

“Towards Sustainable Aviation” Summit
Toulouse • France - January 28-30, 2025



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THE FRENCH AEROSPACE LAB



La Région
Occitanie
Pyrénées - Méditerranée

WELCOME ON TSAS 2025

3AF, the French Aerospace Society and its partners are proud to welcome you.

This international conference will bring together all stakeholders of the aeronautical ecosystem (designers, manufacturers, universities, research centers, ...) TSAS is regrouping former AEGATS and Greener Aviation conferences held in 2016, 2018 and 2020 and organised by 3AF with the support of Clean Aviation, Sesar & DGAC.

The conference will address both aircraft design and operations perspectives to prepare and shape a more Efficient Global Air Transport System with the aim to reach carbon neutrality by 2050 for the aviation ecosystem.

A more eco-efficient aircraft provides more and more Net Present Value, on one hand, an aircraft which has a significantly improved environmental footprint on the other hand through implementation of new design and technologies, use of drop-in and non-drop-in fuel and potentially new ways of operating aircraft. As a result, the aircraft design must enable to reduce dramatically the operating costs, the cost of ownership, to be sustainable and competitive versus other transportation alternatives, while increasing revenue through cabin services and enhanced aircraft operability.

The post-COVID anticipated situation associated to the ambition for carbon-neutral growth for aviation will open a new era for the aviation ecosystem and new opportunities to meet these new challenges. Some emerging technologies or approaches such as the Artificial Intelligence and the digital transformation of the industry, including the intensive use of big data with new business models are key enablers to achieve the objectives of having a more Efficient Global Air Transportation System. Security has not to be seen as a threat but as an opportunity for improvement.

Alexandre JAY, Conference Chair, AIRBUS

CONFERENCE TOPICS

ECO-DESIGN AIRCRAFT

- Basic objectives for an aircraft eco-design
- Aircraft configuration, emerging technologies and innovative architectures
- New energies and their management Impact on aircraft configuration and design
- Fuel burn
 - Weight
 - Aerodynamic
 - Multi-disciplinary design
 - Systems including on-board energy management and AI opportunities.
- Other contributing items e.g., Operating Costs reduction, Revenue service increase, Airborne system acceptability and affordability
- Environment
- Security
- Post COVID Cabin design and air quality
- In Flight connectivity and potential additional ancillary revenues
- New methods and tools for end-to-end safety assessment and certification using modelling and simulations.



OPERATIONS

- Aircraft
 - Ground operations
 - Maintenance and maintenance predictive
 - Flight operations
 - Post COVID remaining issues
- From "ATM" to "The digitalization of the infrastructure supporting aviation" and the reliance on strong air/ground system integration
 - Hyper connectivity and Machine to Machine applications
 - Lead time reduction DevOps
 - Single Pilot Operations
 - Digital cockpit and ground assistants
 - Certified AI for better airborne operations
 - "Zero waste" trajectories
 - New ways of flying
- Airport
 - Connection from home to airport
 - Post-COVID remaining issues
 - Airport design for passenger's flow efficiency
 - Airport Security
 - Ground handling
 - New energies deployment
- Integration of Safety Management Systems
- Cross-fertilization between security and safety standards



NEW INDUSTRY SET-UP

- How Artificial Intelligence push boundaries in design, operations, organization and safety risk management
- Anticipated new boundaries within engineering and between engineering and manufacturing due to new technologies and MRO repercussions, subsequently.
- Post-COVID airlines panorama



ENERGY AND PROPULSION

- Energy overview and opportunities: New Energy sources, SAF production pathways, emission impacts, mission optimisation, next generation integration
- Gas Turbine Propulsion: New Architectures, Hybridisation, Energy Management, Aerodynamics, Revolutionary Cycles
- Hydrogen powered Propulsion: Propulsion Technologies, Aircraft Architecture, Storage, Fuel Distribution
- Hybrid-Electrical and Electrical Aircraft: Aircraft Architecture, Storage, Fuel/Energy Transfer and Utilisation
- Impact of technological breakthrough on safety risks, standards, regulations and certification





PROGRAMME COMMITTEE

Chair : Alexandre JAY, AIRBUS

Giorgio	ABRATE	Engineering General Manager	Avio Aero
Mohamed	ALI	VP Engineering	GE Aerospace
Diego	ALONSO	Airport Operations	AIRBUS
Asif	ANSAR	Head of the Department - Energy System Integration	DLR
Xavier	AUBARD	Arts et Metiers Bordeaux Director	ENSAM
Xavier	BARRAL	Managing Partner	LB Air Consulting
Marc	BELLENOUE	Professeur des Universités ISAE-ENSMA	ISAE - ENSMA
Enrico	CASALE	Engineering, ATO - EU Programs & Research Network	Avio Aero
Marouan	CHIDA	Head of Digital Transformation & Innovation	EUROCONTROL
Amy	COMER	Vice President of Engineering	Pratt & Whitney
Pierre	CRESPI	Director of Innovation	Air Liquide
Daniel	CUCHET	Chief Engineer	ATR
Richard	CURRAN	Head of Aviation Management	City, University of London
Bruno	DARBOUX	President of Aerospace Valley Competitiveness Cluster	Aerospace Valley
Denis	DESCHEEMAEKER	CEO	IRT Saint Exupéry
Sebastien	DUBOIS	Head of Cleansky program	Cleansky
Ovidiu	DUMITRACHE	Senior Manager Research Strategy	EUROCONTROL
Pierre	FOSSIER	Chief Technical Officer of Land Systems GBU	THALES
Jean	FREY	Head of Product and Technology Strategy	Liebherr Aerospace Toulouse
Prof.	GANGOLI RAO	Professor & Chair Sustainable Aircraft Propulsion	Faculty of Aerospace Engineering TU Delft
Norbert	HIRTZ	Independent Aeronautical Expert	NHAeroconsult
Emmanuel	ISAMBERT	Senior research officer	EASA
Alexandre	JAY	A380 Chief Engineer	AIRBUS
Yann	JUANEDA	Engineering Director, Products Development	Liebherr Aerospace Toulouse
Robert	LAFONTAN	Consultant, ex Airbus	3AF
Pierre-Alain	LAMBERT	Director of SafranTech Pole for Energy and Propulsion	SAFRAN
Laurence	LOMBARD	Aeronautical Test Engineer SAF compatibility R&D Project	TOTAL
Felix	MORA CAMINO	Professor at Enact Sustainable Strategies	Toulouse University
Andrew	MURPHY	Chief Engineer Advanced Programs	Pratt & Whitney
Alan	NEWBY	Director Aerospace Technology and Future Programmes	Rolls-Royce
Florent	NIERLICH	Safran electrical and power Technical Director	SAFRAN
Bruno	NOUZILLE	Chief Technical Officer of AVS GBU	Thales Avionics
Philippe	NOVELLI	Chief Technical Officer	ONERA
Thomas	RÖTGER	Managing Director	TRIAC
Jean-Michel	ROY	Test Pilot	AIRBUS
Astrid	SONNEVELD	SAF Technical Development & OEM Partnership	NESTE
Massimo	SORLI	Professor	Politecnico di Torino
Todd	SPIERLING	Principal Technical Fellow	Collins
Bruno	STOUFFLET	Vice President R&D and Advanced Business	Dassault Aviation
Richard	WAHLS	Sustainable Flight National Partnership Mission Integration Manager	NASA
Gary	WAY	Head of EU and International R&T Programmes	Rolls-Royce

DAY 1 - TUESDAY JANUARY 28

DAY 1 - TUESDAY JANUARY 28							
REGISTRATION AND WELCOME COFFEE							
PLENARY ROOM - Cassiopée							
WELCOME ADDRESSES Welcome from the Region Occitanie Bruno BERTHET, 3AF President							
OPENING KEYNOTE Breaking the Carbon Barrier - Sabine KLAUKE - Airbus							
CONFERENCE OPENING Alexandre JAY, Conference Chair							
COFFEE BREAK							
ROUND TABLE 1 : Aircraft concept & associated system architecture Moderator : Robert LAFONTAN Dr. Rich WAHLS - NASA; Daniel CUCHET - ATR; Pierre-Henri BROUSSE - AIRBUS; Craig BEMMENT - Rolls Royce; Christophe ROBIN - DAHER							
10' INTERSESSION							
ROOM 1 - Cassiopée Session 1		ROOM 2 - Spot Session 2		ROOM 3 - Ariane 1 Session 3		ROOM 4 - Ariane 2 Session 4	
AIRCRAFT DESIGN - OVERVIEW		ENERGY AND PROPULSION - OVERVIEW		ENERGY AND PROPULSION - HYDROGEN		ENVIRONMENT	
Daniel CUCHET - ATR		Andrew MURPHY - Pratt & Whitney		Sebastien DUBOIS - Clean Aviation		Bruno STOUFFLET - AAE	
Chair	20	16	156	126			
11:40	Reducing Carbon Emissions in Long-Haul Flights: Challenges and Solutions Laurent TABERNIER - EUROCONTROL	Energy transition and the future of aviation Herve MORVAN - Rolls-Royce plc	A Roadmap Towards Sustainable Advanced Air Mobility Richard CURRAN - City, University of London	Axens Technologies for Sustainable Aviation Fuels: A Complementary Approach for Achieving 2050 Greenhouse Gas Reduction Goals Thomas PLENNEVEAUX - Axens			
	87	41	6	62			
12:00	Climate benefit of using non-drop-in SAF and hydrogen in regional aircraft Regina POUZOLZ - Deutsche Aircraft	Techno-Economic Analysis Framework for Advanced Sustainable Propulsion Architectures Todd SPIERLING - Collins Aerospace	Paving the way towards using hydrogen in aviation: challenges and opportunities all along the hydrogen value chain: hints from the Spanish Alliance Marta MAROÑO - AIRBUS	Simulation and analyses of ICAO transition scenarios using the AeroMAPS open-source framework Thomas PLANÈS - ISAE-SUPAERO			
	18	161	84	23			
12:20	General aviation can decarbonize faster than commercial aviation Gilles ROSENBERGER - NEOFUEL (No Lead & Low Carbon)	Alternative fuels and new propulsion systems towards sustainable aviation – environmental impact and standardized cost estimation Ralph-Uwe DIETRICH - DLR Institute of Engineering Thermodynamics	Fuel Cells: A credible technology pathway for decarbonizing Regional Air Transport Yann FEFERMANN - Safran Power Units	A European Perspective on Sustainable Aviation Fuels: Policies, Sustainability & Costs Oliver WEISS - Deutsche Aircraft			
LUNCH BREAK							
12:40							



DAY 1 - TUESDAY JANUARY 28

PLENARY ROOM - Cassiopée

14:00	KEYNOTE 2: Progress toward flight demonstration of the Blended Wing Body Dr. Fayette S. COLLIER, Associate Director for Flight Strategy - NASA Integrated Aviation Systems Program			
14:30	KEYNOTE 3: Cryogenic propulsion technologies Emelie NILSSON, Elec. & Electronic Development Responsible - Airbus			
15:00	10' INTERSESSION			

	ROOM 1 - Cassiopée Session 5	ROOM 2 - Spot Session 6	ROOM 3 - Ariane 1 Session 7	ROOM 4 - Ariane 2 Session 8
	AIRCRAFT DESIGN - NEW METHODS AND TOOLS Richard WAHLS - NASA	ENERGY AND PROPULSION - OVERVIEW Todd SPIERLING - Collins	ENERGY AND PROPULSION - HYDROGEN Sebastien DUBOIS - Clean Aviation	ENVIRONMENT : CONTRAILS Bruno STOUFFLET - AAE
Chair	127 Conceptual Aircraft Design and AI: Developing a functional relationship for the rapid realisation of future drone concepts	95 Multidisciplinary design optimization of systems for more sustainable aircraft	13 Optimizing Air Filtration Systems for Hydrogen Fuel Cells in Aviation	135 Blue Condor Hydrogen Contrails Demonstrator
15:10	Mars BURKE - brunel university london	Erich WEHRLE - Collins Aerospace	Forian CHIAPPINI - Mann+Hummel	Fabian BAUER - Airbus Operations SAS
80	Reducing the risk associated with certification of new technologies through safety-informed scenarios for aircraft design validation	43 Multidisciplinary Optimization approach to the conceptual design of Hydrogen-Electric aircraft	32 A numerical design tool for liquid hydrogen tank operation strategies	97 The validity of Schmidt-Appleman criterion for modern turbofan engines: A numerical study
15:30	Vincenzo PETRELLA - Collins Aerospace	Anna Sofia PASSARELLI DONOFRIO - Politecnico di Milano	Eszter DUDÁS - CT Ingénierie	Payapapalli MANAS - TU Delft
103	Reinforcement Learning for Testing Aircraft Handling Qualities under Model Uncertainty	117 Enhancing Systems Engineering Activities through Human-AI Collaboration with Large Language Models	47 LH2 tank wall material permeability: A means of compliance (MoC) approach.	88 First inflight emission and contrail measurements behind turbo-prop engines powered by different fuels during UPLIFT CLIMOART
15:50	Aristeidis ANTONAKIS - ONERA	Jean-Marie GAUTHIER - IRT Saint-Exupéry	Andrej Bernard HORVAT - Pipistrel Vertical Solutions d.o.o.	Stefan KAUFMANN - German Aerospace Center (DLR)

16:10	COFFEE BREAK			
	Session 9	Session 10	Session 11	Session 12
	AIRCRAFT DESIGN - NEW METHODS AND TOOLS	ENERGY AND PROPULSION : Impact of technological breakthrough	ENERGY AND PROPULSION - HYDROGEN/COMBUSTION	NEW INDUSTRY SET UP
Chair	Daniel CUCHET - ATR	Richard WAHLS - NASA	Gary WAY - Rolls-Royce	Pierre FOSSIER - Thales
26	Every Kilogram Counts: A Simplified Model for Estimating Aircraft Emissions Reduction Through Mass Minimization	102 Pragmatic Certifiable LH2 Airliner Configuration towards Efficient Aviation ECO System	93 Towards Hydrogen Combustion-Based Propulsion for Civil Aviation	19 Technical specifications and aircraft-route allocation
16:30	Alejandro TRIGUEROS ALONSO - Collins Aerospace	Raj NANGIA - Nangia	Pierre BONJOLY - Airbus SAS	Paco VIRY - ISAE SUPAERO
145	Contributions of IRT Saint Exupéry to the current challenges related to materials and processes for a cleaner aviation	125 Fire safety for hydrogen aircraft - overall approach and first outcomes	30 The Rolls-Royce Heart Hydrogen Injector for the Pearl 15 Demonstrator Engine	140 A possible path towards decarbonization: the AMBER Project
16:50	Yannick GIRARD - IRT Saint Exupéry	Anais GAY - AIRBUS OPERATIONS	Ruud EGGELS - Rolls-Royce Deutschland Ltd. & Co. KG	Massimo MARTINI - Avio Aero (GE Aerospace)
37	Promoting Circular Economy in Aerospace: Environmental Impact Assessment and Optimization of 3D-Printed CF-PEKK and CF-PEI Components	58 Impact of Physical model-based system security approach breakthrough on environmental safety risks	34 Premixed swirl-stabilized hydrogen/air flame-based turbofan: elements on combustion, combustor, and performance.	118 Gaussian process for Bayesian optimization with mixed hierarchical variables: Application to electric-hybrid aircraft eco-design
17:10	Ghita EL ANBRI - Polytechnique Montreal	Yujie ZHAO - Beihang University	Paul PALLES - UTSI	Paul SAVES - ONERA
162	Data-Driven Design: Leveraging Emissions Insights to Drive Sustainable Innovations in Aircraft and Engine Development	73 Challenges and opportunities for future low impact jet fuels.	48 Hydrogen Direct Burn Combustion – Route to Engine Ground Test Demonstration	129 Advancing LPT Blade Design: Real-Time Integration of Multi-Fidelity CFD, HPC, and AI
17:30	Maxime MEIJERS - Estuaire	Mickael MATRAT - IFPEN	Duncan AUTERSON - Rolls-Royce plc	Francesco BERTINI - AvioAero
130	Sustainability analysis and comparison of thermoplastic and thermoset aircraft component designs	77 Preserving Safety in Electrified Skies: Understanding and Preventing Electrical Arcs in Aviation	142 Hydrogen Combustion Aero Engines – Challenges and Future Trends	67 Subscale Hybridized Turbofan Demonstrator
17:50	Angelos FILIPPATOS - University of Patras	Cyril VAN DE STEEN - Safran Tech	Antonio PESCHIULLI - AvioAero	Florent ROUGIER - Safran Tech
18:10	END OF DAY 1			
19:00	TSAS GALA DINNER			

DAY 2 - WEDNESDAY JANUARY 29

DAY 2 - WEDNESDAY JANUARY 29					
REGISTRATION AND WELCOME COFFEE					
PLENARY ROOM - Cassiopée					
KEYNOTE 4 : Clean Aviation and its progress since 3 year Axel KREIN - Clean Aviation					
ROUND TABLE 2 : Designing aircraft for 100% SAF compatibility and lower non-CO2 emissions Moderator : Astrid SONNEFELD - NESTE Julien MANHES - AIRBUS; Nicolas JEULAND - Safran; Bernard HOFFAIT - TOTAL; Sylvain VERDIER - TOPSOE					
COFFEE BREAK					
ROOM 1 - Cassiopée Session 13		ROOM 2 - Spot Session 14		ROOM 3 - Ariane 1 Session 15	ROOM 4 - Ariane 2 Session 16
AIRCRAFT DESIGN - NEW METHODS AND TOOLS		ENERGY AND PROPULSION - SAF - Uplift-CLIM0ART project		ENERGY AND PROPULSION - HYDROGEN	OPERATIONS
Richard WAHLS - NASA		Laurence LOMBARD - TOTAL		Gary WAY - Rolls-Royce	Diego ALONSO - Airbus
107	Exergy-based aerodynamic analysis methodology for low-fidelity aircraft design	28	The use of proxy fuels in application research to advance SAF adoption	101	76
10:30	Guillaume BOURREAU-TIREL - ISAE Supaéro / AURA AERO	Victor BURGER - Sasol GmbH - Germany		Steam Injection and Recovery in a Hydrogen-powered Auxiliary Propulsion and Power Unit	Integrating Urban Air Mobility into Sustainable Urban Mobility Plans: A Framework and Occupational Profile for Smart Cities
12	Future perspectives of active flutter suppression technologies based on recent flight tests	39	Technical readiness for zero aromatic fuel at aircraft level	15	54
10:50	Balint VANEK - HUN-REN SZTAKI	Fulya KELES - Deutsche Aircraft GmbH		Sara SOPENA - ESEIAAT	Integration of Safety Systems using Model-Based Safety Analysis (MBSA) to Handle Future Sustainable Fuels in Airports
152	Dependability and High Performance Optimization of next generation of Power Drive Systems for Aircraft Applications	65	Ground Emissions of DO-328 Uplift: Synthetic Proxy-PL Fuel and Jet A-1 Comparison	82	119
11:10	Fabio COCCETTI - IRT Saint Exupery	Nina GAISER - German Aerospace Center		Hydrogen-Powered Integrated Power and Propulsion System (IPPS) Architecture for Sustainable Aviation: Leveraging Synergies between Gas Turbine and Solid Oxide Fuel Cells	Learnings on shaping a green airport trough real life testing @ brussels airport withing STARGATE
				Diana SAN BENITO PASTOR - Safran SA.	Pieter LEONARD - Brussels airport company
10' INTERSESSION					
Session 17		Session 18		Session 19	
ENERGY AND PROPULSION - HYBRID		ENERGY AND PROPULSION - SAF		ENERGY AND PROPULSION - HYDROGEN	
Andrew MURPHY - Pratt & Whitney		Astrid SONNEVELD - NESTE		Gary WAY - Rolls-Royce	
Chair		108		40	24
11:40	System Integration Challenges For Hybrid Electric Aircrafts	Synthesized Aromatic Kerosene (SAK) – SAF Product Diversification		Low-Threshold Hydrogen Propulsion – Outcomes of the APPU Project	Noise Exposure Analysis of the New Hybrid-Electric Aircraft Design within the Airport and Fleet Scenario
	Zubair BAIG - Pratt & Whitney	Edgar STEENWINKEL - Virent		Alexander HEIDEBRECHT - TU Delft	Oleksandr ZAPOROZHETS - Sieć Badawcza Łukasiewicz – Instytut Lotnictwa
59	Driving sustainable aviation: the role and progress of the Center for Hybrid Electric Systems Corbus (chesco) in research, technology transfer and education	155	An Airline Prediction Tool for Uptake of Sustainable Aviation Fuel (SAF)	89	53
12:00	Frank ARNOLD - BTU Cottbus-Senftenberg	Richard CURRAN - City, University of London		A novel heat exchange system for fuel cell powered aircraft: trade off study on wing and nacelle integrated concepts	Analysis of noise optimal approach procedures with on-site statistical meteorological effects
45	Permanent Magnet Machines for Hybrid-Electric and Electrically Assisted Propulsion Systems	141	The 100% SAF industry imperative: How GE Aerospace is helping advance alternative aviation fuels.	Grzegorz KRUCZEK - Collins Aerospace	Evangelia Maria THOMA - Chalmers
12:20	Tadashi SAWATA - Collins Aerospace	Sara ROCCI DENIS - GE Aerospace Advanced Technology		55	74
				Lightweight Design Strategies for LT PEM Fuel Cell Systems targeting Avionics Applications	Reducing aviation noise around airports : What if landing gear played a key role ?
				Thomas SCHUBERT - AVL List GmbH	Delphine ROBERT - AIRBUS Operations SAS
LUNCH BREAK					
12:40					



DAY 2 - WEDNESDAY JANUARY 29

PLENARY ROOM - Cassiopée

ROUND TABLE 3 : Ground operation decarbonation | Moderator : Diego ALONSO - Airbus
KLM : Jeroen JAARSTVELD - Project Manager Aircraft Ground Movements
Amsterdam Airport : Mitchell UIT DEN BOOGAARD - AMS Senior Process Developer Airside
Frédéric VAN OOST - Sales and Operations Director - EMEA Smart Airport Systems

10' INTERSESSION

ROOM 1 - Cassiopée		ROOM 2 - Spot		ROOM 3 - Ariane 1		ROOM 4 - Ariane 2	
Session 21		Session 22		Session 23		Session 24	
ENERGY AND PROPULSION - ELECTRICAL		ENERGY AND PROPULSION - SAF		ENERGY AND PROPULSION - HYDROGEN		OPERATIONS - ATM	
Laurent HARTENSTEIN - Liebherr Aerospace		Laurence LOMBARD - TOTAL		Gary WAY - Rolls-Royce		Ovidiu DUMITRACHE - Eurocontrol	
Chair	86	124	31	83	159	160	
15:10	Physics-Based Framework for Sizing and Pre-Designing Electric Aircraft Systems with Multiple Power Sources	BioJet project – The first-of-a-kind industrial e-BL plant	Preliminary sizing of hydrogen-powered jet aircraft considering fuselage cross-section variations	ATMLab: an Air Traffic Simulator for evaluating operations' climate impact	Antoine JOULLIA - ONERA	AI for Green Aviation Operations: towards operative contrails mitigation	
	Jonas VERRIERE - Gamma Technologies	Freddy DURAN MARTINEZ - ELYSE ENERGY	Gabriele SIRTORI - Politecnico di Milano			David DI GIUSTO - THALES	
15:30	Cryogenic and Superconductivity development for Future Electric Aircraft Propulsion	Life Cycle and Cost Analysis of Synthetic Kerosene in Aviation	Transient in operations: from jet-fuel to hydrogen-powered aircraft	105	106		
	Ludovic YBANEZ - Airbus UpNext	Avind GANGOLI RAO - Delft University of Technology	Gabriele SIRTORI - Politecnico di Milano				
15:50	Charging the Future: Fast-Charging Networks at Swiss Airfields to Promote Electric General Aviation	A Roadmap for Uptake of Sustainable Aviation Fuel (SAF) in India	Will hydrogen aircraft be heavier than conventional kerosene aircraft?				
	Michael STIEBE - Lucerne University of Applied Sciences and Arts	Richard CURRAN - City, University of London	Jean-Marc MOSCHETTA - ISAE-SUPAERO				
16:10							

COFFEE BREAK

Session 25		Session 26		Session 27		Session 28	
ENERGY AND PROPULSION - ELECTRICAL		SUSTAINABLE AERODYNAMICS - WING		ENERGY AND PROPULSION - HYDROGEN		OPERATIONS	
Jean Michel FREY - Liebherr Aerospace Toulouse		Richard CURRAN - City, University of London		Prof. Avind GANGOLI RAO - TU Delft		Ovidiu DUMITRACHE - Eurocontrol	
Chair	86	92	136	69	106	4	
16:30	Li-Ion Battery Thermal Runaway and Containment Modelling	eXtra performance WING demonstrator	A side-by-side comparison of the aerodynamic performances of kerosene and hydrogen aircraft	Statistical Analysis of Business Jet Operations using ADS-B Flight Data	Impacts of Rising High-Temperature Extremes on Aircraft Performance and Emissions at TakeOff in the Euro-Mediterranean Region	Sustainable Taxing with the TaxiBot: An update and some real-life experiences with aircraft taxiing solution without aircraft engines running.	
	Hariharan KALLATH - Collins Aerospace	Adrien BERARD - Airbus Upnext	Cedric LEROY - ISAE SUPAERO	Nathan LOUVEL - Université de Sherbrooke	Victoria GALLARDO - University of Murcia - CECI, Cerfacs/CNRS	Frédéric VAN OOST - Smart Airport Systems	
16:50	Installation of solar cells on a standard aircraft	Aerodynamic design of a high aspect ratio strut-braced wing based on an MDO strategy	Informing decarbonization pathway calculations with hydrogen-enabled engine opportunities			Reducing aircraft carbon footprint on the ground	
	Renata BRANDELLI SCHAAN - Capgemini	Diego LOSADA COSTOSO - ONERA	Neil TERWILLIGER - Pratt and Whitney			Jean-Philippe BEAUJARD - FlightWatching	
17:10	Design Of a High efficiency 300 kw Interleaved Boost Converter For an eVTOL Aircraft	Multidisciplinary Optimization of Strut-Braced Wings with Distributed Electric Propulsion for Local Air Quality and Noise Improvements	Sizing a fuel cell-based propulsion system: an MDAO-driven approach	4	98		
	Youssef HENNANE - Capgemini Engineering	Rauno CAVALLARO - Universidad Carlos III de Madrid	Roberto DI GIUSEPPE - Safran Tech				
17:30	Towards Higher Voltage Levels in Electric Machines for Aviation	The effect of proturbance structures on the aerodynamic performance of an aerofoil	Small-Scale Experimental Learnings for Future Hydrogen Aviation: the BEAUTHYFUEL Project				
	Torstein AAKRE - SINTEF Energi AS	Samuel JENNINGS - Evri	Adrien CAHUZAC - Safran				
17:50	Superconducting CPD cables for high electric power transmission in all-electric aircrafts	Low-Speed Lift-Enhancement of Nonplanar Wing Sections UCAV Model	Aircraft electrical propulsion system powered by solid oxide fuel cell thermodynamically integrated into gas turbine	64			
	Haifa BEEN SAAD - Boreal Conductors Inc.	Hassan ALEISA - University of Glasgow	Jean-Michel ROGERO - AIRBUS SAS				
18:10							

END OF DAY 2

CLOSING COCKTAIL - TSAS BEST PAPER AWARDS

18:20

DAY 3 - THURSDAY JANUARY 30

DAY 3 - THURSDAY JANUARY 30							
REGISTRATION AND WELCOME COFFEE							
PLENARY ROOM - Cassiopée							
KEYNOTE 5 : Advanced technologies executive manager for Avio Aero, a GE Aerospace business Luca BEDON - Avio Aero							
ROUND TABLE 4 : Engine architecture Moderator : Franck HASELBACH Dr. Dale VAN ZANTE- Advanced Air Transport Technology (AATT); Uwe MINKUS - Rolls Royce; Enrico CASALE - Avio Aero; Andrew MURPHY - Pratt & Whitney; Dr. Fayette S. COLLIER - NASA; Vanessa LE ROUSSEAU - Safran							
COFFEE BREAK							
ROOM 1 - Cassiopée Session 29 SYSTEM		ROOM 2 - Spot Session 30 GAS TURBINE		ROOM 3 - Ariane 1 Session 31 ENERGY AND PROPULSION - SAF		ROOM 4 - Ariane 2 Session 32 ENVIRONMENT	
Richard CURRAN - City, University of London		Andrew MURPHY - Pratt & Whitney		Astid SONNEVELD - NESTE		Bruno STOUFFLET - AAE	
25 Efficient Phase-Change Fluid Model Applied to a Skin Heat Exchanger 3D Steady Thermal Simulation Jose Maria CHAQUET - ITP Aero	22 HEAVEN – Delivering a step change in efficiency and an optimum propulsion architecture for SMR aircraft Craig BEMMENT - Rolls-Royce	8 Development of Sustainable Aviation Fuel (SAF) using Predictive Simulation and Performance Characterization (Environmental, Economic, and Technical) Renata BRANDELLI SCHAAN - Capgemini Engineering	44 Analysis of pollutant dispersion of a DHEP and LARW aircraft design using high-fidelity simulations Swapnil SINGH - Barcelona Supercomputing Center				
139 Cabin energy recovery for a commercial aircraft, challenges and solutions Frederic SANCHEZ - Liebherr Aerospace	121 Advanced RQL Combustion Tim SNYDER - Pratt & Whitney	21 The Path to Greener Skies: Analysing SAF electricity and biomass needs in the EU27 from 2030 to 2050 Laurent TABERNIER - EUROCONTROL	109 CICONIA: Cracking the non-CO2 conundrum Philippe MASSON - AIRBUS				
116 Plasma flow control inside the S-duct. Konstantinos KONTIS - University of Glasgow	143 Development of Innovative Endwall Ridging Technology for Reducing Secondary Losses in Next-Generation LPTs for Aeronautical Applications Francesco BERTINI - AvioAero						
10' INTERSESSION							
PLENARY ROOM - Cassiopée							
KEYNOTE 6 : Safran propulsion strategy and roadmap for future sustainable aviation Vanessa LE ROUSSEAU - Safran							
TSAS 2025 - Conclusion							
LUNCH BREAK							
TECHNICAL VISITS							
END OF CONFERENCE							

PARTNERS AND EXHIBITORS



The Clean Aviation Joint Undertaking is the European Union's leading research and innovation programme for transforming aviation towards a sustainable and climate neutral future.

Pulling together the best talent and capabilities of the private and public sectors and developing cutting-edge technologies, and making these available for a transformational leap in aircraft performance in the 2030s, the new Clean Aviation Joint Undertaking will pave the way towards the EU's ambition of climate neutrality by 2050.

Operating at the centre of a broad and diverse eco-system of players across Europe ranging from the aeronautical community, pioneering SMEs, research establishments and academia, it acts as a hub for new ideas and bold innovations.

As a European public-private partnership, Clean Aviation pushes aeronautical science beyond the limits of imagination by creating new technologies that will significantly reduce aviation's impact on the planet, enabling future generations to enjoy the social and economic benefits of air travel far into the future.

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For more information, please visit: www.clean-aviation.eu

Twitter: https://twitter.com/clean_aviation

LinkedIn: www.linkedin.com/company/clean-aviation-joint-undertaking/

Youtube: https://www.youtube.com/channel/UCncJvnJeRcPYm_OjIQYmiig/videos



a GE Aerospace company

Avio Aero - a GE Aerospace company - operates in the design, manufacture and maintenance of civil and military aeronautics subsystems and systems. With more than 5,700 employees, Avio Aero has the ability to be present throughout all stages of the product lifecycle, from product design & development through the production and aftermarket services. The company offers innovative technological solutions which allows our customers to respond to the continuous changes in the market, such as technologies, including additive manufacturing, for the production & services of aeroengine mechanical transmissions, turbines, combustors and propulsion systems for both fixed wing and rotorcraft applications. The company's headquarters and largest production facility are located in Rivalta di Torino (TO), as well as further plants in Borgaretto (TO), Brindisi (BR), Cameri (NO), Pomigliano d'Arco (NA), Sangone (TO), Prague (Czech Republic) and Bielsko-Biala (Poland).

- Avio Aero's challenge is to develop new technologies and applications to reduce fuel consumption & CO2 emissions, produce lighter aircraft, and achieve better performance

- Through ongoing investments in research and development (R&D), and thanks

PARTNERS AND EXHIBITORS



Rolls-Royce develops and delivers complex power and propulsion solutions for safety-critical applications in the air, at sea and on land. Our products and service packages enable our customers to connect people, societies, cultures and economies together; they meet the growing need for power generation across multiple industries; and enable governments to equip their armed forces with the power to protect.

Rolls-Royce has a presence in 48 countries and customers in more than 150, comprising over 250 commercial large aero engine customers, 160 armed forces and navies and approximately 40,000 active Power Systems customers. We are committed to becoming a net zero company by 2050 and we support our customers to do the same.

Annual underlying revenue was £15.4bn in 2023, underlying operating profit was £1.6bn and free cash flow £1.3bn.

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For more information, please visit: www.rolls-royce.com



Safran is an international high-technology group, operating in the aviation (propulsion, equipment and interiors), defense and space markets. Its core purpose is to contribute to a safer, more sustainable world, where air transport is more environmentally friendly, comfortable and accessible.

Safran has a global presence, with 92 000 employees and sales of 23.2 billion euros in 2023, and holds, alone or in partnership, world or regional leadership positions in its core markets. Safran undertakes research and development programs to maintain the environmental priorities of its R&T and Innovation roadmap.

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TECHNICAL VISITS

PROGRAMMED ON THURSDAY 30 JANUARY, AFTERNOON.

Pre-registration online is mandatory.

Roundtrip bus transfer from Pierre Baudis Congress Center. Departure at 14:00 precise

Stops at Toulouse airport and train station can be scheduled on the way back, please inform us by email tsas2025@3af.fr



TECHNICAL VISIT #1: LIEBHERR-AEROSPACE

Liebherr-Aerospace Toulouse SAS - 17 rue Gustave Eiffel, 31140 AUCAMVILLE

Liebherr-Aerospace Toulouse develops, manufactures, distributes and services air management systems for aircraft. The company employs 1.500 people at its two sites in Toulouse and Campsas (Tarn-et-Garonne) and achieved a turnover of € 457 million in 2021. Liebherr-Aerospace Toulouse SAS is a subsidiary of the aerospace and transportation systems divisional control company of the Liebherr Group.

The company is a major actor in decarbonated aircraft. To illustrate this, Liebherr-Aerospace Toulouse invites you to the visit of their Integrated Systems and Equipment Test center on its Toulouse site.

This test center is located in a 9000 m² building fully dedicated to development tests for Electrical and power management Systems & Equipments, offering unique testing capabilities in Europe, in terms of integration, electrical and thermal management, as well as acoustics and vibration domains.

The focus of the visit will be on the test cells supporting more electrical A/C, with full scale HW, integration, and controls : Fuel Cell 'Main Electrical Power System' development, and integration test rig, a full scale rig with aerospace grade Hydrogen Fuel Cell (developed in cooperation with General Motors), coupled with Electrical and Thermal Load Management 'GETI' (developed with Cleansky, in cooperation with Thales), Full scale rig, representative of static and transient integrated thermal and electrical behaviour of the majors loads on a single Aisle.

TECHNICAL VISIT #2: AIRBUS - VISIT OF THE "ROGER BÉTEILLE" A350 FINAL ASSEMBLY LINE

Airbus

SAFRAN INVENTS THE FUTURE OF AEROSPACE

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