International Symposium

on

Sustainable Aviation 2018

July 9-11, 2018

University of Rome "La Sapienza"

Faculty of Civil and Industrial Engineering

Rome, Italy

Symposium Programme

SAPIENZA
UNIVERSITÀ DI ROMA

SARES
SUSTAINABLE AVIATION RESEARCH SOCIETY

con il patrocinio di
ENAC
ENTE NAZIONALE PER L'AVIAZIONE CIVILE

Ecoengineering
Associazione Culturale

Faculty of Civil and Industrial Engineering
Department of Mechanical and Aerospace Engineering

SAPIENZA
UNIVERSITÀ DI ROMA

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International Symposium on Sustainable Aviation 2018

Rome – July 9-11, 2018

SYMPOSIUM AIMS AND SCOPE

Aviation is considered as one of the major sources of environmental problems and considered a prominent cause of sustainability. Future trends in aviation could constitute a major impediment to having sustainable development in economic, social and environmental perspectives. Sustainable aviation is a long-term strategy aiming to offer innovative solutions to the challenges facing the aviation industry.

As we are in an era in which there is a continuous progress in aviation, we would like to invite researchers, scientists, engineers, practitioners, policy makers, and students to this international Symposium to exchange information, present new technologies, and developments, and discuss the future direction, strategies and priorities in the field of sustainability. ISSA aims to handle a broad range of aviation-related issues with particular emphasis on environmental problems associated with sustainability.

SYMPOSIUM HONORY CHAIRMAN

Prof. Dr. Eugenio GAUDIO — University of Rome “La Sapienza”

SYMPOSIUM FOUNDING CAHIRMAN

Prof. Dr. T. Hikmet Karakoc — Eskisehir Technical University

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Kateryna Synylo — National Aviation University
Evren Yilmaz Yakin — Eskisehir Osmangazi University
Rosita Scaccia — University of Rome “La Sapienza”

SYMPOSIUM PROGRAMME

Monday 9th July	
8:30	**Registration** – Faculty Cloister
9:00	**Opening Session –** Cloister Main Room
9:00	Prof. Dr. Claudio Scarponi (Symposium Chairman)
9:15	Prof. Dr. T. Hikmet Karakoc (Symposium Founding Chairman)
9:30	Prof. Dr. Antonio D'Andrea (Dean of the Civil and Industrial Engineering Faculty)
9:45	SARES Award Ceremony
10:00	**Keynote Talk - Chair: Prof. Dr. T. Hikmet Karakoc –** Cloister Main Room
10:00	**Energy and Jet Fuel Production from Winds over the Ocean** Prof. Dr. Maximillian F. Platzer (University of California Davis)
10:30	**Sustainable (Green) Aviation: Challenges & Opportunities** Prof. Dr. Ramesh K. Agarwal (Washington University in St. Louis)
11:00	**Coffee Break** – Faculty Cloister
11:00	**Poster Presentations - Faculty Cloister**
11:30	**Session 1** Chair: Prof. Dr. Maximillian F. Platzer – Cloister Main Room
11:30	**For A More Sustainable And Safe Aviation** Jean-Michel Most, Michel Champion
11:45	**Research Of Ways To Improve Environmental Characteristics Of A Heavy Long-Haul Aircraft** Sergiy Volodymyrovych Dmytriyev, Vasyl Vasylevich Loginov
12:00	**Technology Perspectives For Sustainable Aviation** Nils Beck, Jens Friedrichs
12:15	**Design Of A Long-Range, Hydrogen-Powered, Transport Aircraft** Alyssa Villanueva & Nikos J. Mourtos
12:30	**Flight Test Operations Sustainable Management**

	Paulo Sergio de Lima Quattrocchi, Darli Vieira
12:45	**The Use Of E-VTOL Technology In Sustainable Urban Air Transportation** Dreyfus Silva, Darli Vieira
13:00	**Lunch Break** – Faculty Cloister
14:30	**Keynote Talk - Chair: Prof. Dr. Maximillian F. Platzer –** Cloister Main Room
14:30	**Risk Methodology For Aircraft Noise Assessment And Control** Prof. Dr. Oleksandr Zaporozhets (National Aviation University)
15:00	**Session 2** Chair: Prof. Dr. Maximillian F. Platzer – Cloister Main Room
15:00	**Design Of A 4-Seat General Aviation Electric Aircraft** Viral Rathod
15:15	**Design Of A Short To Medium Range Hybrid Transport Aircraft** Sarah Marie Ortega, Nikos J Mourtos
15:30	**A New Approach To Electric, Hybrid Aircraft Conceptual Design** József Rohács
15:45	**On The Possibility Of Integrating Thin-Film Photovoltaic Technologies With Light Aircraft Hybrid Powertrains** John Olsen
16:00	**Coffee Break** – Faculty Cloister
16:30	**Keynote Talk - Chair: Prof. Dr. Olleksandr Zaporozhets–** Cloister Main Room
16:30	**Airplane Drag Reduction by means of Oscillating Vortex Generators** Prof. Dr. Maximillian F. Platzer (University of California Davis)
17:00	**Session 3** Chair: Prof. Dr. John Ekaterinaris – Cloister Main Room
17:00	**Demonstrating Hybrid Turbo Electric Propulsion in Unmanned Aerial Systems: Preliminary Considerations** Graham Wild, Mithun Abdul Sathar Eqbal, Alexander Somerville, Matthew Marino, Nuwantha Fernando
17:15	**Steady-State CFD Analysis Of 3D Bio-Inspired Flapping Wing Models** Mürvet Bektaş, Dilek Funda Kurtuluş, Mehmet Ali Güler
17:30	**Analysis Of Aircraft Flight Predictability Considering Wind Uncertainty**

	Damián Rivas, Antonio Franco, Alfonso Valenzuela
17:45	**Assessment Of Complex 3D Artificial Ice Shapes For Aerodynamic Investigations During The Certification Process For Flight Into Known Icing** Reinhard Puffing
18:00	End of sessions

Tuesday 10th July	
8:45	**Keynote Talk - Chair: Prof. Dr. Adnan Midilli–** Cloister Main Room
8:45	**Simulations Requirements For Wings And Hovering Rotor Blades Vortices In Order To Ensure Accurate Predictions** Prof. Dr. John Ekaterinaris (Embry-Riddle Aeronautical University)
9:15	**Poster Presentations – Faculty Cloister**
9:15	**Session 4** Chair: Prof. Dr. Olleksandr Zaporozhets – Cloister Main Room
9:15	**Development of Technological Innovation Strategies for Sustainable Aviation** Adnan Midilli
9:30	**Sustainable Aviation Fuels as part of the ICAO Basket of Measures to Reduce CO2 Emissions** Giovanni Barraco
9:45	**Greening The European Aeronautics – The Clean Sky Programme** Rossella Valiante
10:00	**Sustainable Software Development In The Aircraft Industry: An Agile Perspective** Marcelo Amaral Da Silva, Darli Vieira
10:15	**An Exploratory Research In Sustainable Communication Strategies In Aviation Maintenance** Patti Clark, Eva Maleviti
10:30	**Energy Efficient 4D Trajectories For Terminal Descent Operation** Yixiang Lim, Alessandro Gardi, Roberto Sabatini
10:45	**Reliability And Safety Assessment Of Unmanned Aerial Vehicle Systems** Paula Gonçalves, José Sobral, Luís Ferreira
11:00	**Coffee Break** – Faculty Cloister

11:30	**Session 5** Chair: Prof. Dr. Birol Kilkis – Cloister Main Room
11:30	**Modernizing The Tasks Of ATCO For Reducing The Total Environmental Impact Of Aviation** Istvan Jankovics, Utku Kale, Daniel Rohacs
11:45	**Synthetic Solutions For Training Tasks To Be Performed In The SHY-147 Recognized Schools In Aircraft Maintenance Field** Can Uraslı, Emre Akar, Hayriye Korkmaz, Hüseyin Burak Avcı
12:00	**Robust Aircraft Path Planning Using Ensemble Weather Forecasts** Antonio Franco, Damián Rivas, Alfonso Valenzuela
12:15	**Greening Aircraft Using Box Wing Technology: Potential Emission Reductions At Secondary Aerodromes** Graham Wild, Matthew Marino, Alexander Somerville, Mithun Abdul Sathar Eqbal
12:30	**Sustainable Transport Approach: A Sample Path between Istanbul and Rome** Onder Altuntas
12:45	**Attitude Planning For The Connectivity Of A Swarm Of Spacecraft With Non-Omni-Directional Communication** Qifeng Chen, Song Li, Yunhe Meng, Yaokun Han
13:00	**Lunch Break** – Faculty Cloister
14:30	**Keynote Talk - Chair: Prof. Dr. Birol Kilkis –** Cloister Main Room
14:30	**Aviation Sustainability: Evolution Or Revolution?** Dr. Marco Protti (Leonardo Aircraft)
15:00	**The Important Role of CNS/ATM and Avionics Systems in Improving Aviation Sustainability** Prof. Dr. Roberto Sabatini (RMIT University Australia)
15:30	**Session 6** Chair: Dr. Marco Protti – Cloister Main Room
15:30	**An Optimization Algorithm For Determining The Ratio Of Light-Weight Composites And Conventional Material For Energy, Exergy, And CO2 Embodiment Recovery During Aircraft Manufacturing And Operation** Birol Kilkis, Şan Kılkış, Şiir Kılkış
15:45	**Flexible Matrix Composite Membrane for Corrugated Morphing Skins** Abdessalem Bouferrouk
16:00	**Experimental and Theoretical Study On The Fatigue Life Of Bonded Joints Using Hot-Curing Epoxy Film Adhesive** Christof Nagel
16:15	**Coffee Break** – Faculty Cloister

16:45	**Session 7** Chair: Prof. Dr. Roberto Sabatini – Cloister Main Room
16:45	**Characteristics Of Enova® IC3100 Silica Aerogel Coated On Aluminium Alloy 2024 Composites ISO2685 Standard Fire Test** Abd Rahim Abu Talib, Ibrahim Mohammed, Wahiduddin Rujhan
17:00	**An Application Of Techniques For PAV Operation And Research Trend In Rep. Of Korea** A Rim Ko, Da Un Kim, Sung Kwan Ku
17:15	**Impacts Of Airport Design On Taxiway Characteristics** Renata Cavion, Carlos Mauricio Sacchelli, João Mendes Rocha, Bianca Schlickmann Felisbino
17:30	**Energy Saving And Life Cost Analysis Related To Insulation Materials Of The External Walls Of The Airport** Ismail Caner, Okan Kon
17:45	**The Role Of Corporate Citizenship In Airport Communication On Noise** Adél Schroepfer
18:00	End of sessions

Wednesday 11th July	
8:45	**Session 8** Chair: Prof. Dr. Olleksandr Zaporozhets – Cloister Main Room
8:45	**Tradeoffs Of Larger Aircraft In Airport Operations And Infrastructure** Renata Cavion
9:00	**The Effects of Low Power AC Electric Field on a Propane/Air Diffusion Flame** Smail Kalla, Yael Bourgeois
9:15	**A Cross Sectional Study Of Airport Waste Management** Graham Wild, Glenn Baxter, Panarat Srisaeng
9:30	**Increasing The Unmanned Aerial Vehicle Landing Accuracy For Reducing Environmental Impact** Nguyen Dinh Dung, József Rohács
9:45	**Spring Temperature Monitoring Using Thermal-UAV: Azmak Spring, Gokova, Turkey** Bedri Kurtulus, Cagdas Sagir, Gunseli Erdem, Dilek Funda Kurtulus, Ozgur Avsar, Mustafa Can Canoglu, Moumtaz Razack
10:00	**Future Aviation Systems: Tethered Package Delivery Via Fixed Wing Unmanned Aerial Vehicle (UAV)** Matthew Marino

10:30	**Analysis Of Embedded Accelerometer Data For Damage Detection Of Helicopter Drivetrain** Eniko T Enikov, Adrian Garcia Lopez
10:45	**Life Cycle Impact Assessment For Aircraft With Different Propulsion System** Agnes Wangai, Sergey Kinzhikeyev, Jozsef Rohacs,Dániel Rohács
11:00	**Thermodynamic Analysis And Assessment Of An Integrated Solid Oxide Fuel Cell Based Energy System For A Mid-Size Aircraft** Reza Alizade Evren, Ibrahim Dincer
11:15	**Environmental Assessment Of A Small Turbojet With Thermodynamic Model** Kahraman Coban, Ozgur Colpan, T. Hikmet Karakoc
11:30	**P3T3 NOx Model Of Turbofan Engine** Kateryna Synylo, Nicolas Duchene
11:45	**An Experimental Study on the Reduction of Airfoil Trailing-edge Noise Using a Single-Leg Spiral Array in an Anechoic Wind Tunnel** Weiyang Qiao, Weijie Chen
12:00	**Closing Session** Chair: Prof. Dr. Claudio Scarponi – Cloister Main Room
12:30	End of Sessions
12:30	**Brunch** – Faculty Cloister

Poster Presentations
Comparative Life Cycle Assessments Of Airbus A330 And A350 To Assess Environmental Impacts And Suggest Options For Improvement Asad Parkar, Gera Troisi
An Experimental Study on the Reduction of Airfoil Trailing-edge Noise Using a Single-Leg Spiral Array in an Anechoic Wind Tunnel Weiyang Qiao, Weijie Chen
An Overview On Air Quality And Ventilation In Passenger Aircraft Mehmet Baris Ozerdem
Study Of Network Control Using Multiagent Systems Fahad Ali, Ayesha Iqbal, Syed Mohsin Ali, Usman Inayat, Rehan Saleem
Evaluation Of The Environmental Aspects Of The Conversion Of Frying Oil Into Esters For Biodiesel Production Through Plasma Technology Marina Medeiros Machado, Cátia Regina Silva de Carvalho Pinto, Anelise Leal Vieira Cubas, Elisa Helena Siegel Moecke, Jonathan Alexsander Bork, Roberth Andrés Villazón Montalván, Carlos Roberto de Oliveira Júnior, Kauan Santos Barcelos

Boundary Layer Transition And Loss Production Mechanisms On High Lift Turbine Profiles Pietro Zunino
Pyxis: Ultra-Efficient Commercial Aircraft with Gull-Boxed Wings and Liquid Hydrogen Fuel Janine R Moses
Investigation Of Emission Effects Of The Turbofan Engine Under Land Climatic Conditions By Exergy Approach Mehmet Ziya Sogut, Kateryna Synylo, T. Hikmet Karakoc
Molecular Dynamics Modelling Of Slip: Study Of The Potential To Reduce Aircraft Drag By Use Of Graphene Jerome Leary
Evaluation Of Aircraft Maintenance Documents In Terms Of Human Factors, Safety, Efficiency To Achieve Sustainable Maintenance Operations Tarik Gunes, Ugur Turhan, Birsen Yoruk Acikel
Implementation Of The PIV Method In The Average Test And Optimization Of Aircraft In Accordance With The Results Of Standard Aerodynamic Methods Časlav Mitrović, Nebojša Petrović, Nikola Petrović, Vesna Jelić
Evaluation of NOx and CO Gas Emission Utilizing Different Blended Fuels in an Industrial Liquid Fuel Burner Muhammad Syahiran Bin Abdul Malik, Mohammad Nazri Bin Mohd Jaafar, Norazila Binti Othman
The Relation Between Real Flight Data And Training Airspace Compexity Ugur Turhan, Birsen Acikel
Optimal Choose Of Effective Path For Solar Unmanned Aerial Vehicle Using Simultaneous Localization And Mapping Approach Denis Karabetsky
CFD Analysis Of An RC Airplane Wing Using A NACA 2412 Profile At Different Angle Of Attacks Shian Gao, Huseyin Gokberk
Further Development In The Morphing Mechanism Of The Direct Control Airfoil Geometry Concept Abdessalem Bouferrouk
Impact Of Parallel And Complementary Airline Alliances On Airline Performance Gamze Orhan, Deniz Taşcı
Assessment Of Waste Water Treatment At The Airport Lesia Pavliukh, Lada Veriagina
Assesment Turbine Temperature Limit Effect On Turbofan Engine Performance Based On Exergetic Aproach Mehmet Ziya Sogut, Enver Yalcın, Tahir Hikmet Karakoc
A Comparative CFD Study Of Centrifugal Pump With Commercial And Open-Source Flow Solvers Kursad Melih Guleren
Experimental Investigation Of Viscous Flow Normal To NACA 0012 Airfoil At Low Reynolds Numbers Erkan Günaydınoğlu, D. Funda Kurtuluş

An Analysis Of The Relationship Between Teamwork And Job Satisfaction On Airline Cabin Crew Dilek Can, Ilkay Orhan
Monitoring sea/depth surface temperature using Landsat thermal data and in-situ measurement in Fethiye-Gocek Bay, Turkey Tugba Gurcan, Bedri Kurtulus, Ozgur Avsar, Ulas Avsar
Bifurcation Diagram Of Rectangular Laminated Composite Laminated Plates Sohayb Abdul Karim, Khaled Hamoud, Muhammed Abdul Karim
Yield And Fracture Of Bonded Joints Using Hot-Curing Epoxy Film Adhesive - Multiaxial Tests And Theoretical Analysis Christof Nagel
Optimization Of The Preliminary Design And The Hybrid Powertrain Of A VTOL Tailsitter Unmanned Aircraft Teresa Donateo, Claudia Lucia De Pascalis, Antonio Ficarella
Technical Development Of General Aviation In China – A Study Of Challenges And Opportunities Devinder K Yadav
CFD Analysis Of A Generic Store Separation For Transonic Open Cavity Flows Kursad Melih Guleren
A Model Design And Implementation Of Atmospheric Entry Probe Cansat Salih Karaaslan
Electrization Of The RT Aviation Fuel As A Technique To Generate The High Voltage Electric Power Igor Leonidovich Trofimov
Computational And Experimental Study On A Variable Camber Winglet João Paulo Eguea
Development Of A Real Time Intelligent Health Monitoring Platform For Aero-Engine Maria Grazia De Giorgi, Stefano Campilongo, Antonio Ficarella
Effects Of Weather Uncertainty On Sector Demand At Tactical Level Alfonso Valenzuela
Potential Of Feedback In Aviation Nurad Fuad Aghayev
Curved Aero Space Structural Inspection By Pulse-Echo Ultrasonic Propagation Imaging Technique Hye-Jin Shin, Jung-Ryul Lee
Ecologic Aspect Of A Training Aircraft Jet Engine Yasin Şöhret, Ozgur Balli, T. Hikmet Karakoc
Lattice Boltzmann Simulation To Laminar Pulsating Flow Over A Backward Facing Step With A Porous Medium Sihem Hammouda, Hacen Dhahri
Design And Analysis Of A Hybrid Wing By Optimized Airfoils Bhavana C, Premkumar B, Ashwini Patil

Investigation Of Ammonia As Energy Source In A Gas Turbine Cycle Süleyman Kağan Ayaz, Önder Altuntaş
Comparison Of Eddy Dissipation And Flamelet Models For A Practical Spray Combustor Gurkan Sarıkaya, Onur Tuncer
A Fully-Integrated Flight Simulation Program For Aircraft Noise And Emissions Antonio Filippone
Can Configuration Alone Make For A Greener Aircraft? The Case For A Blended Wing-Body, Medium Size, Medium Range Transport Nishant Patel
Analysis Of A Flight Training Organisation's Airport Noise Area Murat Ayar, Görkem Yalin , Kursad Melih Guleren , T. Hikmet Karakoc
Effect Of Different Weightage Of Enova® IC3100 Silica Aerogel On Aluminium Alloy Composites In ISO2685 Aviation Standard Fire-Test Abd Rahim Abu Talib, Ibrahim Mohammed, Wahiduddin Rujhan
Oxidative Stability Of Biodiesel Fuel From Non-Food Fats Elena Shevchenko, Valeriia Kamenieva
Evaluation Of Flight Performance Of The Plane With Holistic Approach Considering Irreversibilty Mehmet Ziya Sogut, Enver Yalcın, Tahir Hikmet Karakoc
The Enhancement Of Environmental Safety Of Airports Fuel Service Larysa Cherniak
Design And Validation Of Human Performance Scenarios For Future ATM Automation Ugur Turhan
Effect Of Forward Velocity On Rectangular Wings Flapping With Piezoelectiric Actuators Fadile Yudum Comez, Dilek Funda Kurtulus
The End Of Life Aircraft Management In The Paradigm Of Internet Of Things Samira Keivanpour, Daoud Ait Kadi
Unmanned Multirotor Aircraft Noise Emission and Propagation Rohan Kapoor, Alessandro Gardi, Roberto Sabatini
Research And Analysis Of New Airfoil With Pressure Distribution Method And Particle Image Velocimetry Method Časlav Mitrović, Goran Vorotović, Miloš Vasić, Srđan Kostić
The EGTS: When The Aerospace Ecosystem Is Not Ready Martin, Angelica Zorrilla, Osorio
Exergy Aided Thermal Barrier Coating Thickness Optimization For A Combustor Liner Yasin Şöhret, İsmail Ekmekci, T. Hikmet Karakoc
Methodological Proposal For The Supply Chain Risk Management Within The Aeronautical Sector Miguel Suffo

Evaluation Of Jet Engine Parameters Using Conventional And Alternative Jet Fuels Anna Yakovlieva, Oksana Vovk, Sergii Boichenko, Kazimierz Lejda
High-Speed Infrared Imaging of JP-10 Fuel Evaporation Smail Kalla
An Adaptive Sampling Technique For Optimizing The Design Of Axial Turbine Endwalls Hakim Tarteeb Kadhim
Conceptual Basis Of The Implementation Of Alternative Motor Fuels: Current Challenges, Problems And Prospects Sergii Boichenko, Anna Yakovlieva