Tuesday 8 October 2019 • PROGRAMME

Plenary programme 08:45 – 12:00 • PARALLEL TECHNICAL SESSIONS 13:00 – 17:00 • Poster sessions 17:00 – 18:00

12:00 — LUNCH

	SESSION A/ROOM C1	SESSION B/ROOM C3	SESSION C/ROOM C4	SESSION D/ROOM 21	SESSION E/ROOM 23	SESSION F/ROOM 24	SESSION G/ROOM 25	SESSION H/ROOM 34	SESSION I/ROOM 35	SESSION J/ROOM 36	SESSION K/ROOM 27	SESSION L/ROOM 26
13:00	Major cooperative projects	Environmentally friendly technology	Structures	Materials	Processes	Aircraft and spacecraft system analysis	Aircraft and spacecraft system analysis	Structures, materials and processes	Sub-system and system analysis	Sub-system and system analysis	Engines	Aircraft and spacecraft technology
	Synergies between aeronautics and space		*Structures Loads*	*Materials Additive Manufacturing*	*Process Automation*			*Composites*				*Experimental*
	CHAIR: *Anders Blom*	CHAIR: *Bengt Moberg*	CHAIR: *Oscar Wallentin*	CHAIR: *Vijay Sharan*	CHAIR: *Tomas Ireman*	CHAIR: *Håkan Seipel*	CHAIR: *Björn Jonsson*	CHAIR: *Hannes Wemming*	CHAIR: *Emil Vinterhav*	CHAIR: *Odd Romell*	CHAIR: *Lasse Karlsen*	CHAIR: *Mats-Olof Olsson*
	A1 Possible synergies between Aeronautics and Aerospace. *Ch. Fuglesang, former astronaut and present consultant to Saab Brazilian views on these synergies. E. Vilani, ITA*	**B1** Split system dilemma – growth and noise in aviation. *I. Runebjörk, KTH*	**C1** Wind Tunnel Test with Pressure Sensitive Paint (PSP) in the aircraft structural load definition. *O. Wallentin, Saab AB*	**D1** Heat affected zone cracking in different heat treated conditions of selective laser melted Alloy 718 subjected to gas tungsten arc welding. *T. Raza, HV*	**E1** Automated Sealing of Airframes. *J. Birberg, Saab AB*	**F1** Establishing interoperability in aircraft system simulator development. *R. Hällqvist, Saab AB*	**G1** A Requirements Engineering-based Approach for Defining a System Modification Process during Aircraft Operation. *W. Resende, ITA*	**H1** Post-Buckling analysis in thin-web laminated composite beams. *B. Luiza Nolli, Federal University of Minas Gerais*	**I1** Space Environment Qualification as a Service – Commencing a new era of the New Space Industry. *E. Vinterhav, PASQ AB*	**J1** Developing Predictable Time-Sensitive Distributed Avionics Systems. *M. Ashjaei, Mälardalen University*	**K1** Heat Transfer Measurements with Methane in Rocket Nozzle Cooling Channels. *J. Fridh, KTH*	**L1** Studies of a Pitch-Moment CHUTE for the GRIPEN 39 E/F. *K. Fersan, Saab AB*
	A2+A3 Panel discussion on synergies between aeronautics and astronautics. Aspects from large industries, SME:s, Universities and the Armed Forces. Panel: *H. Runnemalm, GKN; O. saksson, Chalmers; A. Öhrwall Rönnbäck, LTU; M-L Antti, LTU; T. Gröstedt, SARC; G. Berlemo, ACS and others*	**B2** Global Watch Center – monitoring Earth's health for the benefit of all. *T. Roos, SSC*	**C2** Active and passive Load alleviation design possibilities and considerations on a fighter A/C. *B. Mexnell, Saab AB*	**D2** Microstructural characterization of chessboard pattern in selective laser melted Ti-6Al-4V. *M. Neikter, LTU*	**E2** Data based automated manufacturing control of fabricated components. *H. Hultman, GKN/Chalmers*	**F2** Towards a Complete Co-Simulation Model Integration Including HMI Aspects. *J. Schminder*	**G2** Modeling and identification of a UAV with a flexible wing. *L. C. Góes, ITA*	**H2** Failure induced by instability in structural composites under longitudinal compression. *A. Faria, ITA*	**I2** GPS denied navigation for airborne vehicles. *F. Andersson, ITA*	**J2** Experiences from Applying an Ontology in Hazard Analysis of Autonomous System of Systems. *M. Adach, Mälardalen University*	**K2** Intentional mistuning effects on the forced response of a compressor blisk. *Gutierrez Salas, KTH*	**L2** Transonic Flutter for a Generic Fighter Configuration, the KTH-NASA Wind-Tunnel Model. *A. Bååthe, Saab AB*
		B3 Automation for Separation with CDOs: Dynamic Aircraft Arrival Routes. *V. Polishchuk, LiU*	**C3** Load registration system on the multi-roll A/C Gripen – in the past, now and future possibilities. *L. Östling, Saab AB*	**D3** Heat Treatment of AM parts by Hot Isostatic Pressing. *J. Shipley, Quintus AB*	**E3** Airframe sealing automation using Snake-robot. *L. Gonzaga, Trabasso, ITA*	**F3** Assessment of Pilot-Aircraft Interface as a Conceptual Design Tool. *E. Villani, ITA*	**G3** Reexamining linear causal inferences using safety and reliability metrics. *M. Stogsdill, KTH*	**H3** Factors affecting static failure of bolted joints in hybrid composite-aluminium aircraft structure. *H. Wemming, Saab AB*	**I3** Detection of Camouflaged Vehicles for VHF-band SAR Based on Regression Models. *R. Machado, ITA*	**J3** Assurance Strategy for New Computing Platforms in Safety-Critical Avionics. *H. Forsberg, Mälardalen University*	**K3** Experimental aero- and thermal investigation for a next generation engine exit module. *I. Jonsson, Chalmers*	**L3** Numerical and experimental investigations of laminar-turbulent transition over an airfoil. *P. Morra, KTH/Linné FLOW Centre*

14:30 — COFFEE BREAK

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15:00	Major cooperative projects	Environmentally friendly technology	Structures	Materials	Processes	Operational availability maintenance and support	Aircraft and spacecraft system analysis	Aircraft and spacecraft system analysis	Sub-system and system analysis	Sub-system and system analysis	Aircraft and spacecraft technology	Aircraft and spacecraft technology
			Structural Testing	*Materials Composites*	*Manufactoring*							
	CHAIR: *Anders Blom*	CHAIR: *Dan Henningson*	CHAIR: *Zlatan Kapidzic*	CHAIR: *Tomas Ireman*	CHAIR: *Per Hallander*	CHAIR: *Olle Bååthe*	CHAIR: *Roger Larsson*	CHAIR: *Håkan Seipel*	CHAIR: *Odd Romell*	CHAIR: *Louise Fischer*	CHAIR: *Anders Gustafsson*	CHAIR: *Mats-Olof Olsson*
	A4 T-X, Saab and Boeing cooperation on the new Advanced Pilot Training System. *T. Karlsson, Saab AB*	**B4** Aerodynamic Performance of Natural Laminar Flow Airfoils Applied to Low- and High-Speed Wings. *Ramon Lopez Pereira, Uni. Europea de Madrid*	**C4** Verification and validation of calculated structural loads with flight test. *M. Wallin, Saab AB*	**D4** A comparative study on aging of high temperature polymer composites reinforced by carbon fibre thin-plies and satin weaves. *P. Fernberg, LTU*	**E4** Modelling of pore formation and retention in additive manufacturing of Ti-6Al-4V. *A. Lundbäck, LTU*	**F4** Phase out maintenance optimization. *O. Wijk, Systecon AB*	**G4** Equations of State in Modelling Fighter Aircraft Oleo-Pneumatic Shock Absorber. *A. Heininen, Tampere University*	**H4** Multi-Agent Multi-Objective Deep Reinforcement Learning for Efficient and Effective Pilot Training. *J. Källström, Saab AB/LiU*	**I4** Operator tracking for fighter pilots: review of sensing technologies for flexible cockpit automation. *M. Bång, LiU*	**J4** Triple Modular Redundancy based on Runtime Reconfiguration and Formal Models of Computation. *R. Bonna, UNICAMP*	**K4** NFFP7 - Industrialization of CFD methods for improved predictions of complex aeronautical flows. *S. Arvidson, Saab AB/Chalmers*	**L4** Passive and Active Countermeasure Aerodynamics. *M. Tormalm, FOI*
	A5 Swedish-Brazilian Cooperation in Aeronautics in Santa Catarina State, Brazil. *V. J. De Negri, Federal University of Santa Catarina*	**B5** Transition in a swept-boundary layer subject to surface roughness and free-stream turbulence. *L. De Vincentiis, KTH*	**C5** Structural component testing of Gripen E/F. *M. Ekström, Saab AB*	**D5** Development of Three-dimensionally Heat Conducting Carbon Composites. *N. Khokar, Fureho AB*	**E5** Experimental validation of a Phased Array Model applied in Ultrasonic Inspection of AM Parts. *X. Lei, Chalmers*	**F5** Mathematical optimization of a tactical resource allocation problem for efficient capacity utilization of machining resources in aerospace component manufacturing. *S. Fotedar, Chalmers*	**G5** Design and Integration of a Low Observable Engine Intake and Outlet for the MULDICON Platform. *H. Edefur, FOI*	**H5** Loss of Control in Flight: the accident characterized under quantitative and operational optics. *J. Bidinotto, University of São Paulo*	**I5** Initial Flight Simulation Testing of a Gesture-based interface for flight controls. *E. Villani, ITA*	**J5** Lempel–Ziv–Markov Chain Algorithm Modeling using Models of Computation and ForSyDe. *R. Bonna, UNICAMP*	**K5** CFD as a tool for verification of intake/engine compatibility. *T. Kekesi, Saab AB*	**L5** Modeling, Simulation and Control of an aircraft with morphing wing. *C. E. de Souza, Universidade Federal de Santa Maria*
	A6 Airborne Advanced Vision and Awareness functions developed and demonstrated in the framework of Clean Sky 2. *A. Peattie, Saab AB*	**B6** High-Fidelity simulations of the Unsteady Response of a Natural Laminar Flow Airfoil. *P. Negri, KTH*	**C6** Full Scale Structural testing of Gripen E/F. *C. Altkvist & M. Ekström Saab AB*	**D6** Reliable strength assessments of aero-engine components made from textile composites. *L. E. Asp, Chalmers*	**E6** Additive manufacture at industrial, aeronautical and defence area: How to control the production of a good and some questions related copyright, intellectual property. *J. Pascual, Saveln Process©*	**F6** Fault detection and isolation based on bond graph models: application to an electromechanical actuator. *G. dos Santos Sobral, ITA*	**G6** Flying TeD, a flying technology demonstrator for the future! *R. Larsson, Saab AB*	**H6** HUMAER: A Test-Bed Environment for Human Factors Investigations in the Aeronautic Domain. *O. Wesley Rodrigues, ITA*	**I6** A Human Factors Approach to Self-Explanatory Automation for Fighter Aircraft. *J. Bergsten, Saab AB*	**J6** Considerations on Domain-Specific Architectures Applicability in Future Avionics Systems. *D. Loubach, ITA*	**K6** Turbulence control on a NACA4412 wing section assessed through high-fidelity simulations. *F. Mallor, Linné FLOW Centre/KTH*	**L6** Method for the Implementation of Industry 4.0: Aircraft final assembly domain. *A. Leite Junior, ITA*
	A7 Enabling Remotely Piloted Aircraft System (RPAS) Traffic Insertion by Automatic Contingency and Emergency Management in case of Command and Control Data Link Loss. *T. Erlandsson, Saab AB*	**B7** Computational Aerodynamics and Aero-acoustics of Highly-Heated Rectangular Supersonic Jets. *M. Mihaescu, Linné FLOW Centre*	**C7** Bird Strike Testing of the Saab JAS 39 Gripen E. *P. Årebo, Saab AB/Etteplan*		**E7** Radical Innovation and Qualification using Additive Manufacturing in Space Applications. *C. Dordlofva, LTU*	**F7** Model-based Sensor Fault Detection and Reconfiguration in an Autonomous Solar-powered Aircraft. *P. Padrao, Federal University of Rio de Janeiro*	**G7** An open-source application for subscale flight test analytics and system identification. *A. Sobron, LiU*	**H7** Operational Risk: Implementing Open Norms. *P. Ulfvengren, KTH*	**I7** Human decision-making model for a single pilot operation. *L. Gonzaga Trabasso, ITA*		**K7** Unsteady aerodynamics modeling and simulation of a forward-swept-wing sailplane. *C. E. de Souza, Universidade Federal de Santa Maria*	**L7** Detailed Analysis of Separated Flow in Space Nozzles During Startup. *N. Andersson, Chalmers*

Poster sessions 17:00 – 18:00 | Reception 18.30 | Congress Dinner 19.00

Wednesday 9 October 2019 • PROGRAMME
PARALLEL TECHNICAL SESSIONS 08:30 – 12:00 • Plenary programme 13:00 – 16:30

	SESSION A/ROOM C1	SESSION B/ROOM C3	SESSION C/ROOM C4	SESSION D/ROOM 21	SESSION E/ROOM 23	SESSION F/ROOM 24	SESSION G/ROOM 25	SESSION H/ROOM 35	SESSION I/ROOM 36		SESSION K/ROOM 27	SESSION L/ROOM 26
08:30	Major cooperative projects	Environmentally friendly technology	Structures	Materials	Processes	Aircraft and spacecraft system analysis	Aircraft and spacecraft system analysis	Major cooperative projects	Sub-system and system analysis		Engines	Operational availability, maintenance and support
			Structural Dynamics	Materials Additive Materials, Welding and Forming	Processes, Welding and Machining		System of Systems	Composites			Design	Decision support, Maintenance and operations
	CHAIR: Robert Lundberg	CHAIR: Bengt Moberg	CHAIR: Lasse Karlsen	CHAIR: Vijay Sharan	CHAIR: Linnea Selegård	CHAIR: Christina Ahremark	CHAIR: Christopher Jouannet	CHAIR: Anders Blom	CHAIR: Odd Romell		CHAIR: Svjetlana Stekovic	CHAIR: Olov Candell
	A8| Invited keynote lecture. *Simon Weeks, ATI, UK, Technology for a sustainable future for aerospace*	**B8|** Small Aircraft Revolution. *N. Anderberg & K. Sillén-Blackwing Sweden AB*	**C8|** FE-model update concerning dynamic properties after GVT of a Gripen E test aircraft. *E. Holmberg, Saab AB*	**D8|** Modeling and Simulation of Heat-Affected Zone Liquation Cracking in Alloy 718. *J. Draxler, LTU*	**E8|** The challenges of finite element crack growth models for adhesive joints to make reliable and useful risk assessment in aircraft structures. *M. Kanerva, Tampere University*	**F8|** Single Model for Subsonic, Transonic and Supersonic Aero-dynamics for Flight Simulation. *P. Krus, LiU*	**G8|** Ontological Approach to System of Systems Engineering in Product Developmen. *L. Franzén, LiU*	**H8|** A testbed for space system testing in northern Sweden. *O. Norberg, LTU*	**I8|** A discrete optimisation approach to scheduling of an integrated modular avionic system. *E. Karlsson, LiU/Saab AB*		**K8|** Design for Fabrication of Turbofan Engine Structures. *J. Madrid, Chalmers*	**L8|** Prescriptive Maintenance: Building Alternative Plans for Smart Operations. *H. Marques, ITA*
	A9| GKN Aerospace involvement the Clean Sky-2 engine demonstrators. *F. Wallin, GKN*	**B9|** Flight Tests of Fuel Saving Formation Flight in General Aviation. *T. Melin, Svenska Flygtekniska Institutet*	**C9|** Modal analysis of a bi-dimensional tensegrity structure subject to large deformations. *P. Kurka, UNICAMP*	**D9|** Weld-Cracking in a Cast Ni-based Superalloy. *S. Singh, Chalmers*	**E9|** Machining distortion analysis of aerospace components using the Contour method. *M. Werke, RISE IVF*	**F9|** Zero Gravity on Parabolic Flights in Sweden. *S. Veldman, V-kvadrat AB*	**G9|** System-of-System Engineering, Overview of research activities within the NFFP cluster Overall Design and System Integration. *C. Jouannet, Saab AB*	**H9|** Academia and Industry Collaboration as a Driver for Competitiveness: the Case of the Graduate School of Space Technology. *M-L. Antti, LTU*	**I9|** Additive Manufacturing in Airborne Sensor System. *M. Blennius, Saab AB*		**K9|** Virtual demonstrator platform for future propulsion technology. *T. Grönstedt,Chalmers*	**L9|** Enterprise Modeling for Dynamic Matching of Tactical Needs and Aircraft Maintenance Capabilities. *E. Olsson, Saab AB*
	A10| Future fighter engine requirements and technologies. *R. Avellán, GKN*	**B10|** Design of Electric Propelled Aircraft. *E. Bauzer Medeiros, Centro de Estudos Aeronauticos UFMG*	**C10|** Ground Vibration Testing of the Gripen E Fighter Aircraft. *P. Gustafsson, Saab AB*	**D10|** Formability of Titanium Ti-6Al-4V sheets at low temperature. *S. Olsson, Quintus AB*	**E10|** Weld cracking of nickel based superalloys for hot structural aero engine components – development of a testing method to investigate strain age cracking. *F. Hanning, Chalmers*	**F10|** Tactical trajectories generation using UAVs for the terrestrial displacement of mobile robots. *B. Coelho, Universidade Federal de São João del-Rei*	**G10|** Towards a Multi-Level, Multi-Disciplinary, and Multi-Fidelity Framework for Evaluating the System of Systems, Constituent Systems, and Sub-Systems Design Spaces during the Conceptual Development of Aerial Vehicles. *A. Papageorgiou, LiU*	**H10|** Towards a future design of Swedish national airspace: a review of the current airspace limitations. *M. Wall, LFV*	**I10|** Fibre Optic Acquisition Systems based on Fibre Bragg Gratings (FBG) – Applied to Over-heat detection for Commercial Aircraft. *A. Gustafsson, Saab AB*		**K10|** Higher fidelity CFD of compressor duct bleed system. *E. Siggeirsson, Chalmers*	**L10|** Air vehicle Digital Twins – enabling interaction between physical and virtual spaces. *O. Candell, Saab AB*

| **10:00** | **COFFEE BREAK** | | | | | | | | | | | |

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10:30	Major cooperative projects	Environmentally friendly technology	Structures	Materials	Processes	Aircraft and spacecraft system analysis	Aircraft and spacecraft system analysis		Sub-system and system analysis	Sub-system and system analysis	Engines	
			Structural Testing	Materials Composites	Manufacturing							
	CHAIR: Petter Krus	CHAIR: Mats Åbom	CHAIR: Christina Altkvist	CHAIR: Tomas Ireman	CHAIR: Linnea Selegård	CHAIR: Christina Ahremark	CHAIR: Emil Vinterhav		CHAIR: A. Dell'Amico	CHAIR: Louise Fischer	CHAIR: Robert Lundberg	
	A11| Analysis of the Impact of the Conclusion of the Collaborative Professional Master's program on Embraer and ITA. *P. Lourencao, Embraer*	**B11|** Assessment Of A Simplified Environmental Model For Aircraft Noise Prediction. *I. Karasalo, KTH*	**C11|** Fatigue crack growth and failure in components made of AA2050 and AA7050 alloys. *Z. Kapidzic, Saab AB*	**D11|** Multi-layered Thermal Barrier Coatings processed by Suspension Plasma Spraying. *P. Nylen, University West*	**E11|** Curing Simulation and Validation of High Temperature Composite L-Profiles using Incremental Viscoelastic Models. *S. Saseendran, RISE SICOMP AB*	**F11|** A MDO process applied to conceptual design of a remotely piloted aircraft. *C. E. de Souza, Federal University of Santa Maria*	**G11|** Algebraic Modeling of Continuous Time Systems. *J. E. G. de Medeiros, University of Brasília*		**I11|** Challenges on the development of a digital hydraulic actuator for primary flight control surfaces. *V. J. De Negri, Federal University of Santa Catarina*	**J11|** Applying Constraint Programming for Design Space Exploration in Avionics. *R. Jordao, KTH*	**K11|** Experimental aerodynamic investigation of powered nacelles for high bypass turbofan engines. *V. Tavares Silva, Chalmers*	
	A12| ULTIMATE – a Chalmers led European effort for ultra-efficient propulsion. *T. Grönstedt, Chalmers*	**B12|** Understanding Loudness variations due to Landing procedures at Arlanda. *A. Johansson, KTH*	**C12|** Effect of Surface Phenomenon and Defects on Fatigue Life in Electron Beam Melted Ti-6Al-4V. *V. Sandell, LTU*	**D12|** Working on Venus – a Project on Extreme Environment Electronics. *C-M. Zetterling, KTH*	**E12|** Fast forming of aircraft composite parts. *P. Hallander, Saab AB Aeronautics*	**F12|** Using UAS in Future Civil Command and Control Scenarios. *R. Granlund, RISE SICS East*	**G12|** APEX – An ESA-CubeSat enabling new science in the exploration of the Solar system. *E. Vinterhav, V-kvadrat AB*		**I12|** Design and Control of the Digital Hydraulic Actuator for force-controlled flight control actuation. *A. Dell'Amico, Saab AB/LiU*	**J12|** Languages and Tools for Formal Design of Cyber-Physical Systems. *I. Sander, KTH*	**K12|** Development of Design Supports for Functionally Integrated Aero-Engine Structures. *V. Raja, GKN/Chalmers*	
	A13| Meshing and CFD strategies for large scale turboprop WT model integrating morphing high-lift devices. *S. Wallin, KTH*	**B13|** Aircraft noise simulation with the SAFT-program. *U. Tengzelius, CIT*	**C13|** Static failure in components made of AA2050 and AA7050 alloys. *R. Rentmeester, Saab AB*		**E13|** New, sustainable corrosion protection of aircraft grade aluminium. *L. Selegård, Saab AB*	**F13|** Flow control for improved aerodynamic performance of aircraft. *S-H. Peng, FOI*	**G13|** Towards automated design space exploration. *J. R. Müller, Chalmers*		**I13|** Aerospace electric generator specification and selection – opportunities and challenges. *A. Reinap, Lund University*	**J13|** Formal High-Level Model of a Radar Signal Processing System. *G. Ungureanu, KTH*	**K13|** Development of the Next Generation Civil Tiltrotor. *P. Dobszai, Altair Nordics*	

| **12:00** | **LUNCH** | | | | | | | | | | | |

Plenary programme 13:00 – 16:30

AEROSPACE TECHNOLOGY CONGRESS 2019

innovair

SUSTAINABLE AEROSPACE INNOVATION IN A GLOBALISED WORLD