

DRAFT PROGRAM MATRIX

SUNDAY 24 February 2019								
1700 - 1930	Registration opens – Crown Promenade Foyer							
1800 - 1930	Welcome Reception – Crown Promenade Foyer							
MONDAY 25 February 2019								
0700-1730	Registration opens – Crown Promenade Foyer							
0805-1005	Opening Plenary session – Crown Promenade Room 1&2							
0805 – 0815	CONGRESS OPENING ADDRESS Sonja Jenkinson							
0815 – 0850	PLENARY PRESENTATIONS RESEARCH Chief Defence Scientist							
0850 – 0925	ACADEMIA Phil Webb and Inderjit Chopra							
0925 – 1000	INDUSTRY 1 Steve Chisholm and Salim Zaheer (Hybrid Air platform)							
1005- 1030	Morning tea – Crown Promenade Foyer							
1030-1210 (20min presentation inclusive of 5-minute Q&A)	Concurrent session 1							
	AERO 1	AERO 2	AERO 3	AERO 4	HUMS 1	ISSFD 1	ISSFD 2	ISSFD 3
	STRUCTURES AND MATERIALS 1	AERODYNAMICS 1	SIMULATION	AIR OPERATIONS	OPENING AND KEYNOTE 1	ATTITUDE DYNAMICS & CONTROL 1	FORMATION FLYING & SATELLITE CONSTELLATIONS 1	ASTRODYNAMICS 1
	Chair: TBA	Chair: TBA	Chair: TBA	Chair: TBA	Chair: TBA	Chair: TBA	Chair: TBA	Chair: TBA
	Promenade Room 1	Promenade Room 2	Promenade Room 3	M1 & M2	M3 & M4	M6	M7 & M8	M9 & M10
					HUMS2019 Opening Address Joanna Kappas Defence Science and Technology Group			
6 Degree of Freedom Dynamic Demonstrator for Structural Testing Angus Manning Defence Science and Technology Group	A Rapid, Low-Cost Approach for Airplane Aerodynamic Database Development Using CFD and Wind Tunnel Data Niall O'Shea Boeing Aerostructures Australia	A Model-Based Digital Twin Concept for Aircraft System Failure Detection Omar Hazbon Alvarez Universidad Pontificia Bolivariana	Air Force PC-9/A Ageing Aircraft Challenges Grant Lamb Air Training and Aviation Commons Systems Program Office	KEYNOTE PRESENTER Strategic Value and Tactical Challenges of Implementing Prognostics and Health Management (PHM) Systems James Cycon Lockheed Martin Corporation	KEYNOTE PRESENTER Enhancement of the Spacecraft Attitude Dynamics Capabilities via Combination of the Inertial Morphing and Reaction Wheels Pavel Trivailo RMIT University	Accurate Osculating/Mean Orbital Elements Conversions for Spaceborne Formation Flying Gabriella Gaias Politecnico Di Milano		

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	Acoustic meta-materials for absorbing aeronautical noise Jingwen Zhao <i>RMIT University</i>	Aerodynamic testing using the Defence Science and Technology Group wind tunnels Malcolm Jones <i>Defence Science and Technology Group</i>	A Simulation Environment for Air-vehicle Swarming Robert Porter <i>Defence Science and Technology Group</i>	Concepts in Using Heavy Cargo Aircrafts for Aerial Firefighting Operations Anil Ravindran <i>RMIT University</i>			Spatial Formation of High Inclined Orbits with Use of Gravity Assists Alexey Grushevskii <i>Keldysh Institute of Applied Mathematics of RAS</i>	Connecting Low-Energy Orbits in the Saturn system Elena Fantino <i>Khalifa University of Science and Technology</i>
	Advanced Helicopter Structural Research Facility Christopher Dore <i>Defence Science and Technology Group</i>	Aerodynamics of Winglets with Passive Flow Control Nicolas Findanis <i>Pentair</i>	Digital Thread Implementation at Boeing Aerostructures Australia Andrew Sheppard <i>Boeing Aerostructures Australia</i>	Asset Management of an Ageing Aircraft Robert Crowe <i>Jacobs Australia</i>	Defence Aviation Safety Authority (DASA) perspectives on HUMS Rashmin Gunaratne <i>Defence Aviation Safety Authority</i>	TRICOM-1R Flight Dynamics Analysis: Angular Momentum Oscillation of Spinning Satellite in Highly Elliptical Orbit Takayuki Hosonuma <i>The University of Tokyo</i>	The Tandem-L Formation Flying Mission Ralph Kahle <i>German Aerospace Center DLR / GSOC</i>	Evaluation of Transition Performance to Jupiter Orbit using Electrodynamic Tether System Hirohisa Kojima <i>Tokyo Metropolitan University</i>
	An Empirical Model to Predict the Effect of Thermal Exposure on the Tensile Mechanical Properties of 7000 Aluminium Alloys Suzana Turk <i>Defence Science and Technology Group</i>	The Effect of Splitter Plate(s) Attached with Square Cylinder in Turbulent Flow Nahid Alemi Kermani <i>University of New South Wales</i>	Modelling of a small internal combustion aero engine Ioan Porumb <i>University of South Australia</i>		A viable opportunity for fielding an aircraft structural health monitoring system Marcel Bos <i>Netherlands Aerospace Centre NLR</i>	Drag-Free and Attitude Control System in LEO using Cold Gas Propulsion System: a feedback from the MICROSCOPE mission Stéphanie Delavault <i>Centre National d'Etudes Spatiales</i>	Sentinel-5P Loose Formation Flying with Suomi-NPP: LEOP, Orbit Acquisition and Orbit Maintenance Dirk Kuijper <i>CGI Deutschland Ltd. & Co. KG</i>	Machine Learning Assisted Orbit Determination and Propagation: An application of KAM Torus Orbit Determination Rasit Abay <i>University of New South Wales Canberra Space</i>
	Analysis of static load calibration data using neural networks: case study Kathryn Niessen <i>Defence Science and Technology Group</i>	Construction of a Heated Model for Infrared Thermographic Analysis of Boundary Layer Tripping Christopher Purser <i>RMIT University</i>	Prediction of Rotor Loads from Fuselage Sensors for Improved Structural Modeling and Fatigue Life Calculation Chance McColl <i>Technical Data Analysis</i>			Adaptive Attitude Tracking Control with Parameter Convergence in the Absence of Persistent Excitation Hongyang Dong <i>Beihang University</i>	Optimization of Multiple-Impulse Perturbed Cooperative Rendezvous for Spacecraft Zhen-Yu Li <i>National University of Defense Technology</i>	On-Orbit Mass Property Estimation for Cargo Spacecraft using Operation Data by Machine Learning Ai Nouni <i>Japan Aerospace Exploration Agency</i>
1210-1310	Lunch - Crown Promenade Foyer							
1310-1450 (20min presentation inclusive of 5-minute Q&A)	Concurrent session 2							
	AERO 1	AERO 2	AERO 3	AERO 4	HUMS 1	ISSFD 1	ISSFD 2	ISSFD 3
	STRUCTURES AND MATERIALS 2	AERODYNAMICS 2 AND AEROSPACE DESIGN 1	REGULATIONS, POLICY AND AIRWORTHINESS 1	UNMANNED AERIAL SYSTEMS 1	STRUCTURAL LOADS AND HEALTH MONITORING 1	ATTITUDE DYNAMICS & CONTROL 2	FORMATION FLYING & SATELLITE CONSTELLATIONS 2	ASTRODYNAMICS 2
	Chair: TBA	Chair: TBA	Chair: TBA	Chair: TBA	Chair: TBA	Chair: TBA	Chair: TBA	Chair: TBA
	Promenade Room 1	Promenade Room 2	Promenade Room 3	M1 & M2	M3 & M4	M6	M7 & M8	M9 & M10

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<p>Analysis of the life-limiting location of a Military Transport Aircraft Fatigue Test Kai Maxfield <i>Defence Science and Technology Group</i></p>	<p>Hazard Assessment of Wind Turbine Wakes Turbulence: Initial Results Jorg Schluter <i>Deakin University</i></p>	<p>An evaluation of the Australian Civil Aviation Safety Authority (CASA) SMS Framework using the DEMATEL method Richard Yeun <i>RMIT University</i></p>	<p>Object Tracking Under Abrupt Camera Movements in Aerial Videos Asanka Perera <i>University of South Australia</i></p>	<p>Software Assisted Hawk Mk127 Strain Gauge Serviceability Assessment Josh McFarlane <i>BAE Systems Australia</i></p>	<p>Satellite Attitude Control with a six-Control Moment Gyro cluster tested under Microgravity Conditions Hélène Evain <i>Centre National d'Etudes Spatiales</i></p>	<p>Orbital design of formation flight to keep relative distance applied to space gravitational wave antenna B-DECIGO Shuhei Matsushita <i>The University of Tokyo</i></p>	<p>Reconciliation of Light Curves for LEO using Deep Learning Rasit Abay <i>University of New South Wales Canberra Space</i></p>
<p>Assessing the effect on structural integrity of undetected damage within composite structure via the F/A-18A/B Hornet Outer Wing Static Test (HOWSAT) Crystal Forrester <i>Defence Science and Technology Group</i></p>	<p>Low speed aerodynamics of pitching airfoil using Proper Orthogonal Decomposition Arpan Das <i>RMIT University</i></p>	<p>Coopetition strategies for Airlines Industry based on Game theory Iryna Heiets <i>RMIT University</i></p>	<p>Rewards-based evolutionary swarm UAVs on search and rescue mission Faqihza Mukhlis <i>University of New South Wales</i></p>	<p>Individual Aircraft Tracking: Towards a Digital Twin Oleg Levinski <i>Defence Science and Technology Group</i></p>	<p>Space Debris TOPEX/Poseidon Attitude Motion: Interplay of Conservative, Damping and Propelling Torques Vladislav Sidorenko <i>Keldysh Institute of Applied Mathematics</i></p>	<p>Deployment and Maintenance of Solar Sail-Equipped Cubesat Formation in LEO Dmitry Pritykin <i>Skolkovo Institute of Science and Technology</i></p>	<p>Sun-synchronous repeat ground tracks and other useful orbits for future space missions Sung Wook Paek <i>Samsung Sdi</i></p>
<p>C-130J-30 Wing Fatigue Test - Test Interpretation and Implementation Ross Stewart <i>QinetiQ</i></p>	<p>Bio-inspired flapping wing micro air vehicles material properties and evolutionary fabrication Nahid Chitaz <i>University of New South Wales</i></p>	<p>Defining Autonomy – A Safety Certification Perspective Reece Clothier <i>Boeing Research & Technology</i></p>	<p>UAV navigation over littoral zone in GPS denied conditions Aakash Dawadee <i>Defence Science and Technology Group</i></p>	<p>Effects of Atmospheric Excitation on Vibration Based Condition Monitoring Methods for Hybrid-Electric Aircraft Propulsion Systems Philipp Schildt <i>Siemens</i></p>	<p>Modeling and analysis of gravitationally coupled orbit-attitude dynamics about an irregular-shaped asteroid Yue Wang <i>Beihang University</i></p>	<p>A Control Theoretical Analysis of Formation Flight with Inter-satellite Lorentz Forces Hao Zhang <i>Technology and Engineering Center for Space Utilization, Chinese Academy of Sciences</i></p>	<p>Trajectory and orbit design for the Venera-D mission Irina Kovalenko <i>Space Research Institute of the Russian Academy of Sciences (IKI)</i></p>
<p>Damping properties of cork/fibre reinforced polymer composites Jose Silva <i>RMIT University</i></p>	<p>CFD-Coupled 6-DOF Attitude & Trajectory Analysis for Hypersonic Air Vehicles Julian Fernando Gonzalez <i>Escalante</i></p>	<p>Efficient consumption of Civil Airworthiness Authorities' products and services using Airworthiness Recognition James Herringer <i>Defence Aviation Safety Authority</i></p>	<p>UAV navigation using visual waypoints: A hardware-in-the-loop approach Aakash Dawadee <i>Defence Science and Technology Group</i></p>	<p>The Concept of Monitoring System for Individual Mi 8 Helicopter with Integrated Sensor Network Artur Kurnyta <i>AFIT Poland</i></p>	<p>Spinning CubeSats Launchers Nevsan Sengil <i>University of Turkish Aeronautical Association</i></p>	<p>HRWS -- An Ambitious 4+ Satellite Formation Flying Mission Sofya Spiridonova <i>German Aerospace Center (DLR)</i></p>	<p>Using Telemetry to Navigate the MarCO Cubesats to Mars Brian Young <i>Jet Propulsion Laboratory / California Institute of Technology</i></p>
<p>Derivation of shell knockdown factors of grid-stiffened cylinders with various thickness ratios Han-Il Kim <i>Chungnam National University</i></p>	<p>Current knowledge of corrugated dragonfly wing structures and future measurement methodology Nasim Chitsaz <i>University of South Australia</i></p>	<p>Improved Technical Airworthiness Taxonomy: Capturing Business Intelligence to Support an Effective Safety Management System Ben Whiting <i>Defence Aviation Safety Authority</i></p>	<p>Wind Tunnel and Launching Test for Bi-modal Unmanned System Dian Guo <i>RMIT University</i></p>	<p>Low Power, Low Cost, Lightweight, Multichannel Optical Fiber Interrogation Unit for Structural Health Management of Rotor Blades Edgar Mendoza <i>Redondo Optics</i></p>	<p>The Pioneer 10 Spin Anomaly as an Observation Artefact Craig Watkins <i>Informative Technology Innovations</i></p>	<p>FLEX tandem with Sentinel Itziar Barat <i>Deimos @ Esa</i></p>	

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1450-1520	Afternoon tea – Crown Promenade Foyer							
1520-1700 (20min presentation inclusive of 5-minute Q&A)	Concurrent session 3							
	AERO 1	AERO 2	AERO 3	AERO 4	HUMS 1	ISSFD 1	ISSFD 2	ISSFD 3
	STRUCTURES AND MATERIALS 3	AEROSPACE DESIGN 2, AND HUMAN FACTORS	REGULATIONS, POLICY AND AIRWORTHINESS 2	UNMANNED AERIAL SYSTEMS 2	HUMS DATA DRIVEN APPLICATIONS 1	ORBIT DETERMINATION 1	FLIGHT DYNAMICS OPERATIONS 3	MISSION ANALYSIS & DESIGN 3
	Chair: TBA	Chair: TBA	Chair: TBA	Chair: TBA	Chair: TBA	Chair: TBA	Chair: TBA	Chair: TBA
	Promenade Room 1	Promenade Room 2	Promenade Room 3	M1 & M2	M3 & M4	M6	M7 & M8	M9 & M10
	Developing Experimental Techniques for Detecting Composite Failure Modes and Fatigue Crack Growth in an Aircraft Panel Michael Forsey Fortburn	Graphene as an Enabler in Aerospace Design Stephen Russo QinetiQ	Intelligent Maintenance in Asset Management of Aircraft Doug McPherson Memko	Influence of rotor wake interference on multirotor UAS forward flight performance Sam Prudden RMIT University	Extending the Helicopter System Efficiency by Integrating HUMS with Crew Fatigue/Stress Real-Time Monitoring Capabilities Marco Gazzaniga Leonardo Helicopters	METEOSAT ranging antennas relocation: performance assessment and compensation using telescopes data service Stefano Pessina Eumetsat	Multi-Objective Optimisation of NRHO-LLO Orbit Transfer via Surrogate-Assisted Evolutionary Algorithms Hideaki Ogawa RMIT University	Dawn's final mission at Ceres: Navigation and Mission Design Experience Dongsuk Han Jet Propulsion Laboratory / California Institute of Technology
	Effect of surface finish and surface roughness on the operational life of additively manufactured parts Rhys Jones Monash University	Performance of Electric VTOL Hovering Craft Graham Dorrington RMIT University	Protecting infant airline passengers from injury in a severe but survivable accident Adam Shrimpton Defence Aviation Safety Authority	Concept Instrumentation for Flapping Wing UAVs and MAVs Alex Lefik University of South Australia	Introducing CBM+ on M113AS4 Power pack utilising HUMS data Vishwanath Wickramanayake LEA CASG	Consider Probability Hypothesis Density Filtering for Multiple Space Objects Tracking Yang Yang RMIT University	Surrogate-Based Multi-Fidelity System Design Optimisation for Cislunar Missions Hideaki Ogawa RMIT University	Aerobraking the ExoMars TGO: The JPL Navigation Experience Dongsuk Han Jet Propulsion Laboratory / California Institute of Technology
	Enhanced Teardown of a PC-9/A Wing Main Spar Cap with Miss-Drills Ben Main Defence Science and Technology Group	Virtual Design Optimisation and Testing (VDOT) Framework for Innovative Sustainment Ali Daliri RMIT University	Qualifying the Digital Pilot Reece Clothier Boeing Research & Technology	Comparison of Feature Based and Direct Visual SLAM in High-Altitude UAS Flight David Tennent RMIT University	Helitune Integrated Vehicle Health Monitoring – Scalable Aircraft Health Monitoring Paul Hutchinson Helitune	Aeolus Orbit Control Strategy: Analysis and Final Implementation Miguel Martin Serrano Scisys	Optimized transfers between Earth-Moon invariant manifolds Laurent Beauregard Isae-supero	Sentinel-3 orbit control strategy Daniel Aguilar Taboada Eumetsat
	Forensic Analysis of Damage found during the Teardown of a Military Transport Aircraft Fatigue Test Article Douglas Williams Defence Science and Technology Group	Aircraft safety and passenger anthropometry – evaluating emergency egress times of different passenger profiles Damien Melis RMIT University	Regulating Safety Management Systems: Common issues and solutions for the future Joshua Hamson Defence Aviation Safety Authority	Proposed workflow to allow Artificial Intelligent Agents for Airborne Systems and Equipment Certification Bernardo Coelho Leap Australia	Software Development to Deliver a Super Hornet and Growler Deployable Engine Life Management Capability Robert Findlay BAE Systems	Navigation Challenges during ExoMars Trace Gas Orbiter Aerobraking Campaign Gabriele Bellei Deimos Space	Optimal far rendezvous strategy in the cis-lunar space Mani Vinayak Gopalan Singamani Isae-supero	Aeroheating test of re-entry capsule in Hypersonic high-Reynolds number flow Hideyuki Tanno Japan Aerospace Exploration Agency
	Fracture analysis of Composite scarf repairs-A simple method Amar Garg Boeing Aerostructures Australia	Reducing durability test duration through the lead crack framework Loris Molent Defence Science and Technology Group	Human Error Classification and Management in Aviation Design – A Critical Review Eranga Batuwangala	VFR-into-IMC Accidents: An Analysis of Human and Weather-related Factors Graham Wild	Vibration and Tribology System for Military Aircrafts Mariusz Zokowski FIT Poland	Estimating atmospheric density profiles using orbit determination with a focus on JUICE and	Angles-Only Robust Closed-Loop Guidance for Spacecraft Rendezvous Proximity Operations	

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			<i>RMIT University</i>	<i>RMIT University</i>		Cassini Anne Hickey <i>Sapienza University of Rome</i>	via Convex Optimization Baichun Gong <i>Nanjing University of Aeronautics and Astronautics</i>	
1800-2300	2019 Congress Dinner at Aerial <i>(details below)</i>							
	<p>AIAC 2019 Congress Dinner Join us to conclude the first two days of the Congress at Aerial. Situated at South Wharf</p> <p>Time: 6:00pm – 11:00pm Location: 17 Dukes Walk, South Wharf VIC 3006. Includes: Canapes, Entrée, Main Course, Dessert with tea and coffee</p> <p>DINNER KEYNOTE PRESENTER Sandy Tirtey</p>							

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TUESDAY 26 February 2019								
0800-0900	Registration opens – Crown Promenade Foyer							
0830-1015	PLENARY PRESENTATIONS – Crown Promenade Room 1&2							
0830-0920	DEFENCE: Catherine Roberts and Shane Fairweather							
0920-0945	REGULATOR AIRCDRE Jason Agius and CASA							
0945-1015	INDUSTRY 2 Billy Fredriksson and James Wang (Urban Air Mobility)							
1015- 1040	Morning tea Promenade Foyer							
1040-1220 (20min presentation inclusive of 5-minute Q&A)	Concurrent session 4							
	AERO 1	AERO 2	AERO 3	AERO 4	HUMS 1	ISSFD 1	ISSFD 2	ISSFD 3
	STRUCTURES AND MATERIALS 4	AIRCRAFT OPERATIONS (ON AND OFF BOARD) AND INTEGRATION	AVIONICS, ATM AND MISSIONS SYSTEMS 1	UNMANNED AERIAL SYSTEMS 3	KEYNOTE 2	ORBIT DETERMINATION 2	TRAJECTORY DESIGN & OPTIMIZATION 2	GUIDANCE, NAVIGATION AND CONTROL
	Chair: TBA	Chair: TBA	Chair: TBA	Chair: TBA	Chair: TBA	Chair: TBA	Chair: TBA	Chair: TBA
	Promenade Room 1	Promenade Room 2	Promenade Room 3	M1 & M2	M3 & M4	M6	M7 & M8	M9 & M10
	Investigating meso-mechanical failure in composite materials using the Semi-conformal Embedded Technique (SET) Nayeem Chowdhury <i>University of New South Wales</i>	Aircraft Proximity and Well-Clear Volumes Grace Garden <i>Boeing Research & Technology</i>	Cognitive Human-Machine Interfaces and Interactions for Space-Based Intelligence, Surveillance and Reconnaissance Yixiang Lim <i>RMIT University</i>	A Case Study in Uncertainty Quantification of UAS Behaviours Against Mission Requirements Valtteri Kallinene <i>Queensland University of Technology</i>	KEYNOTE PRESENTER TBD	Optimizations for In-Flight Orbit Determination of an Autonomous Deep-Space CubeSat Boris Segret <i>Esep - Paris Observatory</i>	Rendezvous Design in a Cislunar Near Rectilinear Halo Orbit Emmanuel Blazquez <i>Isae-Supaéro</i>	Spacecraft autonomous guidance using instantaneous screw motion invariants Dilmurat Azimov <i>University of Hawai'i At Manoa</i>
Mechanical Knockdown associated with Resin Injection Repairs to Fastener Hole Delamination in IM7/977-3 Composite Structures Andrew Charles <i>Defence Science and Technology Group</i>	Automatic Ground Collision Avoidance System Russell Turner <i>Lockheed Martin</i>	Cognitive Human-Machine Interfaces and Interactions for Cooperative Bushfire Surveillance and Fire-Fighting Cholsanan Chanataravivat <i>RMIT University</i>	Challenges to the Risk-based Regulation of Unmanned Aircraft Systems Achim Washington <i>RMIT University</i>	A Study of Orbit estimation for a Spacecraft by Using the Re-duced order Filter Tsutomu Ichikawa <i>Japan Aerospace Exploration Agency</i>		Transfer from a Lunar Distant Retrograde Orbit to Mars through Lyapunov Orbits Irene Cavallari <i>Isae-Supaero</i>	Navigating MarCO, the First Interplanetary CubeSats Tomas Martin-mur <i>Jet Propulsion Laboratory / California Institute of Technology</i>	
Modelling and Prediction of Ship Corrosion Defects for Maintenance Planning	Estimation of Stellar Instrument Magnitudes	Cognitive Human-Machine Interfaces and Interactions for	Atmospheric Air Quality Measurement Using Fleet of Multi-	UK MOD HUMS and Flight Data Exploitation Strategy	Uncertainties in GPS-based operational orbit determination of	Design of disposal orbits for high altitude spacecraft	Flying gyroless around Mars: a SW update for Mars	

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	<p>Geoffrey Will <i>Queensland University of Technology</i></p>	<p>Based on Synthetic Photometric Spectrum Rui Lu <i>Beijing Institute of Control Engineering</i></p>	<p>Cooperative Littoral Surveillance Theerapong Samreeloy <i>RMIT University</i></p>	<p>Rotor Unmanned Aircraft System David Tennent <i>RMIT University</i></p>	<p>Jeff Day <i>United Kingdom Ministry of Defence</i></p>	<p>Sentinel satellites Petr Kuchynka <i>GMV INSYEN at ESA/ESOC</i></p>	<p>with a semi-analytical model Camilla Colombo <i>Politecnico di Milano</i></p>	<p>Express Juan Manuel Garcia <i>GMV INSYEN at ESA/ESOC</i></p>
	<p>Nonlinear vibration analyses of shear-deformable composite plates under combined thermal, random acoustic, and supersonic aerodynamic loads Hong – Beom Lee <i>Chungnam National University</i></p>	<p>How Boeing is innovating using open source robotics software Martin Szarki <i>Boeing Research & Technology</i></p>	<p>Cognitive Human-Machine Interfaces and Interaction for Terminal Area Traffic Management Nichakorn Pongsakornsathien <i>RMIT University</i></p>	<p>Acoustic Characterisation of Low-Reynolds Number Multi-rotor UAS Propellers Nicola Kloet <i>RMIT University</i></p>	<p>A Study of Deployment Requirements for Machine-Learned Diagnostics in Safety Critical Applications; Classification Metrics and Sensitivity Daniel Wade <i>US Army AMRDEC</i></p>	<p>Orbital Pursuit-Evasion Games with Incomplete Information in the Hill Reference Frame Hai Zhu <i>National University of Defense Technology</i></p>	<p>Low-thrust orbit transfers optimisation under constraints Slim Locoche <i>Airbus Defence and Space</i></p>	<p>Development of a GPS receiver for geosynchronous satellites toward autonomous operation Yu Nakajima <i>Japan Aerospace Exploration Agency</i></p>
	<p>Optimising multifunctional composite laminates for enhanced thermal storage capability Nattanan Chulikavit <i>RMIT University</i></p>		<p>Cognitive Human-Machine Interfaces and Interactions (CHMI2) for en-route Air Traffic Flow Management (ATFM) Pannawat Lertoworawanich <i>RMIT University</i></p>	<p>A Presentation on Maritime Tactical Unmanned Aerial Systems, New Capability and New Challenges Driving Innovation Philip Woodward <i>Royal Australian Navy</i></p>	<p>Considerations for Obtaining Tangible Operational and Maintenance Benefits from Aircraft Health Monitoring Systems in a Big Data Environment Stephan Hall <i>Celeris Aerospace Canada</i></p>	<p>In-track Maneuvers to Observe an Assigned Site Based on Sub-Satellite Band Geometry Analysis Luyi Yang <i>National University of Defense Technology</i></p>	<p>Reachability Study for Spacecraft Maneuvering from a Distant Retrograde Orbit in the Earth-Moon System Changxuan Wen <i>Technology and Engineering Center for Space Utilization</i></p>	
1220-1315	Lunch – Crown Promenade Foyer							
1315-1455 <i>(20min presentation inclusive of 5-minute Q&A)</i>	Concurrent session 5							
	AERO 1	AERO 2	AERO 3	HUMS 1	HUMS 2	ISSFD 1	ISSFD 2	ISSFD 3
	STRUCTURES AND MATERIALS 5	PROPULSION 1	AVIONICS, ATM AND MISSIONS SYSTEMS 2, SYSTEMS SUPPORT AND INFRASTRUCTURE 1	SENSOR TECHNOLOGY & PROGNOSTIC HEALTH MANAGEMENT	DIAGNOSTICS AND PROGNOSTICS 1	ORBIT DYNAMICS & CONTROL	MISSION ANALYSIS & DESIGN 1	FLIGHT DYNAMICS OPERATIONS 2
	Chair: TBA	Chair: TBA	Chair: TBA	Chair: TBA	Chair: TBA	Chair: TBA	Chair: TBA	Chair: TBA
	Promenade Room 1	Promenade Room 2	Promenade Room 3	M1 & M2	M3 & M4	M6	M7 & M8	M9 & M10
	<p>OPERAND: A Data-Driven Smart Diagnostics Capability for Control Surface Free-Play using Nonlinear System Identification Algorithms Michael Candon <i>RMIT University</i></p>	<p>A novel image processing method to identify flame structure Dahe Gu <i>Defence Aviation Safety Authority</i></p>	<p>A Novel Navigation Performance Monitoring and Augmentation Framework for UAS in urban environments Suraj Bijjahalli <i>RMIT University</i></p>	<p>No Fault Found or More Correctly, Fault Not Found: its Causes, its Cost and its Correction John Baker <i>Copernicus Technology</i></p>	<p>Time Series Reconstruction using a Bidirectional Recurrent Neural Network based Encoder-Decoder Scheme Chris Mechefske <i>Queens University Canada</i></p>	<p>Effect of the Air Drag Perturbation in the Eccentricity Vector for Very Low Earth Orbits Javier Sanchez <i>GMV INSYEN at ESA/ESOC</i></p>	<p>Australian Space Port for Small Satellites: Business aspects Navaporn Karoon-ngampun <i>RMIT University</i></p>	<p>Bepi Colombo: Flight Dynamics Operations during Launch and Early Orbit Phase Francesco Castellini Frank Budnik <i>European Space Agency</i></p>
	<p>OPERAND: Aeroelastic Model Updating for Global Airframe Response</p>	<p>Comparison of the Properties Which Affect</p>	<p>A Unified Sensor-Centric Approach for Space Traffic Management</p>	<p>A self-mixing laser diode for non-contact</p>	<p>Expert HUMS of Turbojet Engine Based on</p>	<p>Halo Orbit Generations and Maintenance in Elliptic Restricted</p>	<p>Australian Space Port for Small Satellites: Launch</p>	<p>Sentinel-3B Flight Dynamics Preparations and</p>

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	Estimations from Limited Flight Data Measurements Nishit Joseph <i>RMIT University</i>	the Tail Off Thrust of the Solid Rocket Motors Berkan Mumcu <i>Roketsan A.Ş.</i>	Samuel Hilton <i>RMIT University</i>	ultrasonic vibration detection Yanguang Yu <i>University of Wollongong</i>	Instantaneous Angular Speed Signal Miroslaw Witos <i>AFIT Poland</i>	Three Body Problem in Presence of SRP Using Differential Evolutionary Optimization Gaurav Vaibhav <i>Indian Space Research Organization</i>	Vehicle Kamonwan Ketdam <i>RMIT University</i>	Operations Supporting The Sentinel-3 Tandem Mission Dirk Kuijper <i>CGI Deutschland Ltd. & Co. KG</i>
	OPERAND: Aircraft Buffet Load Prediction Using Nonlinear System Identification Algorithms Michael Candon <i>RMIT University</i>	The Szorenyi Two-Chamber Rotary Engine Concept Peter King <i>Rotary Engine Development Agency</i>	Achieving Unmanned Aircraft System Sense-and-Avoid by Multi Sensor Data Fusion Luthfi Nurhakim <i>RMIT University</i>	Validation of an Acoustic Travelling Wave System Through Forced Response Analysis of a Research Blisk Mitchell Cosmo <i>Defence Science and Technology Group</i>	Cyclostationary-based tools for bearing diagnostics of helicopter planetary gearboxes Konstantinos Gryllias <i>KU Leuven Belgium</i>	Dynamical evolution analysis of standard geostationary transfer orbits injected by Chinese launchers Yue Wang <i>Beihang University</i>	Risk reduction and collision risk thresholds for missions operated at ESA Klaus Merz <i>European Space Agency</i>	ExoMars 2016 – Flight Dynamics commanding during the aerobraking operations for the Trace Gas Orbiter Robert Guilanya Jané <i>GMV INSYEN at ESA/ESOC</i>
	OPERAND: Virtual Sensor Expansion of Flight Measurement Data using Calibrated GVT Models Stephan Koschel <i>RMIT University</i>	Fuel Injection Conversion for a Small Aero Engine Matthew O'Neil <i>University of South Australia</i>	Acoustic Sensors for UAV Navigation and Guidance in Indoor Environments Rohan Kapoor <i>Royal Melbourne Institute Of Technology</i>	Leveraging Digital Clones for Prognostics Health Management Andrew Vechart <i>Sentient Science</i>	Separation of mechanical source vibrations under variable speed conditions Dany Abboud <i>Safran Tech</i>	Simple and efficient algorithm to search through the Gaia catalogue Klaas Vantounhout Santana Camprubi <i>CGI Deutschland Ltd. & Co. KG</i>	Leveraging Mars Aerobraking Experience for the Venus Environment Han You <i>Jet Propulsion Laboratory / California Institute of Technology</i>	Exomars 2016 – Flight Dynamics operations for the targeting of the Schiaparelli module Entry Descent and Landing and the Trace Gas Orbiter Mars orbit insertion Robert Guilanya Jané <i>GMV INSYEN at ESA/ESOC</i>
	Prediction of in-flight loading using neural networks: case study Daniel Franke <i>Defence Science and Technology Group</i>	Fuel Injection Vs. Carburettor – A Comparative Study and Results for a Small Mathew O'Neil <i>University of South Australia</i>	Damage assessment in composite and bonded Rhys Jones <i>Monash University</i>	Energy Harvesting Inside a Helicopter Main Gearbox to Power a HUMS Transducer Riyazal Hussein <i>Defence Science and Technology Group</i>	Using K-Nearest Neighbour machine learning technique to classify archived Helicopter Wear Debris Data Eric Lee <i>Defence Science and Technology Group</i>	On the chaotic drift in terrestrial orbits Jerome Daquin <i>University of Padova</i>	Machine Learning for Atmospheric Drag Prediction of LEO satellites Hiroshi Kato <i>Japan Aerospace Exploration Agency</i>	Past Results and Future Missions of STARS Series Satellite Masahiro Nohmi <i>Shizuoka University</i>
1455-1520	Afternoon tea – Crown Promenade Foyer							
1520-1700 (20min presentation inclusive of 5-minute Q&A)	Concurrent session 6							
	AERO 1	AERO 2	AERO 3	AERO 4	HUMS 1	ISSFD 1	ISSFD 2	ISSFD 3
	STRUCTURES AND MATERIALS 6	PROPULSION 2 AND ADDITIVE MANUFACTURING	AVIONICS, ATM AND MISSIONS SYSTEMS 3	UNMANNED AERIAL SYSTEMS 4	DIAGNOSTICS AND PROGNOSTICS 2	FLIGHT DYNAMICS OPERATIONS 1	ORBIT DYNAMICS	MISSION ANALYSIS & DESIGN 2
	Chair: TBA	Chair: TBA	Chair: TBA	Chair: TBA	Chair: TBA	Chair: TBA	Chair: TBA	Chair: TBA

DRAFT PROGRAM MATRIX

	Promenade Room 1	Promenade Room 2	Promenade Room 3	M1 & M2	M3 & M4	M6	M7 & M8	M9 & M10
	<p>Probabilistic Risk Assessment Transition to Industry Ross Stewart <i>QinetiQ</i></p>	<p>Low-NOx Flameless Combustor for Gas Turbines: An Experimental and Numerical Study Farid Christo <i>Deakin University</i></p>	<p>Energy Management During Descent Operations: Human-Machine Teaming Considerations Alessandro Gardi <i>RMIT University</i></p>	<p>Collision Avoidance with Rules of the Air Compliance for Unmanned Aircraft Detect and Avoid Timothy Molloy <i>Queensland University of Technology</i></p>	<p>Experimental Study of Gearbox Faults using Acoustic Emission Signals Chris Mechefske <i>Queens University Canada</i></p>	<p>The Flight Dynamics Contribution to the Selection of MASCOT Landing Site on the Surface of the Asteroid Ryugu Laurence Lorda <i>Centre National d'Etudes Spatiales</i></p>	<p>An open-source, high-fidelity orbit propagator (HFOP) for asteroid trajectory simulation Sung Wook Paek <i>Samsung Sdi</i></p>	<p>Utilizing the Chaotic Tumbling of CubeSats Graham Dorrington <i>RMIT University</i></p>
	<p>Real-time system identification for fixed wing Unmanned Aerial Vehicle Arpan Das <i>RMIT University</i></p>	<p>Numerical Analysis of Thermal Loading in Dual-Bell Rocket Nozzles Christopher Hewitt <i>RMIT University</i></p>	<p>Mission Design for Early Plant Disease Detection from UAS Hai Pham <i>RMIT University</i></p>	<p>Evaluation of LIDAR and X-Band Radar Sensors in a Particle-Dense Environment Ricardo Cannizzaro <i>Defence Science and Technology Group</i></p>	<p>Detection and location of non-artificial defects in rolling element bearing using acoustic emission Francesco Larizza <i>University of Adelaide</i></p>	<p>Flight Dynamics Analyses to reconstruct MASCOT's trajectory on Ryugu's surface Laurence Lorda <i>Centre National d'Etudes Spatiales</i></p>	<p>Exploring the motion in libration point regions of perturbed three body problems Alain Lamy <i>Centre National d'Etudes Spatiales</i></p>	<p>State propagation in uncertain irregular gravity field with differential algebra method Jinglang Feng <i>Nanjing University</i></p>
	<p>The Strategy for a Multi-provider / Multi-user Structural Experimentation Capability within Aerospace Division of Defence Science and Technology Group Ben Main <i>Defence Science and Technology Group</i></p>	<p>Additive metal solutions to aircraft skin corrosion Neil Mathews <i>RUAG Australia</i></p>	<p>Risk-oriented Systems Engineering Approach to address Cyber Security Issues of Civil Aircraft, Air Traffic Management, and Airports Systems Lanka Bogoda <i>RMIT University</i></p>	<p>Impact of gusts on battery performance in a small electric UAV using hardware-in-the-loop simulation Amrit Sethi <i>University of Sydney</i></p>	<p>Some problems of diagnosis of helicopter Mi-24 from the perspective of HUMS system Andrzej Gebura <i>AFIT Poland</i></p>	<p>Flight Dynamics Analysis of extended Lifetime for the Metop-A GOME-2 Instrument Antimo Damiano <i>RHEA Group</i></p>	<p>Review of the Draper Semi-analytical Satellite Theory (DSST) Paul Cefola <i>University at Buffalo (SUNY)</i></p>	<p>Practical considerations and a realistic framework for a Space Traffic Management system Daniel Oltrogge <i>Analytical Graphic</i></p>
	<p>Thermoelastic assessment of impact damaged composites under cyclic loading Cedric Antolis <i>RMIT University</i></p>	<p>Qualification of Material Microstructure and Mechanical Performance of Aerospace Additive Manufacturing Parts using Predictive Modeling Tool Behrooz Jalalahmadi <i>Sentient Science</i></p>	<p>Safety Assessment of UAS and Manned Aircraft Encounter with the Application of Dynamic Fault Trees and Monte Carlo Simulation Asma Tabassum <i>University of North Dakota</i></p>	<p>Indoor Free-flight Experimentation of a Multi-Rotor Uninhabited Aircraft using a Beacon Positioning System Chatura Nagahawatte <i>Defence Science and Technology Group</i></p>	<p>Condition Monitoring of Worm and Worm Wheel Gearbox Using Vibration Measurement Techniques Anil Kumar <i>AIT, India</i></p>	<p>Metop-C deployment and start of 3-satellite operations Pier Luigi Righetti <i>Eumetsat</i></p>	<p>Periodic corrections in secular Milankovitch theory applied to passive debris removal Aaron Rosengren <i>University of Arizona</i></p>	<p>Mission Control Center is the key element of the space traffic management technology Aleksey Kutomanov <i>Roscosmos</i> <i>TSNIImash</i></p>
	<p>Turning Point Reduction to Reliably Condense Variable Amplitude Spectra for Fatigue Testing Composite Aircraft Structures Nabil Chowdhury <i>Monash University</i></p>	<p>Experimental characterization of a small internal combustion aero engine Ioan Porumb <i>University of South Australia</i></p>	<p>Opening the skies for UAVs – an Integrated Airspace of the Future! Emily Hughes <i>Boeing Research & Technology</i></p>	<p>Inserting Virtual Dynamic Entities into the UAV Challenge Medical Express Robert Porter <i>Defence Science and Technology Group</i></p>	<p>A Comparative Study of Online Impedance Measurement Techniques for a Lithium Polymer Battery Using Equivalent Circuit Models Amrit Sethi <i>University of Sydney</i></p>	<p>Avoidance of radiofrequency interferences with Metop-A and Metop-B during Metop-C early operations Pier Luigi Righetti <i>Eumetsat</i></p>	<p>A density based approach to the propagation of re-entry uncertainties Mirko Trisolini <i>Politecnico Di Milano</i></p>	<p>Reconsideration of the Thermal Contribution to New Horizons Acceleration Craig Watkins <i>Informative Technology Innovations</i></p>

DRAFT PROGRAM MATRIX

1700-1725	Congress Plenary Closing & Award Presentations
1830-2300	<p>HUM2019 Congress Dinner (HUMS Delegates only, limited seats) Time: 6:30pm – 11:00pm Location: Vibe Hotel Savoy, Melbourne, 630 Little Collins Street, Melbourne VIC 3000 Cost: Included in your registration, please indicate your attendance at time of registration for catering purposes. Includes: Pre-drinks/canapes, Entrée, Main Course, Dessert with tea and coffee</p>

WEDNESDAY 27 February 2019

0900-01200	<p>AVALON TECHNICAL PRESENTATIONS TBA Avalon Airshow</p>
0900-1130	<p>WORKSHOP: ADVANCING STRUCTURAL SIMULATION TO DRIVE INNOVATIVE SUSTAINMENT TECHNOLOGIES Location: Engineers Australia – Discovery Hub Room Level 31 600 Bourke St, Melbourne VIC 3000</p>

Thursday 27 February 2019

0900-1200	<p>AVALON TECHNICAL PRESENTATIONS TBA Avalon Airshow</p>
1400-1600	<p>SINGLE AVIATION INDUSTRY WORKSHOP Conference Room 2 Avalon Airshow</p>