



2018 Aviation Technology, Integration, and Operations Conference

June 25-29, 2018 • Atlanta, Georgia

eISBN: 978-1-62410-556-2

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Angle of attack displays in the cockpit – are they fit for purpose?

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<https://doi.org/10.2514/6.2018-3263>



A Framework for small Unmanned Aircraft System(sUAS) Trajectory Validation

Han Yu, Liling Ren and Mauricio Castillo-effen

AIAA 2018-3346

ATIO.ATM-07: UAS in the NAS II • Tuesday, 26 June 2018

• 1430 hrs

<https://doi.org/10.2514/6.2018-3346>**UAV Traffic Information Exchange Network**

Hsun Chao, Apoorv Maheshwari, Varun Sudarsanan,
Shashank Tamaskar and Daniel A. DeLaurentis

AIAA 2018-3347

ATIO.ATM-07: UAS in the NAS II • Tuesday, 26 June 2018

• 1500 hrs

<https://doi.org/10.2514/6.2018-3347>**Layered Geofences in Complex Airspace Environments**

Mia N. Stevens and Ella M. Atkins

AIAA 2018-3348

ATIO.ATM-07: UAS in the NAS II • Tuesday, 26 June 2018

• 1530 hrs

<https://doi.org/10.2514/6.2018-3348>**Modeling Ground Collision Severity of Small**

Unmanned Aircraft Systems

Jeff Breunig and Shereef Sayed

AIAA 2018-3349

ATIO.ATM-07: UAS in the NAS II • Tuesday, 26 June 2018

• 1600 hrs

<https://doi.org/10.2514/6.2018-3349>



Using Mobile Devices for IFR Clearance Delivery and Release and Data Exchange

Paul A. Diffenderfer, Sara A. Wilkins and Kevin M. Long

AIAA 2018-3350

ATIO.ATM-08: ATC/ATM including NextGen II • Tuesday,
26 June 2018 • 1400 hrs

<https://doi.org/10.2514/6.2018-3350>



Performance Assessment of the North Atlantic Organized Track System Using the Global Oceanic Model

Yanqi Liang, Arman Izadi, Nicolas Hinze and Antonio Trani

AIAA 2018-3351

ATIO.ATM-08: ATC/ATM including NextGen II • Tuesday,
26 June 2018 • 1430 hrs

<https://doi.org/10.2514/6.2018-3351>





Computational Methods for Flight Routing Costs in Collaborative Trajectory Options Programs

Robert Hoffman, Bert Hackney, Rafal Kicingier, Michael Ball and Guodong Zhu

AIAA 2018-3352

ATIO.ATM-08: ATC/ATM including NextGen II • Tuesday, 26 June 2018 • 1500 hrs

<https://doi.org/10.2514/6.2018-3352>



Examination of Mode S EHS Wind Observations for Use in Wake Vortex Mitigation Applications

Cynthia Engholm, Frank Robasky, Ashish Banerjee and Michael McPartland

AIAA 2018-3353

ATIO.ATM-08: ATC/ATM including NextGen II • Tuesday, 26 June 2018 • 1530 hrs

<https://doi.org/10.2514/6.2018-3353>



Derivation of Trajectory Predictor Input Distributions from Observed Data

Julia Rudnyk, Joost Ellerbroek and Jacco Hoekstra

AIAA 2018-3354

ATIO.ATM-08: ATC/ATM including NextGen II • Tuesday,
26 June 2018 • 1600 hrs

<https://doi.org/10.2514/6.2018-3354>



Simulation-Based Analysis of Early Scheduling in the Time-Based Flow Management (TBFM) System for Flights with Expect Departure Clearance Times (EDCT)

C. Douglas Swol, Sally Stalnaker and Paden Coats

AIAA 2018-3355

ATIO.ATM-08: ATC/ATM including NextGen II • Tuesday,
26 June 2018 • 1630 hrs

<https://doi.org/10.2514/6.2018-3355>



Catalyzing Disruptive Mobility Opportunities through Transformational Aviation Power

Nicholas K. Borer

AIAA 2018-3356

ATIO.GA-02/ATIO.TF-04/ATIO.GRE-01: NASA's Fostering
Ultra-Efficient, Low-Emitting Aviation Power (FUELEAP)
Project (Invited) • Tuesday, 26 June 2018 • 1400 hrs

<https://doi.org/10.2514/6.2018-3356>





Design and Performance of a Hybrid-Electric Fuel Cell Flight Demonstration Concept

Nicholas K. Borer, Steven C. Geuther,
Brandon L. Litherland and Lee W. Kohlman

AIAA 2018-3357

ATIO.GA-02/ATIO.TF-04/ATIO.GRE-01: NASA's Fostering
Ultra-Efficient, Low-Emitting Aviation Power (FUELEAP)
Project (Invited) • Tuesday, 26 June 2018 • 1430 hrs

<https://doi.org/10.2514/6.2018-3357>



Solid Oxide Fuel Cell - Steam Reformation Power System Configuration Options for an All-Electric Commuter Airplane Flight Demonstrator

Tina Stoia, Chellappa Balan, Shailesh Atreya and
Patrick O'Neil

AIAA 2018-3358

ATIO.GA-02/ATIO.TF-04/ATIO.GRE-01: NASA's Fostering
Ultra-Efficient, Low-Emitting Aviation Power (FUELEAP)
Project (Invited) • Tuesday, 26 June 2018 • 1500 hrs

<https://doi.org/10.2514/6.2018-3358>



Integration Concept for a Hybrid-Electric Solid-Oxide Fuel Cell Power System into the X-57 “Maxwell”

Kurt V. Papathakis, Otto C. Schnarr, Thomas M. Lavelle,
Nicholas K. Borer, Tina Stoia and Shailesh Atreya

AIAA 2018-3359

ATIO.GA-02/ATIO.TF-04/ATIO.GRE-01: NASA's Fostering
Ultra-Efficient, Low-Emitting Aviation Power (FUELEAP)
Project (Invited) • Tuesday, 26 June 2018 • 1530 hrs

<https://doi.org/10.2514/6.2018-3359>



Evaluation Studies of an 800 W Solid Oxide- Based Fuel Cell Stack for Electrical Power in Aviation

Jon Goldsby, Ian Jakupca, Serene Farmer, Robert Green,
Brienne T. Demattia and Patricia Loyselle

AIAA 2018-3360

ATIO.GA-02/ATIO.TF-04/ATIO.GRE-01: NASA's Fostering
Ultra-Efficient, Low-Emitting Aviation Power (FUELEAP)
Project (Invited) • Tuesday, 26 June 2018 • 1600 hrs

<https://doi.org/10.2514/6.2018-3360>



Employing Model-Based Systems Engineering (MBSE) on a NASA Aeronautic Research Project: A Case Study

Kerry M. Gough and Nipa Phojanamongkolkij

AIAA 2018-3361

ATIO.GA-02/ATIO.TF-04/ATIO.GRE-01: NASA's Fostering
Ultra-Efficient, Low-Emitting Aviation Power (FUELEAP)
Project (Invited) • Tuesday, 26 June 2018 • 1630 hrs

<https://doi.org/10.2514/6.2018-3361>



FUELEAP Model-Based System Safety Analysis

Kurt P. Woodham, Patrick Graydon, Nicholas K. Borer,
Kurt V. Papathakis, Tina Stoia and Chellappa Balan

AIAA 2018-3362

ATIO.GA-02/ATIO.TF-04/ATIO.GRE-01: NASA's Fostering
Ultra-Efficient, Low-Emitting Aviation Power (FUELEAP)
Project (Invited) • Tuesday, 26 June 2018 • 1700 hrs

<https://doi.org/10.2514/6.2018-3362>



Overview of NASA's ATM-X Project

William N. Chan, Bryan Barmore, Jennifer Kibler,
Paul U. Lee, Neil O'Connor, Kee Palopo,
David P. Thipphavong and Shannon Zelinski

AIAA 2018-3363

ATIO.TF-05: UAM Airspace Simulation Results or
Algorithms • Tuesday, 26 June 2018 • 1400 hrs

<https://doi.org/10.2514/6.2018-3363>



Exploratory Analysis of the Airspace Throughput and Sensitivities of an Urban Air

Mobility System

Kenneth H. Goodrich and Bryan Barmore

AIAA 2018-3364

ATIO.TF-05: UAM Airspace Simulation Results or Algorithms • Tuesday, 26 June 2018 • 1430 hrs

<https://doi.org/10.2514/6.2018-3364>



Simulation Evaluations of an Autonomous Urban Air Mobility Network Management and Separation Service

Christabelle Bosson and Todd A. Lauderdale

AIAA 2018-3365

ATIO.TF-05: UAM Airspace Simulation Results or Algorithms • Tuesday, 26 June 2018 • 1500 hrs

<https://doi.org/10.2514/6.2018-3365>



F-35 Program History – From JAST to IOC

Arthur E. Sheridan and Robert Burnes

AIAA 2018-3366

F35-01: F-35 Track - Program Overview • Tuesday, 26 June 2018 • 1400 hrs

<https://doi.org/10.2514/6.2018-3366>





F-35 Air Vehicle Configuration Development

Mark A. Counts, Brian Kiger, John Hoffschwelle,
Adam Houtman and Greg Henderson

AIAA 2018-3367

F35-01: F-35 Track - Program Overview • Tuesday, 26
June 2018 • 1430 hrs

<https://doi.org/10.2514/6.2018-3367>



F-35 Air Vehicle Technology Overview

Chris Wiegand

AIAA 2018-3368

F35-01: F-35 Track - Program Overview • Tuesday, 26
June 2018 • 1500 hrs

<https://doi.org/10.2514/6.2018-3368>





F-35 Production – Advanced Manufacturing and the Digital Thread

Don A. Kinard

AIAA 2018-3369

F35-01: F-35 Track - Program Overview • Tuesday, 26
June 2018 • 1530 hrs

<https://doi.org/10.2514/6.2018-3369>



F-35 Weapons Design Integration

Douglas M. Hayward, Andrew Duff and Charles Wagner

AIAA 2018-3370

F35-01: F-35 Track - Program Overview • Tuesday, 26
June 2018 • 1600 hrs

<https://doi.org/10.2514/6.2018-3370>



F-35 System Development and Demonstration Flight Testing at Edwards Air Force Base and Naval Air Station Patuxent River

Mary L. Hudson, Michael Glass, Tucker Hamilton,
Eric Somers and Rob Caldwell

AIAA 2018-3371

F35-01: F-35 Track - Program Overview • Tuesday, 26
June 2018 • 1630 hrs

<https://doi.org/10.2514/6.2018-3371>



Market-driven Derivation of Field Performance Requirements for Conceptual Aircraft Design

Niclas M. Dzikus, Ivan Terekhov, Johannes Hartmann and Volker Gollnick

AIAA 2018-3499

ATIO.ACD-08: Aircraft Takeoff and Landing • Wednesday, 27 June 2018 • 0930 hrs

<https://doi.org/10.2514/6.2018-3499>



Wind Accountability and Obstacle Clearance Limited Takeoff for Commercial Transport Aircraft

John E. Beard and Timothy T. Takahashi

AIAA 2018-3501

ATIO.ACD-08: Aircraft Takeoff and Landing • Wednesday, 27 June 2018 • 1000 hrs

<https://doi.org/10.2514/6.2018-3501>



(Un)stabilized Approach - An Introduction to Dynamic Flight Conditions during Takeoff and Landing Climb

Timothy T. Takahashi and Mathew Delisle

AIAA 2018-3500

ATIO.ACD-08: Aircraft Takeoff and Landing • Wednesday,
27 June 2018 • 1030 hrs

<https://doi.org/10.2514/6.2018-3500>



Speed Stability and Obstacle Clearance During Engine Inoperative Takeoff

Mathew Delisle and Timothy T. Takahashi

AIAA 2018-3502

ATIO.ACD-08: Aircraft Takeoff and Landing • Wednesday,
27 June 2018 • 1100 hrs

<https://doi.org/10.2514/6.2018-3502>



Improved Aircraft Departure Modeling for Environmental Impact Assessment

Dongwook Lim, Matthew J. LeVine, Vu Ngo,
Michelle Kirby and Dimitri N. Mavris

AIAA 2018-3503

ATIO.ACD-08: Aircraft Takeoff and Landing • Wednesday,
27 June 2018 • 1130 hrs

<https://doi.org/10.2514/6.2018-3503>





Simulation-based UAS Swarm Selection for Monitoring and Detection of Migrant Border Crossings

Caleb M. Harris, Max-Daniel R. Sokollek, Luis S. Nunez, JT Valco, Michael Balchanos and Dimitri N. Mavris

AIAA 2018-3504

ATIO.ATM-09: UAS in the NAS III • Wednesday, 27 June 2018 • 0930 hrs

<https://doi.org/10.2514/6.2018-3504>



Sensitivity Analysis of Detect and Avoid Well Clear Parameter Variations on UAS DAA Sensor Requirements

Jeremy Hardy, Devin P. Jack and Keith D. Hoffler

AIAA 2018-3505

ATIO.ATM-09: UAS in the NAS III • Wednesday, 27 June 2018 • 1000 hrs

<https://doi.org/10.2514/6.2018-3505>



Exploration of Three Dimensional, Hierarchical, Large Scale UAV System Interactions

Timothy Nysetvold and John L. Salmon

AIAA 2018-3506

ATIO.ATM-09: UAS in the NAS III • Wednesday, 27 June
2018 • 1030 hrs

<https://doi.org/10.2514/6.2018-3506>



Analysis of Influence of UAS Speed Range and Turn Performance on Detect and Avoid Sensor Requirements

Devin P. Jack, Jeremy Hardy and Keith D. Hoffler

AIAA 2018-3507

ATIO.ATM-09: UAS in the NAS III • Wednesday, 27 June
2018 • 1100 hrs

<https://doi.org/10.2514/6.2018-3507>



Perspective and ATM Impact of Detect And Avoid Integration in Tactical and MALE RPAS

Edoardo Filippone, Federico Corrado, Marco Ducci and
Filippo Tomasello

AIAA 2018-3508

ATIO.ATM-09: UAS in the NAS III • Wednesday, 27 June
2018 • 1130 hrs

<https://doi.org/10.2514/6.2018-3508>



Floating Home: Speed Stability and

Inadvertent Stalls During a Balked Landing

Mathew Delisle and Timothy T. Takahashi

AIAA 2018-3509

ATIO.ATM-10: Human Factors • Wednesday, 27 June
2018 • 0930 hrs

<https://doi.org/10.2514/6.2018-3509>



Designing graceful degradation into complex systems: The interaction between causes of degradation and the association with degradation prevention and recovery

Tamsyn E. Edwards and Paul U. Lee

AIAA 2018-3510

ATIO.ATM-10: Human Factors • Wednesday, 27 June
2018 • 1000 hrs

<https://doi.org/10.2514/6.2018-3510>



Airplane Capabilities: Translating Non-Normal Information for Operational Decision-Making

Randy Mumaw, Michael Feary and Lars Fucke

AIAA 2018-3511

ATIO.ATM-10: Human Factors • Wednesday, 27 June
2018 • 1030 hrs

<https://doi.org/10.2514/6.2018-3511>



Laser attacks on aircraft: Shining the light on public attitude

Jamie Carroll and Dale Richards

AIAA 2018-3512

ATIO.ATM-10: Human Factors • Wednesday, 27 June 2018 • 1100 hrs

<https://doi.org/10.2514/6.2018-3512>



Preliminary Development of a Cruise Altitude and Speed Optimization Decision Support Tool

Clement Li and R John Hansman

AIAA 2018-3513

ATIO.ATM-10: Human Factors • Wednesday, 27 June 2018 • 1130 hrs

<https://doi.org/10.2514/6.2018-3513>



The role of the media in the public perception of Unmanned Aerial Vehicles

Dale Richards

AIAA 2018-3514

ATIO.ATM-10: Human Factors • Wednesday, 27 June
2018 • 1200 hrs

<https://doi.org/10.2514/6.2018-3514>



F-35 Structural Design, Development, and Verification

Robert M. Ellis, Philip Gross, Joseph B. Yates,
John R. Casement, Richard H. Chichester and
Kathryn Nesmith

AIAA 2018-3515

F35-02: F-35 Track - Air System Design • Wednesday, 27
June 2018 • 0930 hrs

<https://doi.org/10.2514/6.2018-3515>



F-35 Flight Control Law Design, Development and Verification

Jeffrey J. Harris

AIAA 2018-3516

F35-02: F-35 Track - Air System Design • Wednesday, 27
June 2018 • 1000 hrs

<https://doi.org/10.2514/6.2018-3516>



F-35 Propulsion System Integration,

Development & Verification

Steven P. Wurth

AIAA 2018-3517

F35-02: F-35 Track - Air System Design • Wednesday, 27 June 2018 • 1030 hrs

<https://doi.org/10.2514/6.2018-3517>



F-35 Subsystems Design, Development & Verification

Drew Robbins, John Bobalik, David De Stena, Nick Martin, Ken Plag, Keith Rail and Ken Wall

AIAA 2018-3518

F35-02: F-35 Track - Air System Design • Wednesday, 27 June 2018 • 1100 hrs

<https://doi.org/10.2514/6.2018-3518>



F-35 Mission Systems Design, Development & Verification

Greg T. Lemons and Karen Carrington

AIAA 2018-3519

F35-02: F-35 Track - Air System Design • Wednesday, 27 June 2018 • 1130 hrs

<https://doi.org/10.2514/6.2018-3519>





F-35 Information Fusion

Thomas L. Frey, Chris Aguilar, Kent Engebretson,
David Faulk and Layne G. Lenning

AIAA 2018-3520

F35-02: F-35 Track - Air System Design • Wednesday, 27
June 2018 • 1200 hrs

<https://doi.org/10.2514/6.2018-3520>



Conceptual design of a box-wing aircraft for the air transport of the future

Vittorio Cipolla, Aldo Frediani, Karim Abu Salem,
Marco Picchi Scardaoni, Alessio Nuti and
Vincenzo Binante

AIAA 2018-3660

ATIO.ACD-09: Aircraft Design Studies • Wednesday, 27
June 2018 • 1400 hrs

<https://doi.org/10.2514/6.2018-3660>



Technical Viability and Operational Assessment of a Supersonic Business Jet

Oscar Gonzalez Gallego, Ruben E. Perez and
Peter W. Jansen

AIAA 2018-3661

ATIO.ACD-09: Aircraft Design Studies • Wednesday, 27

June 2018 • 1430 hrs

<https://doi.org/10.2514/6.2018-3661>



Performance evaluation and DOC Estimation of an Innovative Turboprop Configuration

Fabrizio Nicolosi, Salvatore Corcione, Vittorio Trifari,
Vincenzo Cusati, Manuela Ruocco and
Pierluigi Della Vecchia

AIAA 2018-3662

ATIO.ACD-09: Aircraft Design Studies • Wednesday, 27
June 2018 • 1500 hrs

<https://doi.org/10.2514/6.2018-3662>



Conceptual design of disruptive aircraft configurations based on High-Fidelity OAD process

Sebastien Defoort, Michaël Méheut, Bernard Paluch,
Romain Liaboeuf, Raphaël Murray, Daniel C. Mincu and
Jean-Michel David

AIAA 2018-3663

ATIO.ACD-09: Aircraft Design Studies • Wednesday, 27
June 2018 • 1530 hrs

<https://doi.org/10.2514/6.2018-3663>





Towards Autonomous Air Trac Control for Sequencing and Separation - A Deep Reinforcement Learning Approach

Marc W. Brittain and Peng Wei

AIAA 2018-3664

ATIO.ATM-11: ATC/ATM including NextGen III •

Wednesday, 27 June 2018 • 1400 hrs

<https://doi.org/10.2514/6.2018-3664>



Using an Automated Air Traffic Simulation Capability for a Parametric Study in Traffic Flow Management

Heather Arneson, Antony D. Evans, Deepak Kulkarni,
Paul U. Lee, Jinhua Li and Mei Y. Wei

AIAA 2018-3665

ATIO.ATM-11: ATC/ATM including NextGen III •

Wednesday, 27 June 2018 • 1430 hrs

<https://doi.org/10.2514/6.2018-3665>



A Data Driven Analysis of a Tactical Surface Scheduler

Jeremy Coupe, Leonard Bagasol, Liang Chen,
Hanbong Lee and Yoon C. Jung

AIAA 2018-3666

ATIO.ATM-11: ATC/ATM including NextGen III •

Wednesday, 27 June 2018 • 1500 hrs

<https://doi.org/10.2514/6.2018-3666>



Towards High-Density Urban Air Mobility

Michael Lowry

AIAA 2018-3667

ATIO.ATM-11: ATC/ATM including NextGen III •

Wednesday, 27 June 2018 • 1530 hrs

<https://doi.org/10.2514/6.2018-3667>



Operational Integration of Required Time of Arrival (RTA) with Time-Based Management (TBM): Concept of Operations and Human-in-the-Loop Simulation Results

Gabriele Enea, Roland M. Sgorcea, John M. Timberlake,
Steven Osborne, Will Symionow and Talia Davison

AIAA 2018-3668

ATIO.ATM-11: ATC/ATM including NextGen III •

Wednesday, 27 June 2018 • 1600 hrs

<https://doi.org/10.2514/6.2018-3668>



Trajectory Prediction Sensitivity Analysis

Using Monte Carlo Simulations

Julia Rudnyk, Joost Ellerbroek and Jacco Hoekstra

AIAA 2018-3669

ATIO.ATM-11: ATC/ATM including NextGen III •

Wednesday, 27 June 2018 • 1630 hrs

<https://doi.org/10.2514/6.2018-3669>



En Route Flight Time Prediction Under Convective Weather Events

Guodong Zhu, Chris Matthews, Peng Wei,
Matt Lorch and Subhashish Chakravarty

AIAA 2018-3670

ATIO.ATM-12: Data Science in ATC/ATM I • Wednesday,
27 June 2018 • 1400 hrs

<https://doi.org/10.2514/6.2018-3670>



Similarity Scoring with Random Field Models for Traffic Flow Management Applications

Erik Vargo and Christine P. Taylor

AIAA 2018-3671

ATIO.ATM-12: Data Science in ATC/ATM I • Wednesday,
27 June 2018 • 1430 hrs

<https://doi.org/10.2514/6.2018-3671>



Machine Learning Prediction of Airport Delays in the US Air Transportation Network

Keshav Ram Chandramouleeswaran, David Krzemien, Kevin Burns and Huy T. Tran

AIAA 2018-3672

ATIO.ATM-12: Data Science in ATC/ATM I • Wednesday, 27 June 2018 • 1500 hrs

<https://doi.org/10.2514/6.2018-3672>



Modeling Key Predictors of Airport Runway Configurations Using Learning Algorithms

Alphan Altinok, Ravi Kiran, Brian Bue and Karl D. Bilimoria

AIAA 2018-3673

ATIO.ATM-12: Data Science in ATC/ATM I • Wednesday, 27 June 2018 • 1530 hrs

<https://doi.org/10.2514/6.2018-3673>



Airborne Trajectory Management for Urban Air Mobility

William B. Cotton and David J. Wing

AIAA 2018-3674

ATIO.TF-08/ATIO.ATM-13: UAM Concepts and
Considerations • Wednesday, 27 June 2018 • 1400 hrs

<https://doi.org/10.2514/6.2018-3674>



The Evolution of Piloting for Aviation On –Demand/Urban Air Mobility

Michael Feary

AIAA 2018-3675

ATIO.TF-08/ATIO.ATM-13: UAM Concepts and
Considerations • Wednesday, 27 June 2018 • 1430 hrs

<https://doi.org/10.2514/6.2018-3675>



Urban Air Mobility Airspace Integration Concepts and Considerations

David P. Thipphavong, Rafael Apaza, Bryan Barmore,
Vernol Battiste, Barbara Burian, Quang Dao,
Michael Feary, Susie Go, Kenneth H. Goodrich,
Jeffrey Homola, Husni R. Idris, Parimal H. Kopardekar,
Joel B. Lachter, Natasha A. Neogi, ... See all authors ▾

AIAA 2018-3676

ATIO.TF-08/ATIO.ATM-13: UAM Concepts and
Considerations • Wednesday, 27 June 2018 • 1500 hrs

<https://doi.org/10.2514/6.2018-3676>





System-Level Urban Air Mobility Transportation Modeling and Determination of Energy-Related Constraints

Lee W. Kohlman and Michael D. Patterson

AIAA 2018-3677

ATIO.TF-08/ATIO.ATM-13: UAM Concepts and
Considerations • Wednesday, 27 June 2018 • 1530 hrs

<https://doi.org/10.2514/6.2018-3677>



F-35 Carrier Suitability Flight Testing

Michael Wilson

AIAA 2018-3678

F35-03: F-35 Track - Test and Evaluation • Wednesday, 27
June 2018 • 1400 hrs

<https://doi.org/10.2514/6.2018-3678>





F-35 Aerodynamic Performance Verification

David Parsons, Austin Eckstein and Jeff Azevedo

AIAA 2018-3679

F35-03: F-35 Track - Test and Evaluation • Wednesday, 27
June 2018 • 1430 hrs

<https://doi.org/10.2514/6.2018-3679>



F-35 Weapons Separation Test and Verification

Christopher Hetreed, Matthew Carroll, Joe Collard and
Richard Snyder

AIAA 2018-3680

F35-03: F-35 Track - Test and Evaluation • Wednesday, 27
June 2018 • 1530 hrs

<https://doi.org/10.2514/6.2018-3680>



F-35 STOVL Performance Requirements Verification

Daniel Levin, David Parsons, David Panteny,
Peter Wilson and Michael Rask

AIAA 2018-3681

F35-03: F-35 Track - Test and Evaluation • Wednesday, 27
June 2018 • 1600 hrs

<https://doi.org/10.2514/6.2018-3681>



F-35 Climatic Chamber Testing & System Verification

Victorio J. Rodriguez, Steven Brelage,
Marc Thompson and Billie Flynn

AIAA 2018-3682

F35-03: F-35 Track - Test and Evaluation • Wednesday, 27
June 2018 • 1630 hrs

<https://doi.org/10.2514/6.2018-3682>



The Effect of Initial Engine Sizing on Fighter Aircraft Final Optimized Size and Cost

Steve A. Brandt

AIAA 2018-3834

ATIO.ACD-10: Aircraft Propulsion System Design •
Thursday, 28 June 2018 • 0930 hrs

<https://doi.org/10.2514/6.2018-3834>



Model Fidelity Requirements in Boundary Layer Ingestion Propulsion System Conceptual Design

Mingxuan Shi, Manish Pokhrel, Jonathan Gladin,
Elena Garcia and Dimitri N. Mavris

AIAA 2018-3835

ATIO.ACD-10: Aircraft Propulsion System Design •

Thursday, 28 June 2018 • 1000 hrs

<https://doi.org/10.2514/6.2018-3835>**The Effects of Fixed Conical Spike Inlets on the Performance of Higher Bypass Ratio Engines**

Spencer C. Cleary and Timothy T. Takahashi

AIAA 2018-3836

ATIO.ACD-10: Aircraft Propulsion System Design •

Thursday, 28 June 2018 • 1030 hrs

<https://doi.org/10.2514/6.2018-3836>**Architecture Evaluation of a Single-aisle Turboelectric Aircraft with One Engine Inoperative Considerations**

Anusha Harish, Jonathan Gladin and Dimitri N. Mavris

AIAA 2018-3838

ATIO.ACD-10: Aircraft Propulsion System Design •

Thursday, 28 June 2018 • 1130 hrs

<https://doi.org/10.2514/6.2018-3838>



Performance Efficiency Scores for Ground Delay Programs

Jin Li, John Gulding, Kamala Shetty and Marc Meekma

AIAA 2018-3839

ATIO.ATM-14: Operations Management I • Thursday, 28
June 2018 • 0930 hrs

<https://doi.org/10.2514/6.2018-3839>



Flexible runway use modeling using pairwise RECAT-EU separation minima

Bas v. Meijden, Paul C. Roling and Richard Curran

AIAA 2018-3840

ATIO.ATM-14: Operations Management I • Thursday, 28
June 2018 • 1000 hrs

<https://doi.org/10.2514/6.2018-3840>



Considering Time Uncertainties in Ground Holding for Optimal Traffic Flow Management

Adriana Andreeva-Mori, Yoshinori Matsuno and
Naoki Matayoshi

AIAA 2018-3841

ATIO.ATM-14: Operations Management I • Thursday, 28
June 2018 • 1030 hrs

<https://doi.org/10.2514/6.2018-3841>



Comparison of First-Come First-Served and Optimization Based Scheduling Algorithms for Integrated Departure and Arrival Management

Bae-seon Park, Hyeonwoong Lee, Hak-tae Lee,
Yeonju Eun, Daekeun Jeon, Zhifan Zhu, Hanbong Lee and
Yoon C. Jung

AIAA 2018-3842

ATIO.ATM-14: Operations Management I • Thursday, 28
June 2018 • 1100 hrs

<https://doi.org/10.2514/6.2018-3842>



An extended analysis of sequencing arrivals at selected major European airports.

Christien Raphael, Eric Hoffman, Aymeric Trzmiel and
Karim Zeghal

AIAA 2018-3843

ATIO.ATM-14: Operations Management I • Thursday, 28
June 2018 • 1130 hrs

<https://doi.org/10.2514/6.2018-3843>



Serious Gaming for Building a Basis of Certification for Trust and Trustworthiness of Autonomous Systems

Bonnie D. Allen

AIAA 2018-3844

ATIO.TF-09: ATTRACTOR: Toward Justifiable Trust in Autonomous Systems I • Thursday, 28 June 2018 • 1000 hrs

<https://doi.org/10.2514/6.2018-3844>



Silhouette-Informed Trajectory Generation through a Wire Maze for UAS

Javier Puig - Navarro, Naira Hovakimyan, Natalia Alexandrov and Bonnie D. Allen

AIAA 2018-3845

ATIO.TF-09: ATTRACTOR: Toward Justifiable Trust in Autonomous Systems I • Thursday, 28 June 2018 • 1030 hrs

<https://doi.org/10.2514/6.2018-3845>



Swarm Size Planning Tool for Multi-Job Type Missions

Meghan Chandarana, Michael Lewis, Bonnie D. Allen, Katia Sycara and Sebastian Scherer

AIAA 2018-3846

ATIO.TF-09: ATTRACTOR: Toward Justifiable Trust in

Autonomous Systems I • Thursday, 28 June 2018 • 1200 hrs

<https://doi.org/10.2514/6.2018-3846>



VTOL Urban Air Mobility Concept Vehicles for Technology Development

Christopher Silva, Wayne R. Johnson, Eduardo Solis, Michael D. Patterson and Kevin R. Antcliff

AIAA 2018-3847

ATIO.TF-10: UAM Research Infrastructure or Operations

• Thursday, 28 June 2018 • 0930 hrs

<https://doi.org/10.2514/6.2018-3847>



Fe³: An Evaluation Tool for Low-Altitude Air Traffic Operations

Min Xue, Joseph Rios, Joseph Silva, Zhifan Zhu and Abraham K. Ishihara

AIAA 2018-3848

ATIO.TF-10: UAM Research Infrastructure or Operations

• Thursday, 28 June 2018 • 1030 hrs

<https://doi.org/10.2514/6.2018-3848>



Scaling Constraints for Urban Air Mobility

Operations: Air Traffic Control, Ground Infrastructure, and Noise

Parker D. Vascik and R John Hansman

AIAA 2018-3849

ATIO.TF-10: UAM Research Infrastructure or Operations

• Thursday, 28 June 2018 • 1100 hrs

<https://doi.org/10.2514/6.2018-3849>



Development of a simulation platform to evaluate integration of UAM traffic into the NAS

Cornelius J. O'Connor, Kellie D. Kennedy,
Matthew C. Underwood, Angela R. Harrivel,
Chad Stephens, James R. Comstock and Mary C. Last

AIAA 2018-3850

ATIO.TF-10: UAM Research Infrastructure or Operations

• Thursday, 28 June 2018 • 1130 hrs

<https://doi.org/10.2514/6.2018-3850>



Online Optimal Control Prediction Method for Control Allocation

Michael J. Acheson

AIAA 2018-3897

NIA-02: Graduate Student Research Papers II - Hosted by
the National Institute of Aerospace • Thursday, 28 June
2018 • 0930 hrs

<https://doi.org/10.2514/6.2018-3897>



Low-Speed Post-Stall Wing Wake Impingement on Horizontal Stabilizer of the Common Research Model

K. J. Benjamin Tan, P.C. Wang and Sutthiphong Srigrarom

AIAA 2018-3898

NIA-02: Graduate Student Research Papers II - Hosted by
the National Institute of Aerospace • Thursday, 28 June
2018 • 1000 hrs

<https://doi.org/10.2514/6.2018-3898>



Aerodynamic performance of albatross- inspired wing shape for marine unmanned air vehicles

Adam Stempeck, Mostafa Hassanalian and
Abdessattar Abdelkefi

AIAA 2018-3899

NIA-02: Graduate Student Research Papers II - Hosted by
the National Institute of Aerospace • Thursday, 28 June
2018 • 1030 hrs

<https://doi.org/10.2514/6.2018-3899>



Wing color and drag reduction of albatross-inspired air vehicles

Mostafa Hassanalian, Glen Throneberry, Mohamed Ali, Samah Ben Ayed and Abdessattar Abdelkefi

AIAA 2018-3901

NIA-02: Graduate Student Research Papers II - Hosted by the National Institute of Aerospace • Thursday, 28 June 2018 • 1130 hrs

<https://doi.org/10.2514/6.2018-3901>



Affine Generalized Inverse for Optimal Control Allocation

Michael J. Acheson

AIAA 2018-3902

NIA-02: Graduate Student Research Papers II - Hosted by the National Institute of Aerospace • Thursday, 28 June 2018 • 1200 hrs

<https://doi.org/10.2514/6.2018-3902>



Assessment of a Boundary Layer Ingesting Turboelectric Aircraft Configuration using Signomial Programming

David K. Hall, Aidan Dowdle, Jonas Gonzalez, Lauren Trollinger and William Thalheimer

AIAA 2018-3973

ATIO.ACD-12/MDO-21: Aircraft Design Optimization III

• Thursday, 28 June 2018 • 1400 hrs

<https://doi.org/10.2514/6.2018-3973>



Sizing and Optimization of Novel General Aviation Vehicles and Propulsion System Architectures

Gokcin Cinar, Yu Cai, Imon Chakraborty and
Dimitri N. Mavris

AIAA 2018-3974

ATIO.ACD-12/MDO-21: Aircraft Design Optimization III

• Thursday, 28 June 2018 • 1430 hrs

<https://doi.org/10.2514/6.2018-3974>



A Decision Support System for the Mission-Based Evaluation of Aerial Platforms: Advancements and Final Validation Results

Sten Morawietz, Michael Strohal and Peter Stütz

AIAA 2018-3975

ATIO.ACD-12/MDO-21: Aircraft Design Optimization III

• Thursday, 28 June 2018 • 1500 hrs

<https://doi.org/10.2514/6.2018-3975>



Aero-propulsive Design Optimization of a Turboelectric Boundary Layer Ingestion Propulsion System

Justin S. Gray, Gaetan K. Kenway, Charles A. Mader and Joaquim R. R. A. Martins

AIAA 2018-3976

ATIO.ACD-12/MDO-21: Aircraft Design Optimization III

• Thursday, 28 June 2018 • 1530 hrs

<https://doi.org/10.2514/6.2018-3976>



Automatic Classification of Roof Shapes for Multicopter Emergency Landing Site Selection

Jeremy Castagno and Ella M. Atkins

AIAA 2018-3977

ATIO.ATM-15: Data Science in ATC/ATM II • Thursday, 28

June 2018 • 1400 hrs

<https://doi.org/10.2514/6.2018-3977>



Similarity Search of Spatiotemporal Scenario Data for Strategic Air Traffic Management

Junfei Xie, Hoang Nguyen and Yan Wan

AIAA 2018-3978

ATIO.ATM-15: Data Science in ATC/ATM II • Thursday, 28

June 2018 • 1430 hrs

<https://doi.org/10.2514/6.2018-3978>



Custom IBM Watson Speech-to-text Model for Anomaly Detection using ATC-pilot Voice Communication

Shreyas Vathul Subramanian, Peter F. Kostiuk and
Graham Katz

AIAA 2018-3979

ATIO.ATM-15: Data Science in ATC/ATM II • Thursday, 28
June 2018 • 1500 hrs

<https://doi.org/10.2514/6.2018-3979>



A Comparative Study of Machine Learning Techniques for Aviation Applications

Apoorv Maheshwari, Navindran Davendralingam and
Daniel A. DeLaurentis

AIAA 2018-3980

ATIO.ATM-15: Data Science in ATC/ATM II • Thursday, 28
June 2018 • 1530 hrs

<https://doi.org/10.2514/6.2018-3980>



Field Testing of Vision-Based Surveillance System for Ramp Area Operations

Hui-Ling Lu, Jason Kwan, Andrew Fong and Victor Cheng

AIAA 2018-3981

ATIO.ATM-15: Data Science in ATC/ATM II • Thursday, 28
June 2018 • 1600 hrs

<https://doi.org/10.2514/6.2018-3981>



A Hybrid Data-Driven Approach to Analyze Aviation Incident Reports

Xiaoge Zhang and Sankaran Mahadevan

AIAA 2018-3982

ATIO.ATM-15: Data Science in ATC/ATM II • Thursday, 28
June 2018 • 1630 hrs

<https://doi.org/10.2514/6.2018-3982>



Design of a Control Law for an Autonomous Approach and Landing Spacing System

Lance Sherry, John Shortle and Oleksandra Snisarevska

AIAA 2018-3983

ATIO.ATM-16: Advanced Operational Concepts •
Thursday, 28 June 2018 • 1400 hrs

<https://doi.org/10.2514/6.2018-3983>



System Automation of a DA42 General Aviation Aircraft

Christoph Krause and Florian Holzapfel

AIAA 2018-3984

ATIO.ATM-16: Advanced Operational Concepts •
Thursday, 28 June 2018 • 1430 hrs

<https://doi.org/10.2514/6.2018-3984>



Laboratory Evaluation of Dynamic Routing of Air Traffic in a En Route Arrival Metering Environment

Doug R. Isaacson, Miwa Hayashi, Chester Gong,
Gregory Wong and Huabin Tang

AIAA 2018-3985

ATIO.ATM-16: Advanced Operational Concepts •
Thursday, 28 June 2018 • 1500 hrs

<https://doi.org/10.2514/6.2018-3985>



Research on Trajectory Generation and Optimization in Continuous Descent Operations

Jie Liu, Junfeng Zhang, Ximei Dai and Haining Zu

AIAA 2018-3986

ATIO.ATM-16: Advanced Operational Concepts •
Thursday, 28 June 2018 • 1530 hrs

<https://doi.org/10.2514/6.2018-3986>



UTM and D-NET: NASA and JAXA's Collaborative Research on Integrating Small UAS with Disaster Response Efforts

Jeffrey Homola, Marcus Johnson, Parimal Kopardekar, Adriana Andreeva-Mori, Daisuke Kubo, Keiji Kobayashi and Yoshinori Okuno

AIAA 2018-3987

ATIO.ATM-16: Advanced Operational Concepts •
Thursday, 28 June 2018 • 1600 hrs

<https://doi.org/10.2514/6.2018-3987>



Impact of Early Verification and Validation on Successful Delivery of Aviation Systems

Wilson N. Felder and Kiara Thomas

AIAA 2018-3988

ATIO.ATM-16: Advanced Operational Concepts •
Thursday, 28 June 2018 • 1630 hrs

<https://doi.org/10.2514/6.2018-3988>



Integrated Modeling of Dynamic Airline Behavior in the Air Transport System

Marcia Urban, Kay O. Ploetner and Mirko Hornung

AIAA 2018-3989

ATIO.ATM-16: Advanced Operational Concepts •
Thursday, 28 June 2018 • 1700 hrs

<https://doi.org/10.2514/6.2018-3989>



Fulfilling long-term emission reduction goals in aviation by alternative fuel options: An evolutionary approach

Kay O. Ploetner, Marcia Urban, Arne Roth,
Gilbert Tay and Antoine Habersetzer

AIAA 2018-3990

ATIO.ATM-17: Environmental Impact Mitigation •
Thursday, 28 June 2018 • 1400 hrs

<https://doi.org/10.2514/6.2018-3990>



Enhancing Aircraft Fuel Burn Modeling on the Airport Surface

Emily Clemons, Tom Reynolds, Sandeep Badrinath,
Yashovardhan Chati and Hamsa Balakrishnan

AIAA 2018-3991

ATIO.ATM-17: Environmental Impact Mitigation •
Thursday, 28 June 2018 • 1430 hrs

<https://doi.org/10.2514/6.2018-3991>





Stochastic and Dynamic Optimization of Area Navigation Noise Abatement Arrival and Approach Procedures

Andrew P. Kendall and John-Paul B. Clarke

AIAA 2018-3992

ATIO.ATM-17: Environmental Impact Mitigation •
Thursday, 28 June 2018 • 1500 hrs

<https://doi.org/10.2514/6.2018-3992>



Quantification of Error for Rapid Fleet-Level Noise Computation Model Assumptions

Matthew J. LeVine, Dongwook Lim, Yongchang Li,
Michelle Kirby and Dimitri N. Mavris

AIAA 2018-3993

ATIO.ATM-17: Environmental Impact Mitigation •
Thursday, 28 June 2018 • 1530 hrs

<https://doi.org/10.2514/6.2018-3993>



Demonstration of a Framework for Comparing Aviation Environmental Impact Mitigation Strategies

Matthew J. LeVine, Jose E. Bernardo, Holger Pfaender,
Michelle Kirby and Dimitri N. Mavris

AIAA 2018-3994

ATIO.ATM-17: Environmental Impact Mitigation •

Thursday, 28 June 2018 • 1600 hrs

<https://doi.org/10.2514/6.2018-3994>



Placement of Runways at Capacity Constrained Airports to Minimize Population Exposure to Noise

Matthew J. LeVine, Jose E. Bernardo, Paola Zanella,
Michelle Kirby and Dimitri N. Mavris

AIAA 2018-3995

ATIO.ATM-17: Environmental Impact Mitigation •

Thursday, 28 June 2018 • 1630 hrs

<https://doi.org/10.2514/6.2018-3995>



Noise mitigation optimization of A-RNP /RNP AR approaches

Fabian Morscheck

AIAA 2018-3996

ATIO.ATM-17: Environmental Impact Mitigation •

Thursday, 28 June 2018 • 1700 hrs

<https://doi.org/10.2514/6.2018-3996>



Operational Deployment and Evaluation of

the NAS Constraint Evaluation and Notification Tool

Paul F. Borchers, Kapil Sheth, Scott Sahlman,
Alexis Clymer, Tim Niznik, Mike Sterenchuk and
Daniel Schoenberg

AIAA 2018-3997

ATIO.ATM-18: Operations Management II • Thursday, 28
June 2018 • 1400 hrs

<https://doi.org/10.2514/6.2018-3997>



Proximity versus dynamicity – an initial analysis at four European airports

Pierrick Pasutto, Karim Zeghal and Eric Hoffman

AIAA 2018-3998

ATIO.ATM-18: Operations Management II • Thursday, 28
June 2018 • 1430 hrs

<https://doi.org/10.2514/6.2018-3998>



Cooperative Automation Supporting Pilot-Dispatch Negotiation of Enroute Trajectory Change Requests

Husni R. Idris, Stephanie Harrison and David J. Wing

AIAA 2018-3999

ATIO.ATM-18: Operations Management II • Thursday, 28
June 2018 • 1500 hrs

<https://doi.org/10.2514/6.2018-3999>



How the geometry of arrival routes can influence sequencing?

Bruno Favennec, Aymeric Trzmiel and Karim Zeghal

AIAA 2018-4000

ATIO.ATM-18: Operations Management II • Thursday, 28 June 2018 • 1530 hrs

<https://doi.org/10.2514/6.2018-4000>



An Analysis of Flight Time at Lower-than-Optimal Cruise Altitude

John G. Foster, James S. DeArmon and Hilton Bateman

AIAA 2018-4001

ATIO.ATM-18: Operations Management II • Thursday, 28 June 2018 • 1600 hrs

<https://doi.org/10.2514/6.2018-4001>



Stochastic Modeling of Preliminary Wing Box Structural Design for Stiffness

Daniel L. Miskin and Timothy T. Takahashi

AIAA 2018-4002

ATIO.DE-02: Design Optimization and Model Based
Design I • Thursday, 28 June 2018 • 1400 hrs

<https://doi.org/10.2514/6.2018-4002>



Developing a Digital Thread / Digital Twin Aerodynamic Performance Authoritative Truth Source

Edward M. Kraft

AIAA 2018-4003

ATIO.DE-02: Design Optimization and Model Based
Design I • Thursday, 28 June 2018 • 1430 hrs

<https://doi.org/10.2514/6.2018-4003>



Aero-structural optimization of the HIRENASD Model configuration

Yixing Wang, Zelong Yuan, Dongfeng Li and Gang Chen

AIAA 2018-4004

ATIO.DE-02: Design Optimization and Model Based
Design I • Thursday, 28 June 2018 • 1500 hrs

<https://doi.org/10.2514/6.2018-4004>



Development of a Modular Knowledge-Based

Model Generator for the Preliminary Aircraft Design Process of the Future

Arthur Zamfir, Jonas Jepsen, Erwin Moerland and
Björn Nagel

AIAA 2018-4005

ATIO.DE-02: Design Optimization and Model Based
Design I • Thursday, 28 June 2018 • 1530 hrs

<https://doi.org/10.2514/6.2018-4005>



Model Based Collaborative Design & Optimization of Blended Wing Body Aircraft Configuration : AGILE EU Project

Prajwal S. Prakasha, Pierluigi Della Vecchia, Pier Ciampa,
Danilo Ciliberti, Dominique Charbonnier, Aidan Jungo,
Marco Fioriti, Luca Boggero, Artur Mirzoyan,
Kirill Anisimov, Mengmeng Zhang and Mark Voskuil

AIAA 2018-4006

ATIO.DE-02: Design Optimization and Model Based
Design I • Thursday, 28 June 2018 • 1600 hrs

<https://doi.org/10.2514/6.2018-4006>



Modeling Airlift Operations for Humanitarian Aid and Disaster Relief to Support Acquisition Decision-Making

Colby Weit, Steven Chetcuti, Lansing Wei,
Marc Muehlberg, Cherlyn Chan, Hassan Gilani,
Cameron Clanchy, Katherine N. Schwartz, Alicia Sudol,

Jimmy C. Tai, Cees Bil and Dimitri N. Mavris

AIAA 2018-4007

ATIO.DE-02: Design Optimization and Model Based
Design I • Thursday, 28 June 2018 • 1630 hrs

<https://doi.org/10.2514/6.2018-4007>



Enabling the Digital Thread in Commercial Aircraft Companies

Aroua Gharbi, Simon I. Briceno and Dimitri N. Mavris

AIAA 2018-4008

ATIO.DE-02: Design Optimization and Model Based
Design I • Thursday, 28 June 2018 • 1700 hrs

<https://doi.org/10.2514/6.2018-4008>



Working at the Speed of Innovation: Impedance Mismatch in Rapid and Innovation Projects

Cathleen E. Crain, Nathaniel Tashima,
Elizabeth Briody and Anna-Maria McGowan

AIAA 2018-4009

ATIO.TF-11: Structuring for Rapid Innovation in
Aeronautics in the CAS Project • Thursday, 28 June 2018
• 1500 hrs

<https://doi.org/10.2514/6.2018-4009>





Reflections on an NRA: Recommendations for Strengthening the NASA ARMD CAS Project's Culture of Innovation

Laura Yu

AIAA 2018-4010

ATIO.TF-11: Structuring for Rapid Innovation in Aeronautics in the CAS Project • Thursday, 28 June 2018 • 1530 hrs

<https://doi.org/10.2514/6.2018-4010>



Towards Explainability of UAV-Based Convolutional Neural Networks for Object Classification

Chester V. Dolph, Loc Tran and Bonnie D. Allen

AIAA 2018-4011

ATIO.TF-12: ATTRACTOR: Toward Justifiable Trust in Autonomous Systems II • Thursday, 28 June 2018 • 1400 hrs

<https://doi.org/10.2514/6.2018-4011>



Goal Detection via Mental Representation

James E. Ecker and Bonnie D. Allen

AIAA 2018-4012

ATIO.TF-12: ATTRACTOR: Toward Justifiable Trust in

Autonomous Systems II • Thursday, 28 June 2018 • 1430
hrs

<https://doi.org/10.2514/6.2018-4012>



Towards Informing an Intuitive Mission Planning Interface for Autonomous Multi- Asset Teams via Image Descriptions

Lisa R. Le Vie, Mary C. Last, Bryan Barrows and
Bonnie D. Allen

AIAA 2018-4013

ATIO.TF-12: ATTRACTOR: Toward Justifiable Trust in
Autonomous Systems II • Thursday, 28 June 2018 • 1500
hrs

<https://doi.org/10.2514/6.2018-4013>



Trusted Communication: Utilizing Speech Communication to Enhance Human-Machine Teaming Success

Erica L. Meszaros, Lisa R. Le Vie and Bonnie D. Allen

AIAA 2018-4014

ATIO.TF-12: ATTRACTOR: Toward Justifiable Trust in
Autonomous Systems II • Thursday, 28 June 2018 • 1530
hrs

<https://doi.org/10.2514/6.2018-4014>





A Persistent Simulation Environment for Autonomous Systems

Benjamin N. Kelley, Ralph A. Williams, Jason L. Holland,
Otto C. Schnarr and Bonnie D. Allen

AIAA 2018-4015

ATIO.TF-12: ATTRACTOR: Toward Justifiable Trust in
Autonomous Systems II • Thursday, 28 June 2018 • 1600
hrs

<https://doi.org/10.2514/6.2018-4015>



High Level Requirements impact on Configuration Trade-Off analyses in a multidisciplinary integrated conceptual design methodology

Roberta Fusaro and Nicole Viola

AIAA 2018-4134

ATIO.ACD-13: Aircraft Systems and Subsystems • Friday,
29 June 2018 • 0930 hrs

<https://doi.org/10.2514/6.2018-4134>



Influence of High Level Requirements in Aircraft Design: from scratch to sketch

Roberta Fusaro and Nicole Viola

AIAA 2018-4135

ATIO.ACD-13: Aircraft Systems and Subsystems • Friday,
29 June 2018 • 1000 hrs

<https://doi.org/10.2514/6.2018-4135>



Rapid Assessment of Power Requirements and Optimization of Thermal Ice Protection Systems

Mayank V. Bendarkar, Imon Chakraborty,
Elena Garcia and Dimitri N. Mavris

AIAA 2018-4136

ATIO.ACD-13: Aircraft Systems and Subsystems • Friday,
29 June 2018 • 1030 hrs

<https://doi.org/10.2514/6.2018-4136>



Conceptual design framework for an aircraft auxiliary photovoltaic system

Susan Liscouet-Hanke and Ezhil Shakti Murugesan

AIAA 2018-4137

ATIO.ACD-13: Aircraft Systems and Subsystems • Friday,
29 June 2018 • 1100 hrs

<https://doi.org/10.2514/6.2018-4137>



Taxi Event Extraction from ASDE-X

Surveillance for Surface Performance Evaluation

Navid Mirmohammadsadeghi, Susan Hotle,
Antonio Trani and John Gulding

AIAA 2018-4139

ATIO.ATM-19: Operations Management III • Friday, 29
June 2018 • 0930 hrs

<https://doi.org/10.2514/6.2018-4139>



Identification of Safety Metrics for Airport Surface Operations

Wendy Okolo, Molly Oconnor, Liljana Spirkovska and
Herman Soyfer

AIAA 2018-4140

ATIO.ATM-19: Operations Management III • Friday, 29
June 2018 • 1000 hrs

<https://doi.org/10.2514/6.2018-4140>



Predictive Models of Departure and Arrival Occupancy Time and Take-Off Distance

Thomas L. Spencer and Antonio Trani

AIAA 2018-4141

ATIO.ATM-19: Operations Management III • Friday, 29
June 2018 • 1030 hrs

<https://doi.org/10.2514/6.2018-4141>



An Assessment of the Terminal Airspace Performance Indicator

Osama Alsalous and Ruth Galaviz-Schomisch

AIAA 2018-4142

ATIO.ATM-19: Operations Management III • Friday, 29 June 2018 • 1100 hrs

<https://doi.org/10.2514/6.2018-4142>



Parametric Analysis of Aircraft Wing Weight Using Low-Order Physics-Based Analysis

Erik D. Olson and Quinten M. Henricks

AIAA 2018-4143

ATIO.DE-03/ATIO.ACD-14/MDO-24: Design Optimization and Model-Based Design II • Friday, 29 June 2018 • 0930 hrs

<https://doi.org/10.2514/6.2018-4143>



The Carry-through Tube Spar weight penalty in UAVs

Jeevan T. Kolli and Richard D. Hale

AIAA 2018-4144

ATIO.DE-03/ATIO.ACD-14/MDO-24: Design
Optimization and Model-Based Design II • Friday, 29 June
2018 • 1000 hrs

<https://doi.org/10.2514/6.2018-4144>



Multidisciplinary Design of a Canard

Ali Yetgin and Bulent Acar

AIAA 2018-4145

ATIO.DE-03/ATIO.ACD-14/MDO-24: Design
Optimization and Model-Based Design II • Friday, 29 June
2018 • 1030 hrs

<https://doi.org/10.2514/6.2018-4145>



Update on the Development of a Flutter Analysis Capability for Unconventional Aircraft Concepts using HCDstruct

Jesse Quinlan and Frank H. Gern

AIAA 2018-4146

ATIO.DE-03/ATIO.ACD-14/MDO-24: Design
Optimization and Model-Based Design II • Friday, 29 June
2018 • 1100 hrs

<https://doi.org/10.2514/6.2018-4146>



Framework to Assess Effects of Structural Flexibility on Dynamic Loads Developed in Maneuvering Aircraft

Darshan Sarojini, Ruxandra Duca, Heriberto D. Solano, Imon Chakraborty, Simon I. Briceno and Dimitri N. Mavris

AIAA 2018-4147

ATIO.DE-03/ATIO.ACD-14/MDO-24: Design Optimization and Model-Based Design II • Friday, 29 June 2018 • 1130 hrs

<https://doi.org/10.2514/6.2018-4147>



Safety Considerations in Emerging Electric Aircraft Architectures

Christopher Courtin and R John Hansman

AIAA 2018-4149

ATIO.TF-13: V/STOL Aircraft Design Considerations and Requirements • Friday, 29 June 2018 • 0930 hrs

<https://doi.org/10.2514/6.2018-4149>



Benefit Analysis and System Design Considerations for Drag Reduction of Inactive Hover Rotors on Electric Fixed-Wing VTOL Vehicles

Philipp Stahl, Christian Rössler and Mirko Hornung

AIAA 2018-4150

ATIO.TF-13: V/STOL Aircraft Design Considerations and

Requirements • Friday, 29 June 2018 • 1000 hrs

<https://doi.org/10.2514/6.2018-4150>



Feasibility Study of Short Takeoff and Landing Urban Air Mobility Vehicles using Geometric Programming

Christopher Courtin, Michael J. Burton, Alison Yu, Patrick Butler, Parker D. Vascik and R John Hansman

AIAA 2018-4151

ATIO.TF-13: V/STOL Aircraft Design Considerations and Requirements • Friday, 29 June 2018 • 1030 hrs

<https://doi.org/10.2514/6.2018-4151>



Dynamic Addressing for On-Demand Mobility

Sara Ghayouraneh, Samir M. El-Ghazaly and James M. Rankin

AIAA 2018-4152

ATIO.TF-13: V/STOL Aircraft Design Considerations and Requirements • Friday, 29 June 2018 • 1100 hrs

<https://doi.org/10.2514/6.2018-4152>



Electrified Aircraft Trade-Space Exploration

Michael Kruger, Saakar Byahut, Alejandra Uranga,
Jonas Gonzalez, David K. Hall and Aidan Dowdle

AIAA 2018-4227

ATIO.ACD-15/ATIO.TF-14: Electric Aircraft Design •
Friday, 29 June 2018 • 1400 hrs

<https://doi.org/10.2514/6.2018-4227>



A Preliminary Sizing Method for Hybrid-Electric Aircraft Including Aero-Propulsive Interaction Effects

Reynard de Vries, Malcom T. Brown and Roelof Vos

AIAA 2018-4228

ATIO.ACD-15/ATIO.TF-14: Electric Aircraft Design •
Friday, 29 June 2018 • 1430 hrs

<https://doi.org/10.2514/6.2018-4228>



An Initial Sizing Methodology for Hybrid-Electric Light Aircraft

D. Felix Finger, Carsten Braun and Cees Bil

AIAA 2018-4229

ATIO.ACD-15/ATIO.TF-14: Electric Aircraft Design •
Friday, 29 June 2018 • 1500 hrs

<https://doi.org/10.2514/6.2018-4229>





Optimized Operation Strategies for Serial Hybrid-Electric Aircraft

Ingmar Geiss, Stefan Notter, Andreas Strohmayr and Walter Fichter

AIAA 2018-4230

ATIO.ACD-15/ATIO.TF-14: Electric Aircraft Design • Friday, 29 June 2018 • 1530 hrs

<https://doi.org/10.2514/6.2018-4230>



Design and Development of Voice Control System for Micro Unmanned Aerial Vehicles

Cris Thomas, Rahul Bharadwaj, Amit K. Mondal, Abhishek Sharma, Omkar S N and Vindhya Devalla

AIAA 2018-4231

ATIO.ACD-15/ATIO.TF-14: Electric Aircraft Design • Friday, 29 June 2018 • 1600 hrs

<https://doi.org/10.2514/6.2018-4231>



Reducing Airspace Constraints via Advanced Flight-Specific Trajectories (AFST)

James DeArmon, Mary Hokit, Kyle Jaranson and David Chaloux

AIAA 2018-4232

ATIO.ATM-20: ATM Cost Benefit Analysis • Friday, 29

June 2018 • 1400 hrs

<https://doi.org/10.2514/6.2018-4232>



A Quantitative Scenario-Based Fleet Evolutionary Framework for the Assessment of the Global Air Transportation Network

Gilbert Tay, Johannes Michelmann, Henrik Ross and Mirko Hornung

AIAA 2018-4233

ATIO.ATM-20: ATM Cost Benefit Analysis • Friday, 29 June 2018 • 1430 hrs

<https://doi.org/10.2514/6.2018-4233>



Airport Capacity Assessment of the Air Transportation Network in Selected Global Regions

Gilbert Tay, Robin Karpstein and Mirko Hornung

AIAA 2018-4234

ATIO.ATM-20: ATM Cost Benefit Analysis • Friday, 29 June 2018 • 1500 hrs

<https://doi.org/10.2514/6.2018-4234>



Measuring the Benefits of NextGen Metroplex in Convective Weather: Case Study of North Texas Metroplex

Yu Zhang, Hualong Tang, Dave Knorr and
Almira Ramadani

AIAA 2018-4235

ATIO.ATM-20: ATM Cost Benefit Analysis • Friday, 29
June 2018 • 1530 hrs

<https://doi.org/10.2514/6.2018-4235>



Measuring Fuel and Travel Time Benefits for the Caribbean Oceanic Flights Through Computer Simulations

Arman Izadi, Nicolas Hinze, Antonio Trani and
Aswin K. Gunnam

AIAA 2018-4236

ATIO.ATM-20: ATM Cost Benefit Analysis • Friday, 29
June 2018 • 1600 hrs

<https://doi.org/10.2514/6.2018-4236>



Design Principles for a Separation Support Tool Allowing Optimized Runway Delivery

Valerio Cappellazzo, Vincent Treve, Ivan De Visscher and
Catherine Chalon

AIAA 2018-4237

ATIO.ATM-20: ATM Cost Benefit Analysis • Friday, 29

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Autonomous Integrated Terminal and Enroute Operations with Wind Errors

Todd A. Lauderdale, Christabelle Bosson,
Yung-Cheng Chu and Heinz Erzberger

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Adaptive Network Design for Dynamic Rerouting

Christine P. Taylor, Dan Larsen, Paden Coats,
Sheng Liu and Craig R. Wanke

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Kisun Song, Jung-Ho Lew and Dimitri N. Mavris

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Nienke Tange, Paul C. Roling and Richard Curran

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Sandeep Badrinath, Hamsa Balakrishnan,
Emily Clemons and Tom Reynolds

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Autonomous Quadcopter Navigation Using Vision-Based Landmark Recognition

Sugandh Raj, Matthew Dreyer and Srikanth Gururajan

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Youngjun Choi, Alexia P. Payan, Simon I. Briceno and Dimitri N. Mavris

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Anthony P. Lamping, Justin N. Ouwerkerk and Kelly Cohen

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Aarohi Vijh

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Detailed Analysis of the Implications of Implementing a Hybrid-Electric Power System on Multi-Rotor UAVs

Kristen McKinney, Jordan A. Feight, Richard J. Gaeta and Jamey D. Jacob

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UAS Neural Net based Formation Flight

Joshua R. Bertram, Angus McLean, Brian R. Wolford,
Alexander Roup and Thomas Schnell

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