# TABLE OF CONTENTS

## VOLUME 1

### VEHICLE DESIGN APPLICATIONS I

  - John T. Hwang, Joaquim Martins
  - 1
- **Multi-Objective Design and Path Planning Optimization of Unmanned Aerial Vehicles (UAVs) (AIAA 2015-2322)**
  - Eliot S. Rudnick-Cohen, Shapour Azarm, Jeffrey Herrmann
  - 12
- **Control Power Optimization using Artificial Intelligence for Hybrid Wing Body Aircraft (AIAA 2015-2323)**
  - Rupanshi Chhabra, Sameer B. Mulani, Rakesh K. Kapania, Joseph A. Schetz
  - 19
- **Control Focused Multidisciplinary Design Optimization of Tailless Fighter Aircraft (AIAA 2015-2324)**
  - Chris M. Meckstroth, William B. Blake
  - 29
- **Hybrid Wing Body (HWB) Aircraft Design and Optimization using Stitched Composites (AIAA 2015-2325)**
  - Victor Li, Kim Linton
  - 44
- **A Multi-Fidelity, Multi-Disciplinary Analysis and Optimization Framework for the Design of Morphing UAV Wing (AIAA 2015-2326)**
  - Andrea Ciarella, Christos Tsotskas, Marco Hahn, Noud Werter, Roeland De Breuker, Chris Beaverstock, Michael I. Friswell, Yosheph Yang, Serkan Ozgen, Antonios Antoniadis, Dimitris Drikakis, Panagiotis Tsoutsanis
  - 58
- **Multi-Disciplinary and Multi-Objective Optimization of an Unconventional Aircraft Concept (AIAA 2015-2327)**
  - Stefania Gemma, Franco Mastroddi
  - 79

### VEHICLE DESIGN APPLICATIONS II

- **The Value of Semi-Empirical Analysis Models in Aircraft Design (AIAA 2015-2486)**
  - Steve A. Brandt, Martiqua Post, David W. Hall, Fred Gilliam, Timothy Jung, Thomas R. Yechout
  - 99
- **Coupled Adjoint Aerostructural Wing Optimization Using Quasi-Three-Dimensional Aerodynamic Analysis (AIAA 2015-2487)**
  - Ali Elham, Michel J. van Tooren
  - 139
- **Optimal Variable Stiffness Distribution for a Composite Plate with a Row of Holes Subjected to Tension/shear Load Cases (AIAA 2015-2488)**
  - Michel J. van Tooren, Ali Elham, Ramy Harik, Ahsan Uddin
  - 159
- **Simulation-Based Optimal Sensor/Actuator Positioning on a Fin-Like Structure (AIAA 2015-2489)**
  - Andreas Wildscheck, Bimo Prananta, Toni Kanakis, Hans Van Tongeren, Rob Huiz
  - 173
- **Concurrent Optimization of a Feed-Forward Gust Loads Controller and Minimization of Wing Box Structural Mass on an Aircraft with Active Winglets (AIAA 2015-2490)**
  - Daniel J. Poole, Christian B. Allen, T. Rendall
  - 210

### APPLICATIONS I

- **Optimization of System Evolvability Under Uncertainty (AIAA 2015-2646)**
  - Jason Watson, Jeffrey Allen, Christopher A. Mattson, Scott M. Ferguson
  - 228
- **An Application of Conceptual Design and Multidisciplinary Analysis Transitioning to Detailed Design Stages (AIAA 2015-2647)**
  - Alex R. Renner, Frederick Thompson, Vijay K. Kalivarapu, Eliot H. Winer, Jim Oliver, Brian Gilmore, Dennis Silver
  - 241
- **Geometry Driven High Fidelity Stability Derivatives Obtained Using Automated CFD Analysis Process (AIAA 2015-2648)**
  - Nitin D. Bhagat, Edward J. Alyanak, Darcy Allison
  - 254
**Integrated Multidisciplinary Aircraft Design Process Supported by a Decentral MDO Framework (AIAA 2015-3090)**

Fernass Daoud, Sebastian Deinert, Reinhold Maierl, Ögmundur Petersson

---

**METAMODELING I**

- **A Methodology to Create Approximate Models of Load Envelopes Under Uncertainty (AIAA 2015-3091)**
  - David Rancourt, Sayan Ghosh, Dimitri N. Mavris, Simon Coggon

  
  - **Principal Component Analysis Assisted Surrogate Modeling (PCA-SM) of Correlated Loads for Uncertainty Analysis of Design Load Envelopes (AIAA 2015-3092)**
  - Sayan Ghosh, David Rancourt, Dimitri N. Mavris, Simon Coggon

  
  - **Auxiliary Air Inlet Design: Non-Linearity, Surrogate Modeling and Optimization Aspects (AIAA 2015-3093)**
  - Andre M. Lombardi, Luis Carlos De Castro Santos, Denise Ferrari, Marcello A. S. Ferrari

  
  - **HDMR-based Surrogate Model for High Dimensional Aerodynamic Design Problems (AIAA 2015-3094)**
  - Zheng Hong Gao, Chao Wang, Jiangtao Huang, Ke Zhao

  
  - **A Sequential Maximin Latin Hypercube Sampling Method And Its Application to Aircraft Design (AIAA 2015-3095)**
  - Di Wu, Teng Long, Yan Wang, Li Liu

---

**METAMODELING II**

  - Ali Mehmani, Souma Chowdhury, Achille Messac

  
  - **Large-scale CFD Optimization based on the FFD Parametrization using the Multipoint Approximation Method in an HPC Environment (AIAA 2015-3234)**
  - Yury Korolev, Vassili Taranov, Shahrzad Shahpar

  
  - **Adaptive Variable-Fidelity Aerodynamic Analysis and Design for Tailless Aircraft under Model-Form Uncertainty (AIAA 2015-3235)**
  - Youngmin Jo, Jangho Park, Christopher L. Ocheltree, Jae Young Choi, Seongim Choi, Pradeep Raje, Duckjoo Lee

  
  - **Study of Hybrid Radial Basis Function for Design Optimization Problems (AIAA 2015-3236)**
  - Renhe Shi, Li Liu, Teng Long, Jian Liu

---

**SHAPE AND TOPOLOGY I**

- **Nonintrusive Continuum Sensitivity Analysis for Aerodynamic Shape Optimization (AIAA 2015-3237)**
  - Mandar D. Kulkarni, Robert A. Canfield, Mayuresh Patil

  
  - **Three-Dimensional Piecewise-Continuous Class-Shape Transformation of Wings (AIAA 2015-3238)**
  - Erik D. Olson

  
  - **Multi-objective Shape Optimization of Aircraft Cabin Ventilation Components Using Adjoint CFD (AIAA 2015-3239)**
  - Thomas Köthe, Sebastian Herzog, Claus Wagner

  
  - Tim A. Albring, Max Sagebaum, Nicolas R. Gauger

  
  - **Research on Geometry Modeling Method Based on Three-dimensional CST Parameterization Technology (AIAA 2015-3241)**
  - Hua Su, Liangxian Gu, Chunlin Gong

---

**SHAPE AND TOPOLOGY II**

- **Volumetric Shape Parameterisation for Combined Aerodynamic Geometry and Topology Optimisation (AIAA 2015-3354)**
  - James Hall, Daniel J. Poole, T. Rendall, Christian B. Allen
Knowledge-based Integrated Wing Automation and Optimization for Conceptual Design (AIAA 2015-3357) ................................................................. 882
Robust and Reliability-Based Topology Optimization of Wing Bodies (AIAA 2015-3359) ................................................................. 907

MAO – UNCERTAINTY I
Surrogate-based Robust Shape Optimization for Vane Clusters (AIAA 2015-3361) Ilya Arsenyev, Fabian Duddeck, Andreas Fischersworring-Bunk ........................................... 950

MAO – SHAPE AND TOPOLOGY III

MAO – UNCERTAINTY II
Multi-Objective Optimization Under Uncertainty (AIAA 2015-3438) Chen Liang, Sankaran Mahadevan ........................................... 1031
Multidisciplinary Uncertainty Quantification in Aeroelastic Analyses of Semi-Span Supersonic Transport Wing (AIAA 2015-3441) Melike Nikbay, Pinar Acar ........................................... 1085

Author Index