

# **International Conference on Innovation in Aviation & Space to the Satisfaction of the European Citizens (11th EASN 2021)**

IOP Conference Series: Materials Science and Engineering  
Volume 1226

Online  
1-3 September 2021

Part 1 of 2

ISBN: 978-1-7138-4684-0  
ISSN: 1757-8981

**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.**

This work is licensed under a Creative Commons Attribution 3.0 International Licence.  
Licence details: <http://creativecommons.org/licenses/by/3.0/>.

No changes have been made to the content of these proceedings. There may be changes to pagination and minor adjustments for aesthetics.

Printed with permission by Curran Associates, Inc. (2022)

For permission requests, please contact the Institute of Physics  
at the address below.

Institute of Physics  
Dirac House, Temple Back  
Bristol BS1 6BE UK

Phone: 44 1 17 929 7481  
Fax: 44 1 17 920 0979

[techtracking@iop.org](mailto:techtracking@iop.org)

**Additional copies of this publication are available from:**

Curran Associates, Inc.  
57 Morehouse Lane  
Red Hook, NY 12571 USA  
Phone: 845-758-0400  
Fax: 845-758-2633  
Email: [curran@proceedings.com](mailto:curran@proceedings.com)  
Web: [www.proceedings.com](http://www.proceedings.com)

# TABLE OF CONTENTS

## PART 1

Preface - Editorial

Peer review declaration - 11th EASN

ELADINE: sensor monitoring and numerical model approach for composite material wing box shape distortions prediction .....	1
<i>A Torre-Poza, A M R Pinto, T Grandal, N González-Castro, L Carral, R Travieso-Puente, E Rodríguez-Senín, C Banu, A Paval, M Bocioaga, L Firtat</i>	
Development of innovative technologies for manufacturing of certified narrow body aircraft composite flap .....	9
<i>D. Alberotanza, F. Pinto, S. Polo, G. Zaccaria, D. Capoccello</i>	
Design against distortion for aerospace-grade additively manufactured parts - PADICTON .....	17
<i>Sadik L. Omairey, Vasiliki Loukodimou, Sofia Sampethai, Faranak Bahrami, Mihalis Kazilas, Farshad Salamat-Zadeh</i>	
Design methods and manufacturing techniques applicable in constructing dynamically scaled airplane models.....	25
<i>A Olejnik, R Rogólski, J Milczarczyk, M Szcześniak</i>	
Jig-less end-effector system for automating exhausting composite fuselage assembly tasks.....	35
<i>Elena Blanco, Sadik L. Omairey, Rafael Luque, Jose Maria Barrientos, Eduardo Ferrera, Mihalis Kazilas</i>	
Testing and numerical investigations of hybrid composite for flight control surfaces in manufacturing variability contest .....	43
<i>F. Starace, S.D. Orlando, V. Giacalone, V. Avigliano</i>	
Aerodynamic Analysis of a scaled UHBR Fan .....	51
<i>N. Natale, T. Egger, J. Friedrichs, S. Russo</i>	
Benchmark of different aerodynamic solvers on wing aero-propulsive interactions.....	59
<i>Danilo Ciliberti, Emmanuel Benard, Fabrizio Nicolosi</i>	
Multi-fidelity weight analyses for high aspect ratio strut-braced wings preliminary design.....	67
<i>M Delavenne, E Benard, S Defoort, C David, N Fabbiane, J S Schotte, G Arnoult, G Carrier</i>	
Preliminary design of a BWB UAV for highway traffic monitoring .....	75
<i>S Dimitriou, S Kapsalis, T Dimopoulos, D Mitridis, K Pouchias, P Panagiotou, K Yakinthos</i>	
A CFD/experimental comparative database to feed a predictive model for ground vortex characteristics .....	83
<i>F Dupuy, R Mendonça E Costa, S Raynal, V Camenen, J-P Bouchet, S Courtine</i>	
An accurate RANS-based transition prediction approach (part I) .....	91
<i>S Russo, V Citro, N Natale, F Giannetti</i>	
An accurate RANS-based transition prediction approach (part II).....	99
<i>S Russo, N Natale, V Citro, F Giannetti</i>	

Relying on Dynamically Morphing Blades to Increase the Efficiency of a Cycloidal Rotor .....	107
<i>Doudou Huang, Louis Gagnon</i>	
Numerical investigation of the impact of tubercles and wing fences on the aerodynamic behaviour of a fixed-wing, tactical Blended-Wing-Body UAV platform .....	115
<i>C Papadopoulos, S Ioannidou, P Panagiotou, K Yakinthos</i>	
Ground effect aerodynamics of twin fuselage aircraft.....	123
<i>V I Chernousov, A A Krutov, P V Savin, E A Pigusov</i>	
Design challenges of cryogenic regional turboprop aerodynamic layout.....	131
<i>Yu N Chernavskikh, V I Chernousov, A A Krutov, E S Perchenkov, E A Pigusov</i>	
Dynamic sector characterisation model with the application of machine learning techniques.....	139
<i>F Pérez Moreno, V F Gómez Comendador, R Delgado-Aguilera Jurado, M Zamarreño Suárez, D Janisch, R M Arnaldo Valdés</i>	
Machine Learning classification techniques applied to static air traffic conflict detection .....	148
<i>Javier A. Pérez-Castán, L. Pérez-Sanz, J. Bowen-Varela, L. Serrano-Mira, Tomislav Radisic, Thomas Feuerle</i>	
Analysis of vulnerability of ATM to weather phenomena .....	156
<i>Vittorio Di Vito, Edoardo Buccignani, Roberto Valentino Montaquila, Giovanni Cerasuolo, Myriam Montesarchio, Alessandra Lucia Zollo, Davide Cinquegrana</i>	
Safety Performance Functions to predict Separation Minima Infringements in en-route airspace.....	164
<i>R Delgado-Aguilera Jurado, V F Gómez Comendador, M Zamarreño Suárez, F Pérez Moreno, C E Verdonk Gallego, R M Arnaldo Valdés</i>	
Cross-border Free Route Airspace concept and its impact on flight efficiency improvement .....	172
<i>Andrzej Majka, Aleksandra Pasich</i>	
Influence of airspace avoidance due to political and safety issues on flight efficiency and environment.....	180
<i>Andrzej Majka, Paweł Ostrega, Aleksandra Pasich</i>	
Managing Airport Capacity and Demand: An Economic Approach .....	188
<i>Álvaro Rodríguez-Sanz, Luis Rubio Andrada</i>	
Protecting aviation safety against cybersecurity threats .....	196
<i>Peter Stastny, Adrian-Mihail Stoica</i>	
Fully automated piping in an Airbus A320 landing gear bay using graph-based design languages.....	204
<i>M Neumaier, S Kranemann, B Kazmeier, S Rudolph</i>	
Spectral project - application of FAST-OAD code to the conceptual design of a hydrogen fuelled commercial aircraft.....	212
<i>Mayur Oak, Alice Fabre, Martin Delavenne, Eric Nguyen Van, Emmanuel Benard, Sébastien Defoort</i>	
Conceptual design of a fixed wing hybrid UAV UUV platform.....	220
<i>C Papadopoulos, S Vlachos, K Yakinthos</i>	
Creation of innovative concepts in Aerospace based on the Morphological Approach .....	228
<i>V T Todorov, D Rakov, A Bardenhagen</i>	

Implementation of genetic algorithms for supersonic airfoil optimization.....	236
<i>A Michelotti, A Cavini, R Giacopino, F Misino, L Piottoli</i>	
Design of Supersonic and Hybrid engine based Advanced Rocket (SHAR).....	244
<i>Naresh Relangi, Lakshmi Narayana Phaneendra Peri, Caio Henrique Franco Levi Domingos, Amalia Fossella, Julia Meria Leite Henriques, Antonella Ingenito</i>	
Model-based dynamic performance simulation of a microturbine .....	252
<i>Mario Leonardo Erario, Maria Grazia De Giorgi, Radoslaw Przysowa</i>	
Piston Engine Modelling for Hydrogen Fueled Composite Cycle Engines.....	260
<i>M. Nickl, F. Winter, V. Gümmer</i>	
Development of plasma actuators for re-ignition of aeroengine under high altitude conditions .....	268
<i>Ghazansfar Mehdi, Sara Bonuso, Maria Grazia De Giorgi</i>	
Development of a combined Artificial Neural Network and Principal Component Analysis technique for Engine Health Monitoring.....	276
<i>M G De Giorgi, L Srafella, N Menga, A Ficarella</i>	
Analysis of working fluids applicable for high-temperature loop heat pipe applications.....	284
<i>P Gakal, D Mishkinis, A Leilands, I Usakovs, R Orlov, Y Rogoviy</i>	
Ventilation Analysis of Simplified Engine Nacelle for Pusher Aircraft.....	292
<i>A. Olejnik, L. Kiszkowiak, A. Dziubmski</i>	
Specific Aspects in Numerical Simulation of Complex Processes in Gas Turbine Engine Bearing Chamber .....	300
<i>T P Mykhailenko, A Yu Lysytsia, I I Petukhov, A V Kovalov</i>	
Numerical analysis of cyclorotor aerodynamic properties in hovering state.....	308
<i>Shawn Cogan, Louis Gagnon</i>	
Statistical analysis of sloshing-induced dissipative energy across a range of Froude numbers.....	316
<i>L Constantin, J J De Courcy, B Titurus, T C S Rendall, J E Cooper</i>	
The preliminary design of a scaled Composite UHBR Fan for a wind tunnel test campaign.....	324
<i>N. Paletta, J. Flüh, J. Lindemann, J. Seume, J. Goessling, J. Friedrichs, T. Eggers, S. Russo, N. Natale, D. Vlachos, D. Mazarakos, A. Baltopoulos, A. Vavouliotis</i>	
Automatic tool-based pre-processing of generic structural models for water impact simulations in the aircraft pre-design.....	333
<i>C Leon Muñoz, M Petsch, D Kohlgrüber, M Pedelaborde-Augas</i>	
Highly iterative concept development for requirement-compliant air taxis .....	341
<i>G. Schuh, M. Spangenberg, T. Meyer-Hollatz</i>	
Algorithm for calculation design loading cases of perspective civil aircraft.....	349
<i>D. V. Vedernikov, E. A. Dubovikov, N. V. Guseva</i>	
Reduction of the environmental impact of aviation via optimisation of aircraft size/range and flight network.....	357
<i>T Rötger, G Casas, A Çelikel, H Dörries, L Lim, B Owen, A van Velzen, F Linke, B Lührs, M Lutz, K Radhakrishnan</i>	

A hybrid approach of machine learning and expert knowledge for projection of aircraft operability.....	365
<i>Sagar Shenoy Manikar, Joël Jézégou, Pierre de Saqui-Sannes, Philippe Asseman, Emmanuel Benard</i>	
Regional jet retrofitting through multidisciplinary aircraft design .....	373
<i>Massimo Mandorino, Pierluigi Della Vecchia, Fabrizio Nicolosi, Giovanni Cerino</i>	
Far-field pressure measurements of elliptic jets discharged close to a wing .....	381
<i>A. R. Proen��a, J. L. T. Lawrence</i>	
Innovative liner concept using friction powder for increasing of broadband noise absorption.	
Applications for broadband noise absorption in fan duct .....	389
<i>Constantin Sandu, Thomas Humbert, Yves Auregan, Marius Deaconu, Andrei Totu, Andrei Radu, Horatiu Serbescu, Traian Tipa</i>	
Prediction of Fan Tone Radiation Scattered By A Cylindrical Fuselage.....	397
<i>D-M. Rouvas, A. McAlpine</i>	
Instrumentation and Ground Testing of a Composite Elastic Wing Wind Tunnel Model.....	405
<i>Ralf Keimer, Efthimis Giannaras, Spyridon Kilimtzidis, Athanasios Kotzakolios, Vassilis Kostopoulos</i>	
Manufacturing, Assembly and Integration of a Large Scale Composite Wing Wind Tunnel Model and the Design and Implementation of an associated Measurement System.....	413
<i>Jan Baucke, Stefan Steeger, Ralf Keimer</i>	
Development of an innovative noise generation system for turboprop aircraft fuselage testing .....	421
<i>M Dal Borgo, M Alvarez, S Blanco, van Ophem, H Denayer, P Dell'Aversana, T Polito, L Staibano, R Bianco, B Peeters, B Pluymers, W Desmet</i>	
Investigation of the impact of a particle foam insulation on frost buildup on the aircraft structure .....	429
<i>Victor Norrefeldt, Gerhard Riedl</i>	
A motorized and remotely controlled Horizontal Tailplane for efficient WT testing .....	437
<i>Matthias Berger, Luca Flamini, Roberto Pasta, Cesare Servadio, Stephan Adden, Jendrik Seiler, Luciano Flamini, Nicola Paletta</i>	
Virtual Test Approach of Titanium/Composite in Service Repair, Installed on Certified Composite Flap.....	445
<i>V. Giacalone, V. Avigliano, L. Pascali, S. Orlando, F. Starace</i>	
Analysis of the application of fuselage skin reinforcements with beam element representations in flexible full aircraft models for ditching simulations .....	453
<i>C Leon Mu��oz, D Kohlgr��ber, B Langrand</i>	

## PART 2

Performance evaluation of jet fuel production by hydrothermal liquefaction in Europe.....	461
<i>C Penke, G ��zal, F Bellot, L Moser, V Batteiger</i>	
Modelling studies of the hazards posed by liquid hydrogen use in civil aviation .....	469
<i>P G Holborn, J M Ingram, CB Benson</i>	
Addressing Safety concerns in Hybrid Electric Aircrafts: In-Flight Icing Detection, Moisture Detection in Fuselage and Electrical Wiring and Interconnect System (EWIS) .....	477
<i>Mehak Sohail, Helge Pfeiffer, Martine Wevers</i>	

Opportunities of cryogenic system for hybrid electric propulsion aircraft/solar airship with LH2 and high temperature superconductor .....	485
<i>Yury Ravikovich, Leonid Ponyaev, Dmitry Holoptsev, Rafael Domjan</i>	
System architectures for thermal management of hybrid-electric aircraft - FutPrInt50 .....	493
<i>Walter Affonso, Renata T. Tavares, Felipe R. Barbosa, Ricardo Gandolfi, Ricardo J. N. dos Reis, Carlos R. I. da Silva, Timoleon Kipouros, Panagiotis Laskaridis, Hossein Balaghi Enalou, Andrei Chekin, Aleksey Kukovinets, Konstantin Gubernatorov, Yury Ravikovich, Nikolay Ivanov, Leonid Ponyaev, Dmitry Holobtsev</i>	
Graphene Technology for Design Efficiency of the Solar Hybrid Electrical Cryoplane and Airships .....	501
<i>L Ponyaev, M Kuprikov, N Kuprikov, R Domjan</i>	
Application of Probabilistic principles to Set-Based Design for the optimisation of a hybrid-electric propulsion system.....	509
<i>Andrea Spinelli, Luchien Anderson, Hossein Balaghi Enalou, Bahareh Zaghari, Timoleon Kipouros, Panagiotis Laskaridis</i>	
Energy consumption and environmental impact of Urban Air mobility .....	517
<i>T. Donato, A. Ficarella, L. Surdo</i>	
Aeroelastic assessment of distributed electric propulsion wings.....	525
<i>V. Memmolo, A. D. Marano, L. Maio, F. Nicolosi, F. Marulo</i>	
Design of near-zero emission aircraft based on refined aerodynamic model and structural analysis.....	533
<i>V Memmolo, F Orefice, F Nicolosi, F. Ricci</i>	
Layout and testing of a serial hybrid electric powertrain for a light twin demonstrator platform .....	541
<i>J Lay, A Bender, A Strohmayer</i>	
First Principle Model of an Electric ECS Pack.....	550
<i>P W Eschenbacher, D Zimmer, N Weber</i>	
Optimal sizing of hybrid electric propulsion system for eVTOL .....	558
<i>Taher Marzougui, Kolja Neuhaus, Laurent Labracherie, Gianmarco Scalabrin</i>	
Hybrid-electric and hydrogen powertrain modelling for airplane performance analysis and sizing .....	566
<i>YM Khan, A Rolando, F Salucci, CED Riboldi, L Trainelli</i>	
Strategy for 19-seat hybrid-electric short haul air transportation .....	574
<i>M Marks, R Kamnik, S Božičnik, A B Prapotnik</i>	
Ground infrastructure investments for operation of hybrid-electric aircraft.....	582
<i>A Prapotnik Brdnik, R Kamnik, S Bozicnik, M Marks</i>	
The impact of propulsive architecture on the design of a 19-passenger hybrid-electric aircraft .....	590
<i>Christos P. Nasoulis, Georgios Protopapadakis, Vasilis G. Gkoutzamanis, Anestis I. Kalfas</i>	
Design of Hybrid-Electric Small Air Transports.....	598
<i>F. Orefice, V. Marciello, F. Nicolosi, Q. Zhang, G. Wortmann, J. Menu, V. Cusati</i>	
Reliability Considerations of the Common Unit in Hybrid Electric Propulsion .....	606
<i>Sinem Can, Cemre Gizem Güll, Elif Koruyucu, Melih Yıldız</i>	
Intrinsic interfaces between additively manufactured metal and composite structures for use in electric propulsion engines .....	614
<i>M. Pohl, S. Spitzer, R. Grothe, Ch. Weidermann, M. Gude</i>	

A digital-based design methodology for the optimization of high-performance multi-material structures .....	622
<i>W Zschiebsch, A Filippatos, R Bohm</i>	
Ballistic impact response of reinforced honeycomb sandwich panels.....	630
<i>Saiaf Bin Rayhan, Mahtab Uddin Chowdhury, Xue Pu</i>	
Influence Of Polymer Coating Thickness On Damage Tolerance And Residual Strength Of Composite Material .....	638
<i>O A Kudryavtsev, E V Leshkov, N A Olivenko, A V Ignatova, A V Bezmelnitsyn</i>	
Towards simulation of disassembly of bonded composite parts using the laser shock technique.....	646
<i>P Kormpos, K Tserpes, G Floros</i>	
Acceptance, Safety and Sustainability Recommendations for Efficient Deployment of UAM - Outline of H2020 CSA Project.....	654
<i>B Dziugiel, A Mazur, A Stanczyk, M Maczka, A Liberacki, V Di Vito, A Menichino, S Melo, J ten Thije, H Hesselink, J Vreeken, M Giannuzzi, G Duca, R Russo, A Witkowska-Konieczny</i>	
Learn&Fly: engaging students in STEM via aeronautics .....	662
<i>M Guedes, N Nunes, R Cláudio, M Piteira, A Dias, K Śliwa-Martinez, G Santamarina</i>	
InnEO'Space PhD: Preparing Young Researchers for a successful career on Earth Observation applications.....	670
<i>Josiane Mothe, Aurelie Bayer, Valentina Castello, Valentina Ciaccio, Fabio Del Frate, Davide De Santis, Mihai Ivanovici, Anne Lehuerou Kerisel, Daniela Necșoi, Aude Nze Ndong, Nathalie Neptune, Maude Perier-Camby, Marco Recchioni, Zia Ullah, Mihaela Voinea</i>	
How much workload is workload? A human neurophysiological and affective - cognitive performance measurement methodology for air traffic controllers .....	678
<i>María Zamarreño Suárez, Rosa María Arnaldo Valdés, Francisco Pérez Moreno, Raquel Delgado-Aguilera Jurado, Patricia María López de Frutos, Víctor Fernando Gómez Comendador</i>	
Improvement of European thin haul mobility: the role of small Green commuter aircraft .....	688
<i>Diego Giuseppe Romano, Gianvito Apuleo</i>	
CFD Wind Tunnel Assessment on the case study of the MOTHIF Blown Flap .....	696
<i>Paolo D'Alesio, Giorgio Travostino, Philippe Planquart, Gertjan Glabeke</i>	
Cost-Optimized Avionics System - Surveillance Solution with Radar for Small Aircraft Transportation Segment.....	704
<i>Petr Kanovsky, L'uboš Korenčiak, Eva Jošt Adamová</i>	
Latest developments in AWAS: the Advanced Weather Awareness System in the COAST Project.....	711
<i>M Montesarchio, A L Zollo, M Ferrucci, E Buccignani</i>	
Cost Optimized Avionics System – Navigation Solution for Small Aircraft Transportation Segment .....	719
<i>Tomas Vaispacher, Milos Sotak, Zdenek Kana, Radek Baranek, Pavol Malinak, Matej Kucera</i>	
Derivation of Top-Level Aircraft Requirements for Small Aircraft Transport by Modelling Demand in Europe .....	727
<i>Florian Will, Nico Flüthmann, Christian Eschmann</i>	

Key design and operation factors for high performance of C12A7:e-based cathodes.....	735
<i>A. Post, J.F. Plaza, J. Toledo, D. Zschätzsch, M. Reitemeyer, L. Chen, A. Gurciullo, A. Siegel, P. J. Klar, P. Lascombes, B. Seifert</i>	
Performance comparison of LaB6 and C12A7:e-emitters for space electric propulsion cathodes.....	743
<i>J. Toledo, J F Plaza, A Post, D Zschätzsch, M Reitemeyer, L Chen, A Gurciullo, A Siegl, P J Klar, P. Lascombes, B. Seifert</i>	
HERA Mission LIDAR Mechanical and Optical Design.....	750
<i>Nicole G. Dias, Beltran N. Arribas, Paulo Gordo, Tiago Sousa, João Marinho, Rui Melicio, António Amorim, Belegante Livio, Patrick Michel</i>	
PERIOD – PERASPERA In-Orbit Demonstration toward the transition into the in-space services, assembly and manufacturing paradigm .....	758
<i>Séphane Estable, Annelies Ampe, Apostolos Chamos, Gwenaelle Aridon, Daniel Silveira, Francisco Javier Colmenero Lechuga, Isabel Soto, Jeremi Gancet, Mark Shilton, Marko Jankovic, Torsten Vogel</i>	
Fully Modular Robotic Arm Architecture Utilizing Novel Multifunctional Space Interface.....	766
<i>C. Zeis, C. A. de Alba-Padilla, K.-U. Schroeder, B. Grzesik, E. Stoll</i>	
Development of computer code and calculation of the propagation of sonic boom to the ground in a real atmosphere.....	774
<i>V.S. Gorbovskoy, A.V. Kazhan, S.S. Vasin, A.O. Korunov</i>	
Goals, tasks and technic concept of Russian flight civil supersonic jet technology demonstrator .....	782
<i>I G Bashkirov, S L Chernyshev, A V Kazhan, V G Kazhan, E V Karpov, A N Shanygin, A V Shenkin</i>	
Synthesis of design solutions for preliminary aerodynamic design of an advanced supersonic transport under parametric epistemic uncertainty.....	790
<i>I G Bashkirov, G S Veresnikov</i>	
Unmanned helicopter flight control actuator specification through mission profile analysis.....	798
<i>Jérémie Roussel, Marc Budinger, Laurent Ruet</i>	
Innovative test methodology for shelf life extension of carbon fibre prepgres .....	807
<i>Constance Amare, Olivier Mantaux, Arnaud Gillet, Matthieu Pedros, Eric Lacoste</i>	
New Intelligent Semi-Products based on Recycled Carbon Fibres .....	815
<i>Alexandre Faure, Olivier Mantaux, Arnaud Gillet, Gilles Cazaurang</i>	
Life Cycle Inventories for Engine Blisk LCA .....	823
<i>K Fricke, T Bergs, P Ganser, S Gierlings, J Albano</i>	
ECO-CLIP: circular economy from factory waste material towards aircraft structural components .....	831
<i>R Travieso-Puente, C Martín-Pérez, N González-Castro, E Rodríguez-Senín, J Vidal-Navarro, G Vicente-Guerrero, S L Veldman</i>	
The TecALSens project: new solutions for load sensors in aeronautics.....	838
<i>Valerio Carli</i>	
Digital twins for prognostics of electro-hydraulic actuators: novel simplified fluid dynamic models for aerospace valves .....	846
<i>Pier Carlo Berri, Matteo D.L. Dalla Vedova, Simone Santaera</i>	

A novel model-based metaheuristic method for prognostics of aerospace electromechanical actuators equipped with PMSM .....	854
<i>D.L. Matteo, Dalla Vedova, Pier Carlo Berri, Omayma Aksadi</i>	
Fault-tolerant control via four-leg inverter of a full-electric propulsion system for lightweight fixed-wing UAVs.....	862
<i>Gianpietro Di Rito, Aleksander Suti, Roberto Galatolo</i>	
Enabling In-Flight Connectivity with the new Generation of Electronically Steered Antennas .....	870
<i>Manuel J Gonzalez, Ana Ruiz, Alberto Pellon, Jose Luis Flores, Palma Garcia, Keith Howland, Nigel Silverthorn, Jaime Perez-de-Diego</i>	
Model validation for a transient ECS failure case in a business jet mock-up.....	878
<i>A JM Lindner, M Pschirer, V Norrefeldt</i>	
Analytical Design of Conventional and Electrical Aircraft Environmental Control Systems .....	884
<i>Raghu Chaitanya Munjulury, Hemanth Devadurgam, Soorya Rajagopal, Petter Krus</i>	
Real Estate Advisory Drone (READ): system for autonomous indoor space appraisals, based on Deep Learning and Visual Inertial Odometry .....	893
<i>A Quattrini, A Mascheroni, A Vandone, M Coluzzi, A Barazzetti, F Cecconi, T Leidi</i>	
The thermal control system of NASA's Curiosity rover: a case study .....	901
<i>Gaetano Quattrocchi, Andrea Pittari, Matteo D.L. Dalla Vedova, Paolo Maggiore</i>	
The DressMAN 3.2-System for evaluation of thermal comfort in the Passenger Cabin Ground Demonstrator .....	909
<i>Michael Visser, Sumeet Park, Sebastian Stratbucker, Victor Norrefeldt, Andreas Lindner</i>	

#### **Author Index**