Films with Ultra-low Thermal Expansion Coefficient for Deployable Or Deformable Space Structures</b> .....	5276
<i>Namiko Yamamoto, Eleftherios Gdoutos, Chiara Daraio</i>	
<b>Electromechanical Stability and Dynamic Analysis of Dielectric Elastomer Plane Actuators</b> .....	5281
<i>Liwu Liu, Jinsong Leng, Jianguo Chen, Yanju Liu, Fan Fei, Yixing Wang</i>	

<b>Simulations Mapping Stress Evolution in High Temperature Ceramic Coatings under Thermal-Mechanical Conditions</b> .....	5290
<i>Kevin Knipe, David Siljee, Albert Manero, Seetha Raghavan, John Okasinski, Jonathan Almer, Sendil Rangaswamy</i>	
<b>Modeling of Residual Stresses in Shape Memory Alloy - Ceramic Composites</b> .....	5296
<i>Brian T. Lester, Dimitris C. Lagoudas</i>	
<b>Computational Design of Actively-Cooled Microvascular Composite Skin Panels for Hypersonic Aircraft</b> .....	5308
<i>Soheil Soghrati, Ahmad Najafi, Nancy R. Sottos, Scott White, Philippe H. Geubelle</i>	
<b>Energy Dissipation of a Bi-stable von-Mises Truss under Impulsive Excitation</b> .....	5316
<i>Silvestro Barbarino, Michael E. Pontecorvo, Farhan Gandhi</i>	
<b>Dimensionless Analysis and Scaling of a Hybrid 3DOF Airfoil-based Piezoelectric-inductive Aeroelastic Energy Harvester</b> .....	5327
<i>José A. Dias, Carlos De Marqui, Alper Erturk</i>	
<b>Vibration Suppression of a Plate-Like Wing Under Atmospheric Turbulence Using Passive And Hybrid Piezoelectric Circuits</b> .....	5339
<i>Tarcisio M. Silva, Carlos De Marqui</i>	
<b>Overview and Lessons Learned from the Aeroelastic Prediction Workshop</b> .....	5355
<i>Jennifer Heeg, Pawel Chwalowski, Dave Schuster, Mats Dalenbring</i>	
<b>Initial Investigation of the Benchmark SuperCritical Wing Configuration using Hybrid RANS-LES Modeling</b> .....	5372
<i>Mats Dalenbring, Adam Jirasek, Jennifer Heeg, Pawel Chwalowski</i>	
<b>Steady and Unsteady Aeroelastic Computations of HIRENASD Wing for Low and High Reynolds Numbers</b> .....	5386
<i>Pinar Acar, Melike Nikbay</i>	
<b>Structural Dynamics Modeling of HIRENASD in support of the Aeroelastic Prediction Workshop</b> .....	5402
<i>Carol D. Wieseman, Pawel Chwalowski, Jennifer Heeg, Alexander Boucke, Jack Castro</i>	
<b>Experimental Data from the Benchmark Supercritical Wing Wind Tunnel Test on an Oscillating Turntable</b> .....	5424
<i>Jennifer Heeg, David J. Piatak</i>	
<b>A Linear Photonic Thrust Model and its Application to the L'Garde Solar Sail Surface</b> .....	5449
<i>Gyula Greschik</i>	
<b>Repeatability of Stored Configuration of a Large Solar Sail with Non-negligible Thickness</b> .....	5460
<i>Hiraku Sakamoto, Shogo Kadoshishi, Yasutaka Satou, Hiroshi Furuya, Yoji Shirasawa, Nobukatsu Okuizumi, Osamu Mori, Hirotaka Sawada, Jun Matsumoto, Michihiro Natori, Yasuyuki Miyazaki, Masaaki Okuma</i>	
<b>DEPLOYTECH: Nano-satellite Testbeds for Gossamer Technologies</b> .....	5475
<i>Andrew Viquerat, Mark Schenk, Vaios Lappas</i>	
<b>Deorbital: A Deployable Sail for De-orbiting</b> .....	5484
<i>Olive R. Stohlman, Vaios Lappas</i>	
<b>Testing of the Deorbital Drag Sail Subsystem</b> .....	5493
<i>Olive R. Stohlman, Juan M. Fernandez, Vaios Lappas, Martin Hillebrandt, Christian Hühne, Marco Straubel</i>	
<b>Design, Optimization, and Evaluation of Al-2139 Compression Panel with Integral T-Stiffeners</b> .....	5503
<i>Sameer B. Mulani, David Havens, Ashley Norris, R. Keith Bird, Rakesh K. Kapania, Robert Olliffe</i>	
<b>Smeared Stiffeners in Panel for Mesh Simplification at Conceptual Design Phase</b> .....	5524
<i>Denis Walch, Simon Tetreault, Franck Dervault</i>	
<b>Impact of Wing Box Geometrical Parameters on Stick Model Prediction Accuracy</b> .....	5535
<i>Guillaume Corriveau, Franck Dervault</i>	
<b>Optimization of Computational Laminate Composites for the Prediction of Performance Metrics Using Finite Element Simulation</b> .....	5548
<i>Christopher J. Eacker, Matthew E. Riley</i>	
<b>Effect of Nano-inclusions on Probabilistic Design of Components Made of Hybrid Composite Materials</b> .....	5563
<i>Mohammad Rouhi, Masoud Rais-Rohani</i>	
<b>Inclusion of Data Uncertainty and Model Error in Multi-disciplinary Analysis and Optimization</b> .....	5573
<i>Chen Liang, Sankaran Mahadevan</i>	
<b>Hybrid Adjoint-based Robust Optimization Approach for Fluid-Dynamics Problems</b> .....	5587
<i>Paola Cinnella, Matteo Pini</i>	
<b>Towards Robust Design of Axial Compressors with Uncertainty Quantification</b> .....	5603
<i>Pranay Seshadri, Geoff T. Parks, Shahrokh Shahpar, Jerome Jarrett</i>	
<b>Adaptive Importance Sampling for Optimization under Uncertainty Using Stochastic Simulation</b> .....	5624
<i>Juan Camilo Medina, Alexandros A. Taflanidis</i>	
<b>Investigating the Feasibility of Interpolating Scatter in Material Property Data. Case Study: S-N Curves for Ti-6Al4V</b> .....	5634
<i>Carolina Quintana, Harry R. Millwater, Ravi C. Penmetsa</i>	
<b>Conservativeness in Failure Probability Estimate: Redesign Risk vs. Performance</b> .....	5644
<i>Taiki Matsumura, Raphael T. Haftka, Nam Ho Kim</i>	
<b>The Effect of the Number of Coupon and Element Tests on Conservativeness</b> .....	5656
<i>Chanyoung Park, Nam Ho Kim, Raphael T. Haftka</i>	
<b>A Hierarchical Aeroelastic Engine for the Preliminary Design and Optimization of the Flexible Aircraft</b> .....	5679
<i>Pier Davide Ciampa, Thomas Zill, Bjoern Nagel</i>	
<b>Designer Euler and Elastica Columns Subjected to Aerodynamic Loads - System Engineering of the Aeroelasticity of Wind Turbine Towers</b> .....	5691
<i>Harry H. Hilton, Steven J. D'Urso</i>	
<b>Postbuckling Response of Variable Angle Tow Composite Plates Under Shear Load</b> .....	5709
<i>Gangadharan Raju, Zhangming Wu, Paul Weaver</i>	

<b>Buckling Imperfection-Sensitivity Analysis Using a Koiter-Newton Approach</b> .....	5722
<i>Ke Liang, Mostafa Abdalla, Zafer Gurdal</i>	
<b>Buckling and Post Buckling of Stiffened CFRP Panels under Compression and Shear - Test and Numerical Analysis</b> .....	5734
<i>Dirk Wilckens, Falk Odermann, Alexander Kling</i>	
<b>Structures and Design Phase I Summary for the NASA Composite Cryotank Technology Demonstration Project</b> .....	5744
<i>Theodore F. Johnson, David W. Sleight, Robert A. Martin</i>	
<b>Substrate Prototype Development for Tensioned Phased Arrays</b> .....	5755
<i>Juan M. Mejia-Ariza</i>	
<b>Space Telescope Structural Design Analysis for the Chromotomographic Hyperspectral Imaging Experiment</b> .....	5771
<i>Kacey E. Blunck, Eric D. Swenson, Jonathon T. Black, Richard G. Cobb</i>	

## VOLUME 8

<b>Design and Analysis of Space Deployable Antennas Composed of Scissor-Like Hinges Driven by Springs</b> .....	5824
<i>T. J. Li, Hanqing Deng, Xiaofei Ma, Jie Jiang, Zhanchao Lin</i>	
<b>Deploying Ability Analyses of a Folded Hoop-Rib Space Deployable Structure</b> .....	5831
<i>Fei Zheng, Mei Chen, Lingyan Zhao, Jie He</i>	
<b>Multi-layered Radial Isolator for Helicopter Interior Noise Reduction</b> .....	5840
<i>Pauline Autran, David Materkowski, George A. Lesieutre</i>	
<b>A General Methodology for Analysis of Structure-Borne Micro-Vibration</b> .....	5852
<i>Marcello Remedia, William Aglietti, Brian Lepage, Guy Richardson</i>	
<b>Experimental Investigation into A Vibration Isolator Incorporating A Bistable Composite Plate</b> .....	5860
<i>Alexander D. Shaw, Simon A. Neild, David J. Wagg, Paul Weaver, Alessandro Carrella</i>	
<b>Aeroelastic Energy Harvesting Using a Nonlinear Electromagnetic Oscillator</b> .....	5872
<i>Katherine Bender, Ndungu Muturi, Alex C. Spies, Chris L. Lee</i>	
<b>Computation Investigation of the Effect of Missile Control Surfaces on F-16 Limit Cycle Oscillation</b> .....	5882
<i>Colin Q. Hanson, Donald L. Kunz, Ned J. Lindsley</i>	
<b>An Approach to Aeroelastic Modeling and Simulation of Limit Cycle Oscillations of Aircraft Wings with Stores</b> .....	5892
<i>Madhusudan A. Padmanabhan, Crystal L. Pasilio, Earl Dowell</i>	
<b>Flutter Prediction of Multimode Systems from their Turbulent Responses by Jury's Criterion</b> .....	5910
<i>Yuji Matsuzaki</i>	
<b>Dynamic Stall and Stall Flutter Simulations for a 2D Airfoil Using Viscous-Inviscid Coupling</b> .....	5919
<i>José I. Rothkegel, Grigorios Dimitriadis</i>	
<b>The Effect of Inertial and Constitutive Properties on Body-Freedom Flutter of a Flying Wing</b> .....	5929
<i>Phillip W. Richards, Pezhman Mardanpour, Robert Herd, Dewey H. Hodges</i>	
<b>Stochastic Variations in Aerodynamic Influence Coefficients (AICs) on Flutter Prediction of a Generic Wing</b> .....	5950
<i>Prasun Bansal, Dale M. Pitt</i>	
<b>Stall Flutter Oscillation Measurements from a Two Degree-of-Freedom Airfoil with Nonlinear Stiffness</b> .....	5973
<i>Ndungu Muturi, Alex C. Spies, Katherine Bender, Chris L. Lee</i>	
<b>Design of Radar Panel Mounting Hardware for ISIS Radar Antenna</b> .....	5981
<i>R. Brett Williams, Kyle M. Maxhimer, Thomas Brennan, Larry L. Lai</i>	
<b>Structural Design and Sizing of a Metallic Cryotank Concept</b> .....	5991
<i>David W. Sleight, Robert A. Martin, Theodore Johnson</i>	
<b>Launch Locked Strut for On-orbit Isolation Utilizing Viscoelastic Damping</b> .....	6004
<i>Scott C. Pendleton, John Basile, John Shepard, Bryce Fowler</i>	
<b>Thermo-structural Design of Ultra High Temperature Ceramic (UHTC) Winglets of a Re-entry Space Vehicle</b> .....	6012
<i>Roberto Scigliano, Roberto Gardi, Antonio Del Vecchio</i>	
<b>Integrated Computational Materials Design: From Genome to Flight</b> .....	6025
<i>Gregory B. Olson</i>	
<b>ICME - Application of the Revolution to Titanium Structures</b> .....	6031
<i>William M. Mullins, Julie Christodoulou</i>	
<b>An Early Demonstration of the Role that ICME Can Play in Airframe Design and Cost Analyses</b> .....	6051
<i>Dale L. Ball</i>	
<b>The Coming ICME Data Tsunami and What Can be Done</b> .....	6062
<i>Steven M. Arnold, Frederic Holland, Timothy P. Gabb, Mike Nathal, Terry T. Wong</i>	
<b>Probabilistic Integration of Material Process Modeling and Fracture Risk Assessment Using Gaussian Process Models</b> .....	6078
<i>Michael P. Enright, John McFarland, Robert McClung, Wei-Tsu Wu, Ravi Shankar, Jonathan P. Moody</i>	
<b>Efficient Multiscale Plasticity Model for Polycrystalline Materials Based on Micromechanical Homogenization</b> .....	6088
<i>Ajit Achuthan, Brett A. Bednarczyk, Steven M. Arnold</i>	
<b>Three-Dimensional Constitutive Relations of Aligned Carbon Nanotube Polymer Nanocomposites</b> .....	6101
<i>D. Handlin, R. Guzman De Villoria, S. H. Chan, H. Cebeci, M. William, E. M. Parsons, S. Socrate, B. L. Wardle, S. Scotti, J. Kim</i>	
<b>On the Studies of Coarse-grained Carbon Nanotubes As Structural Elements</b> .....	6107
<i>H. (Sam) Huang, Ajit K. Roy, Sangwook Sohn</i>	
<b>Property Prediction of Single-Walled Boron Nitride Nanotubes using MD Simulation</b> .....	6114
<i>Joseph E. Estevez, Mahdi Ghazizadeh, Ajit D. Kelkar</i>	

<b>Exceptional Interfacial Properties of Structurally Defected CNT/Polymer Nanocomposites: A Molecular Dynamics Study</b> .....	6121
<i>Joonmyung Choi, Seunghwa Yang, Maenghyo Cho</i>	
<b>SWCNT Thin Film Enabled Piezoresistive Fiber Sensors - Fabrication, Characterization and Application for SHM of Polymeric Composite Structures</b> .....	6130
<i>Sida Luo, Waris Obitayo, Tao Liu</i>	
<b>Discrete Adjoint Method for Nonlinear Aeroelastic Sensitivities for Compressible and Viscous Flows</b> .....	6144
<i>Jeffrey Thomas, Earl Dowell, Kenneth C. Hall</i>	
<b>Strouhal Frequency Influence on the Vibration Specification for a Flat Blade Antenna Subject to Upstream Proturbances</b> .....	6153
<i>Mark H. Morton, Ted E. Lewis</i>	
<b>Computational Static Aeroelasticity Using Nonlinear Structures and Aerodynamics Models</b> .....	6166
<i>Hitoshi Arizono, Carlos E. Cesnik</i>	
<b>Reduced-Order Aeroelastic Modeling Using Coupled CFD-CSD Simulations and System Identification Technique</b> .....	6173
<i>Kwok Leung Lai, T. Kim</i>	
<b>Ground and Flight Testing of a Stacked Torus Hypersonic Inflatable Aerodynamic Decelerator Configuration</b> .....	6193
<i>David L. Lichodziejewski, Robert A. Dillman, David A. Jurewicz, Keith Johnson, Alan Cassell, Benjamin A. Tutt</i>	
<b>Bending Properties of Bellows-Type Inflatable Tube Elements</b> .....	6203
<i>Hiroshi Furuya, Jin Yokoyama</i>	
<b>Remote Charging Mechanics for Electrostatic Inflation of Membrane Space Structures</b> .....	6218
<i>Laura A. Stiles, Zoltan Sternovsky, Hanspeter Schaub</i>	
<b>Using Nonlinear FE Modeling to Understand the Effect of Boundary Conditions on Precise Surfaces of Inflatable Structures</b> .....	6230
<i>Jared Fulcher, Isaac J. Scherrer, Suzanne W. Smith, John Baker</i>	
<b>Curvilinear Quasi-Static Model for Analysis of Shape Memory Polymer Composite Cantilever Beams for Space Applications</b> .....	6240
<i>Dean Bergman, Binggen Yang, Houfei Fang</i>	
<b>Topology Optimization of a Wing Including Self-Weight Load</b> .....	6252
<i>Luis F. Felix, Alexandra Gomes, Afzal Suleman</i>	
<b>Robust Topology Optimisation with Generalised Probability Distribution of Loading</b> .....	6269
<i>Hyunsun A. Kim, Robert A. Guyer</i>	
<b>Aeroelastic Topology Optimization of Blade-Stiffened Panels</b> .....	6280
<i>Bret Stanford, Philip S. Beran, Manav Bhatia</i>	
<b>Uncertainty Quantification Using Multi-Level Calibration and Validation Data</b> .....	6288
<i>Joshua Mullins, Chenzhao Li, Shankar Sankararaman, Sankaran Mahadevan, Angel Urbina</i>	
<b>Assessing the Reliability of Computational Models under Uncertainty</b> .....	6300
<i>Shankar Sankararaman, Sankaran Mahadevan</i>	
<b>Challenging Issues in Bayesian Calibration of Multi-physics Models</b> .....	6308
<i>You Ling, Sankaran Mahadevan</i>	
<b>A Comparison of Methods for Representing and Aggregating Uncertainties involving Sparsely Sampled Random Variables - Final Results</b> .....	6325
<i>Vicente J. Romero, Laura P. Swiler, Angel Urbina, Joshua Mullins</i>	
<b>Crack Arrestment of Bonded Composite Joints</b> .....	6358
<i>Jason Action, Stephen P. Engelstad</i>	
<b>Post Fatigue and Fatigue Fracture Behavior of Stitch-bonded Biaxial Carbon Epoxy Composites</b> .....	6373
<i>Masoud Yekani Fard, Brian Raji, Aditi Chattopadhyay</i>	
<b>Micromechanics Fatigue Damage Analysis Modeling for Fabric Reinforced Ceramic Matrix Composites</b> .....	6382
<i>James B. Min, D. Xue, Y. Shi</i>	
<b>Fatigue of Metal-Composite Joints with Penetrative Reinforcement</b> .....	6400
<i>Philip N. Parkes, Richard Butler, Darryl Almond</i>	
<b>Optimal Design and Analysis of a Wing with Morphing High Lift Devices</b> .....	6409
<i>Shijun Guo, Shakeel Ahmed</i>	
<b>Design of a Structure that Achieves Positive Buoyancy in Air Using a Vacuum</b> .....	6425
<i>Trent T. Metlen, Anthony N. Palazotto</i>	
<b>A Novel Lattice-Based Design and Analysis of Inflatable Wing</b> .....	6432
<i>Changguo Wang, Yuanpeng Liu, Lei Zhang, Peng Gong</i>	
<b>Nonparametric Subspace Identification of Nonlinear Structures - Application to a Spacecraft</b> .....	6439
<i>Jean-Philippe Noël, Gaetan Kerschen</i>	
<b>Ambient Vibration Testing of a Segmented Mirror Telescope</b> .....	6457
<i>Alan L. Jennings, Richard Cobb</i>	
<b>Dynamic and Contact Analysis of a Special Percussive Mechanism for Planetary Subsurface Exploration</b> .....	6472
<i>Luis Vila, Ramesh B. Malla</i>	
<b>A Computational and Experimental Analysis of Spacecraft Propellant Tanks Implemented with Flexible Diaphragms</b> .....	6483
<i>Brian Lenahan, Sathya Gangadharan, Miraj Desai</i>	
<b>Navier-Stokes based Unsteady Aerodynamic Computations of Launch Vehicles undergoing Forced Coupled Oscillations</b> .....	6494
<i>Guru P. Guruswamy</i>	
<b>Development of Predictive Modeling for Cable Harnessed Structure</b> .....	6506
<i>Jiduck Choi, Daniel Inman</i>	



<b>Towards Modeling of Cable-Harnessed Structures: Cable Damping Experiments</b> .....	6520
<i>Kaitlin S. Spak, Gregory S. Agnes, Daniel Inman</i>	
<b>Damping Models for Timoshenko Beams with Applications to Spacecraft Wiring Harnesses</b> .....	6532
<i>Jeffrey L. Kaufman, George A. Lesieutre</i>	
<b>Vibration Analysis of String-Harnessed Beam Structures: A Homogenization Approach</b> .....	6542
<i>Blake Martin, Armaghan Salehian</i>	
<b>Static Aeroelastic Analysis of Flexible Aircraft with Large Deformations</b> .....	6553
<i>Libo Wang, Changchuan Xie, Chao Yang</i>	
<b>Geometrically Nonlinear Aeroelastic Scaling for Very Flexible Aircraft</b> .....	6565
<i>Zhiqiang Wan, Carlos E. Cesnik</i>	
<b>Model Reduction in Flexible-Aircraft Dynamics with Large Rigid-Body Motion</b> .....	6580
<i>Henrik Hesse, Rafael Palacios</i>	
<b>A Modal Approach for Dynamic Response Monitoring from Experimental Data</b> .....	6602
<i>Maria Chierichetti, Chiara Grappasonni, Giuliano Coppotelli, Massimo Ruzzene</i>	
<b>Experimental Verification of a Finite Element Model Based Functional Observer for Structural Systems</b> .....	6616
<i>Eric Hernandez, Kalil Erazo</i>	

## VOLUME 9

<b>High-Fidelity Camera-based Method for Noncontact Vibration Testing of Structures</b> .....	6627
<i>P Frank Pai, Dan Feng, Ye Duan</i>	
<b>Initial Feasibility of Protective Skins for Composite Airliners</b> .....	6650
<i>Vicki S. Johnson, Richard L. Boone, Shannon S. Jones, Vandana Pendse</i>	
<b>Theory and Experiment Research of Metamaterial Panel for Mechanical Waves Absorption</b> .....	6672
<i>Hongwei Sun, Fang Chen, Zhiming Li, Jinliang Gu, Ying Li, P. Frank Pai</i>	
<b>Comparative Study of Several Methods for the Calculation of Ultrasonic Guided Waves in Composites</b> .....	6686
<i>Ayman M. Kamal, Matthieu Gresil, Victor Giurgiutiu</i>	
<b>Nonlinear Wave Propagation Simulation for Lap Joint Structural Health Monitoring with Piezoelectric Wafer Active Sensors</b> .....	6707
<i>Jingjing Bao, Yanfeng Shen, Victor Giurgiutiu</i>	
<b>Interleaved Polymer Matrix Composites - A Review</b> .....	6719
<i>Kunigal N. Shivakumar, Raghu Panduranga</i>	
<b>Stochastic Multiscale Analysis Considering the Uncertainties in MD Simulation and Manufacture</b> .....	6732
<i>Hyunseong Shin, Seongmin Chang, Seunghwa Yang, Maenghyo Cho</i>	
<b>Flexural Over-strength Factor for Epoxy Resin Materials</b> .....	6742
<i>Masoud Yekani Fard, Aditi Chattopadhyay</i>	
<b>Effects of Curing Temperature and Environmental Conditions on Mode I Fracture Behavior for a Laminated Biaxial Carbon/Epoxy Composite</b> .....	6756
<i>Masoud Yekani Fard, Seid Mohammad Ali Sadat, Aditi Chattopadhyay, Brian Raji, Evi Postelnicu</i>	
<b>Fluid-Structure Interaction Analysis of the Fish Bone Active Camber Mechanism</b> .....	6769
<i>Benjamin K. Woods, Michael I. Friswell</i>	
<b>Aerodynamic Characterization of Wing Membrane with Adaptive Compliance</b> .....	6784
<i>Oscar M. Curet, Alex Carrere, Rye M. Waldman, Kenny S. Brewer</i>	
<b>Determination of Hydrofoil Damping Due to Fluid Structure Interaction Using MFC Actuators</b> .....	6795
<i>Charles Seeley, Andre Coutu, Christine Monette, Bernd Nennemann, Hugues Marmont</i>	
<b>Multifunctional Double-bimorph Piezoelectric Composite for Bending-twisting Actuation, Adaptive Stiffness Change, and Energy Harvesting</b> .....	6807
<i>Algan Samur, Alper Erturk</i>	
<b>Application of MFCs for Enhanced Performance of Flexible Flapping Fins</b> .....	6825
<i>Ashok K. Kancharala, Michael Philen</i>	
<b>Numerical and Experimental Comparison of Bistable and Monostable Vibration Energy Harvesters Under Broadband Random Excitation</b> .....	6839
<i>Sihong Zhao, Alper Erturk</i>	
<b>Multilevel Optimization of a Morphing Structure Incorporating Shape Memory Alloy Wires</b> .....	6847
<i>Theodoros Machairas, Darren J. Hartl, Dimitris A. Saravanos, Dimitris C. Lagoudas</i>	
<b>Shape Memory Alloy Rotor Blade Deicing</b> .....	6859
<i>Daniel B. Sullivan, Florent Righi, Darren J. Hartl, Jonathan Rogers</i>	
<b>A Study of Substrate Materials for Use in Conjunction with Macro Fiber Composites</b> .....	6871
<i>Bradley W. Lacroix, Peter Ifju</i>	
<b>Aerodynamic Load Estimation: Pressure Distribution from Virtual Strain Sensors for a Pliant Membrane Wing</b> .....	6883
<i>Trenton Carpenter, Roberto Albertani</i>	
<b>Modeling of Hysteretic Effects of SMA using Neuro Fuzzy Inference System</b> .....	6896
<i>Vijaya Venka Narasimha Sriram Malladi, Pablo A. Tarazaga</i>	
<b>Variable Camber Wing Based on Shape Memory Polymer Skin</b> .....	6906
<i>Jian Sun, Xiaobo Gong, Yanju Liu, Jinsong Leng</i>	
<b>Probabilistic Modelling of Aircraft Response to Non-Gaussian Continuous Turbulence</b> .....	6915
<i>Luke A. Lambert, Gholamhossein Najafian</i>	
<b>Dynamic Response to Wake Encounter</b> .....	6925
<i>Mordechay Karpel, Alexander Shousterman, Hector Climent, Manuel Reyes</i>	

<b>Navier-Stokes-Based Dynamic Simulations of Sling Loads</b> .....	6941
<i>Daniel Prosser, Marilyn Smith</i>	
<b>Store Ejection Loads Analysis Using an Euler Solver</b> .....	6960
<i>Ping-Chih Chen, Zhichao Zhang</i>	
<b>Inter-Element Stabilization for Linear Large-Deformation Elements to Solve Coupled CFD/CSD Blast and Impact Problems</b> .....	6972
<i>Orlando A. Soto, Joseph D. Baum, Rainald Lohner</i>	
<b>Design of a Rapid Prototype Wing Warping Test Aircraft</b> .....	6981
<i>Edward Doepke, Scott W. Ashcraft, Michael A. Thamann, Suzanne W. Smith</i>	
<b>Modeling and Flight Testing of Wing Shaping for Autonomous Flight Control</b> .....	6996
<i>Michael A. Thamann, Suzanne W. Smith</i>	
<b>Behavior of a Sheared Square Membrane with Cyclic Boundary Conditions during Wrinkling</b> .....	7006
<i>Kei Senda, Mario Petrovic, Kei Nakanishi</i>	
<b>Wrinkle/Slack Control Using Shape Memory Polymer Films for Large Membrane Structures</b> .....	7039
<i>Atsuhiko Senba, Yoshiro Ogi, Nozomu Kogiso</i>	
<b>Ballistic Penetration of Thin Aluminum Foil</b> .....	7048
<i>Kyeongsik Woo, Young Ah Kim, Christopher H. Jenkins</i>	
<b>A Numerical Algorithm for Eliminating the Singular Stiffness Matrix of Membrane Wrinkling</b> .....	7056
<i>Changguo Wang, Lan Lan, Yuanpeng Liu, Lei Zhang, Hui Feng Tan</i>	
<b>Multidisciplinary Optimization of Supersonic Wing Structures Using Curvilinear Spars and Ribs (SpaRibs)</b> .....	7065
<i>Davide Locatelli, Ali Yeilaghi Tamijani, Sameer B. Mulani, Qiang Liu, Rakesh K. Kapania</i>	
<b>Facesheet Stiffness Effects in the Design of Composite Sandwich Structures</b> .....	7087
<i>Olaf Weckner, Vladimir O. Balabanov, Samuel E. Cregger</i>	
<b>Continuum Shape Sensitivity with Spatial Gradient Reconstruction of Built-up Structures</b> .....	7098
<i>David M. Cross, Robert A. Canfield</i>	
<b>Optimization of Composite Wing Structure for a Flying Wing Aircraft Subject to Multi Constraints</b> .....	7120
<i>Daochun Li, Shijun Guo, Jinwu Xiang, Rongxin Xu</i>	
<b>Optimal Parameter Selection of an SVM Model: Application to Hip Fracture Risk Prediction</b> .....	7131
<i>Peng Jiang, Samy Missoum, Chengcheng Hu, Zhao Chen</i>	
<b>Effectiveness of Different Model-Form Uncertainty Quantification Techniques as Applied to Thermal Physics-Based Simulations</b> .....	7148
<i>C. Corey Fischer, Ramana V. Grandhi</i>	
<b>Evidence-Based Quantification of Model-Form Uncertainties in Simulation-Based Analyses</b> .....	7165
<i>Matthew E. Riley</i>	
<b>Model Selection Methods for Nonlinear Aeroelastic Systems Using Wind Tunnel Data</b> .....	7176
<i>Rimpe S. Sandhu, Mohammad Khalil, Dominique C. Poirel, Abhijit Sarkar</i>	
<b>Model Selection for Strongly Nonlinear Systems</b> .....	7180
<i>Phillippe Bisailon, Rimpe Sandhu, Mohammad Khalil, Abhijit Sarkar, Dominique C. Poirel</i>	
<b>Options for Prognostics Methods: A Review of Data-driven and Physics-based Prognostics</b> .....	7185
<i>Dawn An, Joo Ho Choi, Nam Ho Kim</i>	
<b>Integrating Heterogeneous Information in Diagnosis and Prognosis</b> .....	7204
<i>Gregory W. Bartram, Sankaran Mahadevan</i>	
<b>Cost Benefit Analysis of Condition Monitoring Systems for Optimal Maintenance Decision Making</b> .....	7220
<i>Yibin Wang, Pingfeng Wang</i>	
<b>Integration of a Time Varying Probability of Detection (POD) Model for Structural Integrity</b> .....	7230
<i>Tony Yi Torng, Jeong-Beom Ihn, Keith Halbert, Christopher Davis, Leroy M. Fitzwater</i>	
<b>A Multi-attribute Classification Fusion System for Structural Health Diagnostics</b> .....	7241
<i>Prasanna Tamilselvan, Pingfeng Wang</i>	
<b>Rectangular Solar Sail Flutter</b> .....	7254
<i>S. Chad C. Gibbs, Daniel V. Guerrant, William K. Wilkie, Earl Dowell</i>	
<b>Dynamic Aeroelastic Instability Investigations on A Wrinkling Aeroshell/Ballute Configuration</b> .....	7270
<i>Ping-Chih Chen, Zhicun Wang, Shuchi Yang, Zhiqiang Zhou</i>	
<b>Detection of Wrinkles in Membrane Structures by Elastic Wave Propagation</b> .....	7293
<i>Yusuke Akaïke, Tomohiro Yokozeki, Atsushi Kanda</i>	
<b>Modern Control Design for A Membrane with Bimorph Actuators</b> .....	7299
<i>Fnu Yipaer, Cornel Sultan</i>	
<b>A Patch Density Recommendation based on Convergence Studies for Vehicle Panel Vibration Response resulting from Excitation by a Diffuse Acoustic Field</b> .....	7313
<i>Andrew M. Smith, Bruce T. Laverde, Douglas C. Jones, Robert L. Towner, Ron A. Hunt, James Waldon</i>	
<b>A Refined Dynamic Stiffness Element for Free Vibration Analysis of Composite Circular Cylindrical Shells Based on a Unified Formulation</b> .....	7330
<i>Fiorenzo A. Fazzolari, Jnan Banerjee</i>	
<b>Effectiveness of Nonlinear Energy Sink (NES) in Suppressing Vortex-Induced Vibrations of a Circular Cylinder</b> .....	7346
<i>Arshad Mehmood, Muhammad R. Hajj, Ali Nayfeh, Abdullah Nuhait</i>	
<b>Free Vibration and Linear Dynamics Analysis of Composite Plate Using NURBS Isogeometric Finite Element Analysis</b> .....	7357
<i>Hitesh Kapoor</i>	
<b>A Single Layer Constitutive Model for the Dynamics and Vibration Damping of Layered Built-up Structures Using Microslip and Macroslip Models</b> .....	7374
<i>Charles Lord, Jem Rongong</i>	

<b>Micromechanics Modeling of Heterogeneous Materials with Nonuniformly Distributed Loads and Temperature .....</b>	<b>7387</b>
<i>Chong Teng, Wenbin Yu</i>	
<b>Fundamental Solutions of Transversely Isotropic Trimaterial Due to Point Forces via Cylindrical System of Vector Functions .....</b>	<b>7400</b>
<i>Amirhossein Molavi Tabrizi, Ernian Pan</i>	
<b>Homogenization of High Porosity Materials and Structures Using Shell Elements .....</b>	<b>7407</b>
<i>Zheng Ye, Wenbin Yu</i>	
<b>Multiscale Characterization and Experimentation on Particulate Reinforced Composites .....</b>	<b>7420</b>
<i>Sadegh Behdad, Benjamin Boesl</i>	
<b>A Variational Asymptotic Method for Unit Cell Homogenization of Elasto-Viscoplastic Heterogeneous Materials .....</b>	<b>7428</b>
<i>Liang Zhang, Wenbin Yu</i>	
<b>Structural Optimization of Actuator Distribution in the Sliding Wing .....</b>	<b>7449</b>
<i>Jian Zhang, Ning Feng, Liwu Liu, Yanju Liu, Jinsong Leng</i>	
<b>Author Index</b>	