

**19th Australian International Aerospace Congress (AIAC) (Incorporating HUMS and Space)
and 10th Australasian Congress on Applied Mechanics (ACAM)
(AEDT) Time in Sydney, Australia
Monday, 29 November 2021**

8:45	AIAC & ACAM Joint Welcome (5 mins) Amanda Caples (10 mins) Victorias Lead Scientist				
	AIAC		ACAM		ACAM
	AIAC PLENARY		Biomechanics, bio/sustainable composites 1		Micro/nano-mechanics
09:00	AIAC PLENARY 188: Boeing's Australian autonomous new product development Ms Emily HUGHES (Boeing)		110. Experimental analysis and prediction of mechanical properties of soft palate using machine learning Dr Liujie CHEN (Guangzhou University)	145. Size-dependent elastic wave propagation of a piezo-electro-magneto-thermal PC micro/nanobeam Dr Mir Abbas ROUDBARI (RMIT University)	
9:20			104. Experimental investigation and mathematical modelling of temperature and force in surgical bone drilling Mr Chandana SAMARASINGHE (University of South Australia)	121. Modeling of 3D Fracture Propagation in Reservoirs Rocks at a Microscale Mr Victor NACHEV (Sadovsky Institute of Geospheres Dynamics of Russian Academy of Sciences; Moscow Institute of Physics and Technology)	
9:40	AIAC PLENARY 192: The Australian Space Agency: objectives and priorities for the future Mr Enrico PALERMO (Australian Space Agency)		113. Design of Head Protective Equipment for Blast-induced Traumatic Brain Injuries Dr Kwong MING TSE (Swinburne University of Technology)	185. Size Effect on the Free Vibration Behaviour of Organic Solar Cell Miss Qingya LI (UNSW)	
10:00			159. Actuation Mechanism for Torque Variation and Motion Reversal of Powered Lower-Limb Exoskeleton Dr Gaurav GARG (Central Queensland University)	44. Analysis of the constitutive behaviour of a porous material based on micro-indentation Assoc/Prof Kostas SENETAKIS (City University of Hong Kong)	
10:20	Morning Tea (20 mins)				
10:40	AIAC Space Technologies 1	AIAC Diagnostics & Prognostics 1	AIAC Structures and Materials 1	ACAM Mechanics of geomaterials and concrete 1	ACAM Fatigue, fracture and failure analysis of structures 1
10:40	AIAC KEYNOTE 187: Rocket Lab, Democratizing Access to Space Mr Sandy TIRTEY (Rocket Lab)	HUMS KEYNOTE 202: CASG NX - Integrating Industry 4.0 for Defence SQNLDR Mike MORONEY (Department of Defence) and Luke de Jager (KPMG)	AIAC KEYNOTE 36: Automated Manufacturing Technologies with Machine-Learning & Artificial Intelligence Dr Waruna SENEVIRATNE (Wichita State University)	ACAM KEYNOTE 201. Numerical Simulation of Concrete Column Confined with Basalt Textile Reinforced ECC Prof Yan ZHUGE (University of South Australia)	ACAM KEYNOTE 100. Notch fatigue analysis and lifetime prediction in additively manufactured steels subjected to multiaxial loading Mr Ricardo BRANCO (University of Coimbra)
11:10	46: Construction of spacecraft deployment mechanisms from shape memory alloys Mr Will HOUTSMA (RMIT University)	162: An approach to merging machine learning models in an ensemble for load estimation Ms Catherine CHEUNG (National Research Council Canada)	92: Additively Manufactured Pinning Technology for Titanium-to-Composite Joints Prof Adrian ORIFICI (RMIT University)	8. Localisation Analysis of Porous Reservoir Rocks under Triaxial Conditions Using A Breakage Mechanics Model Mr Nhan NGUYEN (The University of Adelaide)	109. Multi-physics numerical study on fire-structural response in a naval post-flashover fire test Mr James O'NEILL (Royal Melbourne University Of Technology)
11:30	155: Heater-Free, Lowest Power Consumption & Highest Volume Availability Gas-Generator Propulsion System – Most Suitable for Micro to Nano Satellites Mr Tiago MONTEIRO PADOVAN (Patchedconics, LLC)	88: Alternative Approaches for Health Assessment of Vehicle Subsystems Mr Kavindu RANASINGHE (School of Engineering, STEM College, RMIT University)	171: High fidelity residual strength assessment for composite aircraft sustainment Mr Kade JACOBS (RMIT University)	25. Control Concrete Disc Cracking under Diametric Compression using AUSBIT - Adelaide University Snap-Back Indirect Tensile test Dr Rupesh VERMA (The University of Adelaide)	192. Evaluation of Crack Closure with a Piezoelectric Strain Gauge Mr James HUGHES (University of Adelaide)
11:50	177: Electromagnetic shielding for the protection of crew in the space radiation environment Dr Gail ILES (RMIT University)	178: Is Deep Learning Superior in Machine Health Monitoring Applications Dr Wenyi WANG (DST Group)	82: Transverse Tensile Testing of Environmentally Aged Composites Mr Lachlan BURGESS-ORTON (Defence Science and Technology Group)	32. Cyclic behaviour of stabilized tailing sand with polymer-based additives: Grain-scale study Assoc/Prof Kostas SENETAKIS (City University of Hong Kong)	167. Fatigue Properties Enhancement of Steel Weldments by Laser Peening with Microchip Lasers Prof Yuji SANO (Institute for Molecular Science)
12:10	79: Increasing resiliency: Understanding the effect of Low Earth Orbit environmental conditions on space structures Miss Zoe JANES (RMIT University)	29: Categorical outlier detection for Health Usage and Monitoring Systems Mr Leonard WHITEHEAD (Defence Science Technology Group(DSTG))	56: Efficient Damage Prediction in Fibre Reinforced Composites Dr Johannes REINER (Deakin University)	183. Numerical Investigation on the Fracture Mechanism of Rock-like Brazilian Discs with Interbedded Hard-Soft Layers Mr Lei YANG (The University of Sydney)	213. The presence and future of residual stress measurements in Australia Prof Anna PARADOWSKA (Institute for Molecular Science)
12:30	53: Spacesuit modifications and devices for the electrostatic repulsion of lunar dust Ms Stephanie BATTEN (RMIT University)	195: An Overview of ADF Wear Debris Analysis Dr Andrew BECKER (Department of Defence), Mr Paul NOCEJA (Department of Defence)	31: Hawk Lead-In-Fighter Full Scale Fatigue Test – An Overview Mr Marco ATTIA (Defence Science and Technology Group)		221. Rolling contact fatigue prediction using locomotive digital twin and a wheel-rail experimental program Mr Esteban BERNAL (CQUniversity)
12:50	Lunch Break (40 mins)				
13:30	AIAC Operations, Airworthiness & Sustainment 1	AIAC HUMS Data Analytics	AIAC Structures and Materials 2	ACAM	
13:30	AIAC KEYNOTE 194: The Air Force Journey to Initial Operating Capability for F-35A – Innovation in Operations and Sustainment GPCAPT Matthew MCCORMACK (81 WG) 13:30 - 14:00	186: Aircraft Systems Prognostic Health Ontology Dr Richard DE ROZARIO (The University of Melbourne)	190: Meso-scale Damage Modelling of Hybrid Braided Composites using a Homogenisation Approach Prof Raj DAS (RMIT)	ACAM PLENARY Applied Mechanics of Topological Interlocking Structures Professor Elena PASTERNAK (University of Western Australia)	
13:50	8: Air-to-air refuelling from an mrrt's perspective – the effect of fuel offload on the payload range performance Dr Nicholas BARDELL (RMIT University) 14:00 - 14:20	48: Operation Mode determination and Regime-based anomaly detection using Unsupervised methods Mr Navid ZAMAN (PHM Technology)	159: The Load variant stress concentrating effect of Interference Fit Fasteners, and its effects on durability. Mr Jordan CARROLL (RMIT University)		
14:10	30: Improving Remaining Useful Life Prediction of Complex Systems through CNN-LSTM Network Adaptations Professor Chun Wang Dr Wim VERHAGEN (RMIT University) 14:20 - 14:40	201: A hybrid method for degradation assessment and fault detection in rolling element bearings Mr Yonatan Nissim (PHM Laboratory)	24: Achieving Test Loading Fidelity Requirements in the Hawk Lead-In-Fighter Full Scale Fatigue Test Mr Michael JONES (RMIT University)	ACAM PLENARY Mechanics of toughening carbon fibre composites for super cold applications Professor Chun WANG (University of New South Wales)	
14:30		66: Helicopter vibration-based operating regimes identification through the use of mixture models on health indicator Mr Maxime MEUTERLOS (Univ Lyon, INSA Lyon, LVA, EA677, 69621 Villeurbanne, France)	95: The effect of CICs on the fatigue life of 1&1/2 single-shear lap joints with HiLok and rivet fasteners Mrs Rachelle FERBER (The University of Adelaide)		
14:50	Afternoon Tea (20 mins)				

Day 1 continued					
	AIAC	AIAC	AIAC	ACAM	ACAM
15:10	Operations, Airworthiness & Sustainment 3	Diagnostics & Prognostics 2	Structures and Materials 3	Structural health monitoring and structural optimization 1	Composites 1
15:10	94: Mobile Beacon Path Planning for Optimal Unmanned Aerial Vehicle Self-Localization Mr John MCGUIRE (University of South Australia)	44: Towards fault diagnosis of spur gears using Fiber Bragg Grating (FBG) strain sensors Mr Lior BACHAR (Ben-Gurion University)	3: Seminal developments in the durability and damage tolerance (dadt) assessment of adhesively bonded air frames Prof Rhys JONES (Monash University)	80. A Machine Learning Approach for Modelling CFRP-Strengthened Members Without Explicit Bond-Slip Models Mr Zihao LIU (The University of Sydney)	24. Vibrations of a CNT Reinforced Beam Resting on a Distributed Spring Bed MR Oscar Zi Shao ONG (The University of Adelaide)
15:30	40: A review of hypersonic vehicle accidents Mr Luke POLLOCK (UNSW Canberra)	10: Novel approach for the estimation of transfer functions using a realistic dynamic model of gear and in-out zeros technique Mr Omri MATANIA (PHM Laboratory, Department of Mechanical Engineering, Ben-Gurion University of the Negev)	62: Advanced Spectrum Editing Techniques for Compressing Loads Spectra in Support of a Future Full-Scale Helicopter Fatigue Test Mr Beau KRIEG (Defence Science & Technology Group)	85. Source Characterisation of Acoustic Emission in Al 2024-T3 Specimens during Fatigue Crack Growth Miss Xinyue YAO (Monash University)	66. Composite helical springs with cladding structures - Design, manufacturing, and mechanism studies Co-presenters Dr Ling CHEN (Flinders University) & Professor Youhong TANG (Flinders University)
15:50		172: Deep One-Class Method for Helicopter Anomaly Detection based on Cyclic Spectral Analysis Chenyu Liu (KU Leuven)	45: Rapid Development of a Novel Method of Damage Introduction in Full-Scale Damage Tolerance Testing in Support of F/A-18 Hornet Sustainment Mr David RUSSELL (RMIT/DSTG)	124. Automated Calibration of TSA Imaging Through Parallel DIC Mr Elliot WHEATLAND (The University Of Adelaide)	191. Free and forced vibration analysis of graphene nanoplatelets (GPLs) and carbon fibre reinforced three-phase laminate plates Prof Karu KARUNASENA (University Of Southern Queensland)
16:10	Break (5 Mins)				
16:15	ACAM	ACAM	AIAC	ACAM	ACAM
16:15	Mechanics of geomaterials and concrete 2	Multi-functional structures and materials	Structures and Materials 3 Cont.	Structural health monitoring and structural optimization 1. Cont.	Composites 1 Cont.
16:15	183. Numerical investigation on the fracture mechanism of rock-like Brazilian discs with interbedded hard-soft layers Mr Lei YANG (The University of Sydney)	67. Development of smart concrete with integrated self-sensing and self-healing capacities Dr Wengui LI (University Of Technology Sydney)	6: Design and build of a large-scale aerospace multi-axial structural testing capability for emerging aerospace technologies Mr Ben MAIN (Defence Science and Technology Group)	135. Effects of geometrical parameters on the performance of the bimorph sensor to detect surface defects of gas pipelines Mr Taha SHEIKH (Department of Mechanical Engineering, Indian Institute of Technology Kanpur)	152. Use of Nanoparticles to Produce Multiscale Carbon-Epoxy Composite Laminates for Cryogenic Liquid Hydrogen Fuel Tank Dr Mohaamad ISLAM (The University of New South Wales)
16:35	64. Investigating the Kaiser effect in concrete with no stress history using deformation rate analysis (DRA) and acoustic emission (AE) Mr Zulfiqar ALI (University of Adelaide)	45. On-demand Debonding and Rebonding of Adhesives Reinforced by Magnetic and Conductive Nanofillers Dr Xinying CHENG (University of New South Wales)	179: Improved cyclic damage model for fatigue crack growth in high strength aerospace alloy structures Dr Kevin WALKER (QinetiQ Pty Ltd)	149. Structural Topology Optimization and Application to Sustainability Mr Vahid SHOBEIRI (The University of Adelaide)	179. Toughening Epoxy Polymers at Cryogenic Temperature Using Cupric Oxide Nanorods and Modelling of Matrix Microcracking for Multiscale Composite Laminates Mr Wenkai CHANG (University of New South Wales)
16:55	77. Study of hydraulic fracturing dynamics based on ultrasonic transmission data Dr Sergey TURUNTAEV (Idg Ras)		91: Root cause analyses of damage growth indications observed in-service within critical titanium to composite bonded joints Alex Harman (DST Group)	36. Long Short-Term Memory Auto-encoder Based Damage Quantification using Impulse Response Functions Mr CHENCHO (Curtin University)	Nonlinear Dynamic Behaviour of the Functionally Graded Plate Resting on Winkler-Pasternak Elastic Foundation Mr Luo BO (University of New South Wales)
17:15	END				
Themes	Aeronautics (AIAC19)				
	HUMS Conference				
	Space Technology				
	ACAM				

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Tuesday, 30 November 2021

AIAC & ACAM Recap & Day 2 Welcome (10 mins)

AIAC		AIAC		ACAM	ACAM	ACAM
AIAC PLENARY				Kinematics, dynamics and vibrations 1	Computational mechanics 1	Advanced materials and structures 1
09:00	AIAC PLENARY 32: Artemis Program Update Mr Greg CHAVERS (NASA)			144. Applied mechanics of sliding with asymmetric friction Mr Rui Xiang WONG (University of Western Australia)	208. A solution to eliminate mesh sensitivities observed in ductility predictions in crystal plasticity finite element models Dr Fatemeh AZHARI (The University of Melbourne)	70. Analysis of quasi-static perforation performance of metal-plastic laminates with different indenter nose shapes Dr Mohammad UDDIN (Unisa Stem)
9:20				14. Effects of non-uniform cross-section and stiffness on the nonlinear vibration behaviour of soft robotic arms Mr Hossein KHANIKI (The University of Adelaide)	136. Temperature Prediction of Railway Overhead Contact Wire Mr Esteban BERNAL (CQUniversity)	198. Applied Mechanics of Topological Interlocking Structures Co-presenters Prof Arcady DYSKIN (University of Western Australia) & Prof Elena PASTERNAK (University of Western Australia)
9:40	AIAC PLENARY 203: Focusing Our National Science and Technology Enterprise: Creating Impact Through Defence Science Dr Katerina AGOSTINO (DST Group)			107. A Review of Trajectory Planning for Autonomous Excavator in Construction and Mining Sites Mr Ngoc Tam LAM (Curtin University)	16. A recursive high-order implicit time integration method including controllable numerical damping Miss Xiaoran ZHANG (University of New South Wales)	46. Analysis of AFP manufactured fibre metal laminate structures under impact loading Mr Arcade SERUBIBI (University of New South Wales)
10:00				82. Vibratory Evaluation of Material Damping Performance of Cross-Laminated Timber Panels Mr Adam FAIRCLOTH (Department of Agriculture and Fisheries)	42. Direct structural analysis of point cloud models based on octree meshing techniques and the scaled boundary finite element method Miss Yifan ZHAN (University of New South Wales)	101. Longitudinal Three-point Bending of Corrugated Sandwich Panels with Cores of Various Shapes Mr Fukun XIA (Swinburn University of Technology)
10:20	Morning Tea (20 mins)					
10:40	Structures and Materials 5	Space Technologies 2	Structural Health Monitoring / Sensors & Algorithms	Kinematics, dynamics and vibrations 2	Non-destructive evaluation and materials identification 1	Advanced materials and structures 2
10:40	AIAC KEYNOTE 34: Materials Science to Implementation – Strategies for Closing the Gap Mr Neil MATTHEWS (RUAG)	AIAC KEYNOTE Title: To be confirmed Jason Held (Saberasto)	HUMS KEYNOTE Enterprise PHM Digital Thread Concepts & Opportunities Tom Dabney PHM Engineering	112. Two-to-one internal resonance in bending-torsion modes of an L-shaped cantilever structure Mr Yimin FAN (The University of Adelaide)	ACAM KEYNOTE 139. Exploring “Breathing” Crack-induced Contact Acoustic Nonlinearity: Analytical Modeling, Experimental Validation, and Quantitative Evaluation of Fatigue Cracks Prof Zhongqing SU (Hong Kong Polytechnic University)	161. Wave Attenuation of a Novel Three-dimensional Elastic Metamaterial with Low Frequency Bandgaps Mr Youchuan ZHOU (The University of Sydney)
11:10	68: Effect of oxygen shielding on the tensile and fatigue performance of 300M repaired through laser directed energy deposition Dr Cameron BARR (RMIT University)	AIAC KEYNOTE Title: To be confirmed Carl Seubert (SmartSat CRC) 11:10 - 11:40	37: Frictional heating as an estimator of modal damping and structural degradation – a vibrothermographic approach Prof Nick LIEVEN (University of Bristol)	65. A robust numerical model to investigate the response of aluminum cladding systems subjected to impact loading Mr Iqar HUSSAIN (School of Engineering And Built Environment, Griffith University)	203. Experimental investigations on second harmonics generated by leaky guided waves in immersed plates Mr Xianwen HU (The University of Adelaide)	51. A review on the challenges of using Zeolite 13x as heat storage systems for the domestic sector Co-presenters Mr Amirhossein BANAEI (Flinders University) & Mr Amir ZANJ (Flinders University)
11:30	57: Mechanical and fatigue properties of laser metal deposited Ti-6Al-4V for aerospace applications Dr Edward LUI (Centre for Additive Manufacturing, RMIT University)	81: Development of software tools for Mission Control Operations training at RMIT Mr Pieter ROMBAUTS (RMIT University) 11:40 - 12:00	55: Multi-Impact Force Identification on Aircraft Composite Structures using Operational Modal Analysis Mr Morteza PAYAB (RMIT university)	54. Auto-tuning Bayesian Filtering for Model Identification and Updating Using Reinforcement Learning Dr Yuguang FU (Nanyang Technological University)	205. Scaling subtraction method for local defect resonance determination in orthotropic CFRP laminates: Experimental and numerical studies Mr Lunan Wei (Beihang University)	97. Structural Stability of Carbon/Glass/Chopped Strand Ceramic Fibre Reinforced Bisphenol A Epoxy Hybrid Composites at Elevated Temperatures Mrs Jayani ANURANGI (University of Southern Queensland)
11:50	63: Acetate Replica Inspection for Aircraft Structural Integrity Management Mr David RUSSELL (RMIT/DSTG)	80: Characterisation of hydrated Martian minerals for development of a water extraction device Mr Nicholas FLORENT (RMIT University) 12:00 - 12:20	42: Passive phased array acoustic emission localisation via recursive signal-averaged Lamb waves with an applied Warped Frequency Transformation Mr Luke POLLOCK (UNSW Canberra)	37. Vibrations of axially functionally graded graphene-nanoplatelets-reinforced Euler-Bernoulli beams Miss Kelly YEE (The University of Adelaide)	9. Thermal Damage Detection and Monitoring of Pristine Graphene Mortar Materials Using a Cross-Modulation Vibro-Acoustic Technique Ms Tingyuan YIN (The University of Adelaide)	Retrofitting of Telecommunication Tower Legs Assoc/Prof Fidelis MASHIRI (Western Sydney University)
12:10	27: Undeniable proof of a first-order error in the classical expressions for shear strains in curvilinear co-ordinates Dr John HART-SMITH (Royal Aeronautical Society)	163: Ionizing radiation dose distributions on board habitable modules of the International Space Station Mr Liam MOSHOVELIS (RMIT University) 12:20 - 12:40	54: Validation of optimised vibration energy harvesters under near operational conditions Mr Jess FLICKER (Defence Science and Technology Group)	197. Applied Mechanics of Bilinear Oscillators Prof Arcady DYSKIN (University of Western Australia)		
12:30	28: On the Previously Unknown Other Buckling Mode for Thin Cylindrical Shells under Longitudinal Compression Dr John HART-SMITH (Royal Aeronautical Society)		164: A wireless accelerometer for in situ gearbox condition monitoring of rotating components Dr George JUNG (DSTG)			
12:50	Lunch Break (40 Mins)					
13:30	Structures and Materials 6	Autonomous Systems/UAS 1	Platform Asset Management	ACAM Plenary		
13:30	184: Observations from interpretation of a full-scale wing fatigue test Ms Sarah BUDGE (Qinetiq)	64: Validation of sky simulation model against data from an automated sky photography station. Miss Yiting TAO (University of South Australia)	183: Optimal plans and policies for the management of military aircraft fleets Dr David MARLOW (Joint and Operations Analysis Division, Defence Science and Technology Group)	ACAM PLENARY Real-time non destructive testing during metal additive manufacturing Professor Hoon SOHN (Korean Advanced Institute of Science and Technology)		
13:50	84: A Building-Block Approach to Study Aeroelastic Instabilities for Unconventional Aircraft Configurations Mr Nils BÖHNISCH (FH Aachen University of Applied Sciences, Aachen, Germany)	65: A Methodology of aerodynamic parameter characterization for a small agile fixed-wing UAV Mr Yuchen HUANG (University of Sydney)	11: A Study on Fleet Agnostic Health Usage and Monitoring System for Bridging Assets Mr Steven KOULOUENDAS (Anywise Consulting Pty Ltd)			
14:10	158: An improved algorithm for crack tip location finding with thermoelastic stress analysis Mr Lloyd BUTTON (Structural Integrity Research Group (SIRG) - School of Mechanical Engineering - The University of Adelaide)	75: Electromagnetic actuators for flapping wing flight Mr Blake MCIVOR (University of South Australia)	60: Deep Learning Airframe Load Prediction: A Data-Driven System for Aircraft Structural Health Management Dr Haytham FAYEK (RMIT University)	ACAM PLENARY Insect-scale robots on stimuli-responsive hydroxides/oxides: multi-material design, synthesis and chemo-mechanics Alfonso H.W. NGAN (The University of Hong Kong, Hong Kong)		
14:30	39: Durability/economic life analysis of cold spray repairs to simulated corrosion damage Mr Neil MATTHEWS (RUAG)	196: Large-scale In-plane Movement estimation of floating covers using UAV photogrammetry Mr Chiu WINGKONG (Monash University)				
14:50	Structures and Materials	Autonomous Systems/UAS	ACAM Fatigue, fracture and failure analysis of structures 2			
14:50	191: In Situ Thermoelastic Stress Analysis for Enhanced Structural Performance Assessment Dr Nik RAJIC (Department of Defence)	22: Sensitivity of Chord, Span and Pitch to a Single Propeller's Performance in both Water and Air Mr Zhe YANG (Aerospace engineering and Aviation, RMIT University)	169: Predicting failure in fibre reinforced composites under fatigue loading conditions Dr Mathew JOOSTEN (Deakin University)			
15:10	50: Dynamic characteristics of bioinspired micro-corrugated aerofoils Ms Nasim CHITSAZ (UNISA STEM, Australian Research Centre for Interactive and Virtual Environments, University of South Australia)		133: Numerical modelling on cyclic behaviour of retrofitted steel transmission towers Assoc/Prof Xing MA (University of South Australia)			
15:30	Afternoon Tea (20 mins)					

	AIAC	AIAC	ACAM	ACAM
15:50	Structures and Materials 7	New Technologies	Computational mechanics 3	Structural health monitoring and structural optimization 3
15:50	90: Deriving Optimal Control from Data using Machine Learning for Force Load Control Systems Miss Juliette SMITH (Defence Science and Technology Group, Melbourne)	74: On the applicability of traditional stabilizer sizing methods to novel joined wing configurations Mr Julius QUITTER (RMIT University / FH Aachen)	142. The application of interface damage plasticity model in the simulation of masonry walls in mesoscale level Mr Yu NIE (The University of Adelaide)	73. Image Deformation and Fractal Dimension Analysis for Automated Monitoring of Crack Propagation Mr Wei ZHANG (The University of Sydney)
16:10	78: Design Development and Manufacture of a Full-Scale Helicopter Airframe Test Rig Design Development, Manufacture and Commissioning of a Full-Scale Helicopter Airframe Test Rig Mr Geoff SWANTON (Defence Science and Technology Group)	89: A Physical Load Metric Development for Assessment of Mixed Reality in Aircraft Maintenance Tasks Dr Tauseef GULREZ (Defence Science and Technology Group, Melbourne)	96. Race conformity effect on the contact characteristics and wear of spherical roller bearings Mr Abdul Mannan (The University of Queensland)	132. Study of shear connector damage influence on interface slippage in steel-concrete composite beams with a novel slippage measurement method Mr Bing ZHANG (University of Technology Sydney)
16:30	47: Strain Characterisation of Laser Repaired Titanium Using Fibre Optic Sensing Mr Matthew STEVENS (DSTG)	23: Digital technology in passenger door-to-door air travel Miss Jiezhuma LA (RMIT University)	147. Computational simulation of mechanical stability and mechano-biology of distal radius fracture healing under volar locking plate Mr Xuanchi LIU (The University Of Melbourne)	207. Guided wave mixing and bispectrum analysis for monitoring of bolted joints Monitoring of Bolted Joints Mr Juan CARLOS (The University of Adelaide)
16:50			164. Integrity Operating Window Review of a Steam Reformer's Inlet Tee by Level 3 Fitness-For-Service Assessment Mr David OSUNA (Incitec Pivot Limited)	94. Robust Sensor Networks for Applications in Structural Health Monitoring Dr Samir MUSTAPHA (American University of Beirut)
17:10			96. An application of framed space curve to higher-order geometrically-exact beam with a deforming cross-section Dr Mayank CHADHA (University of California San Diego)	127. Mathematical Instability within Curvature Based Damage Detection Algorithms Mr Aaron BAKER (Flinders University)
17:30				15. Debonding damage detection and monitoring using nonlinear guided wave for reinforced concrete beam subjected to bending Mr Ahmed ASEEM (The University of Adelaide)
17:50	END			
Themes	Aeronautics (AIAC19)			
	HUMS Conference			
	Space Technology			
	ACAM			

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Wednesday, 1 December 2021

8:50	AIAC & ACAM Recap & Day 3 Welcome (10 mins)			
9:00	<p align="center">ACAM PLENARY Recent Developments in fracture mechanics and fatigue design Professor Filippo BERTO (Norwegian University of Science and Technology)</p>			
09:40	AIAC AIAC PLENARY	ACAM Additive manufacturing and advanced manufacturing 1	ACAM Advanced materials and structures 3	ACAM Composites 2
	<p align="center">AIAC PLENARY 189: Evolution of Military Aviation Regulations and Aviation Safety. My intent to provide a recent chronology of where we have come from and why, current work and future challenges. AIRCORE Joe MEDVED (DASA)</p>	<p align="center">ACAM KEYNOTE 118. Damage Tolerance of High-Performance Alloys Manufactured by Laser Powder Bed Fusion Prof Jamie KRUIZIC (UNSW Sydney)</p>	<p align="center">ACAM KEYNOTE 74. Development of novel protective materials and systems for resilient buildings and infrastructure Prof Tuan NGO (University of Melbourne)</p>	<p align="center">ACAM KEYNOTE 38. Graphene Origami Enabled Metamaterials Prof Jie YANG (RMIT University)</p>
10:20	Morning Tea (20 mins)			
10:40	AIAC Autonomous Systems/UAS 2	AIAC Operations, Airworthiness & Sustainment 2	ACAM Additive manufacturing and advanced manufacturing 2	ACAM Advanced materials and structures 4
10:40	<p>193: Rapid non-destructive inspection of composite laminates using robotic line-scan thermography Ms Jace DENNY (Department of Defence)</p>	<p>67: A Proposed Framework and Review of Probabilistic Methodologies to Characterise UAS Operational Risks Dr Reuben STRYDOM (Department of Defence)</p>	<p>106. Real Time Acoustic Based Burn Through Detection in Gas Metal Arc Welding Mr Mitchell CULLEN (University of Technology Sydney)</p>	<p>156. Effects of nanoparticles in DGEBA based shape memory polymers for biomedical applications Mr Lama Hewage Janitha JEEWANTHA (University of Southern Queensland - CFM)</p>
11:00	<p>18: An Approach for Autonomous Landing of UAVs using a Deep Neural Network (DNN) and Visual Features Dr Aakash DAWADEE (Defence Science and Technology Group (DSTG))</p>	<p>93: Investigating the performance dependency on the weight of different cost functions for the 3DVFH+ Mr Andreas THOMA (FH Aachen University of Applied Sciences)</p>	<p>177. Topology optimisation design for additive manufacturing with a passageway for powder removal Assoc/Prof Wenyi YAN (Monash University)</p>	<p>26. Dynamic response of TPMS-Primitive reinforced cement beam under impact loading Mr Jonathan TRAN (RMIT)</p>
11:20	<p>51: On Dependability in Human-Swarm Teaming- Toward Qualification of Smart Autonomous Systems Mr Andrew BUCKLEY (School of Engineering and Information Technology, The University of New South Wales, Canberra)</p>	<p>185: Holistic Risk Analysis of an Ageing Aircraft Wing Mr Rafal RUTKOWSKI (QinetiQ)</p>	<p>190. Conventional and ultrasonic diamond milling of pre-sintered zirconia Co-presenters Assoc/Prof Ling YIN (The University of Adelaide) & Miss Afifah JURI (The University Of Adelaide)</p>	<p>172. Wearable Temperature Sensors with Enhanced Sensitivity by Engineering Microcrack Morphology Ms Yuyan YU (UNSW)</p>
11:40	<p>19: Vision based traverse of a pipe by UAV Dr Kent ROSSER (DST)</p>	<p>1: The state of the art in the durability and damage tolerance analysis of am parts and attributable aircraft Prof Rhys JONES (Monash University)</p>	<p>199. Additive manufacturing of Diamond-Titanium composite as a multifunctional material for medical application using laser metal deposition Ms Nour MANI (RMIT)</p>	<p>35. Fatigue Life of Welded High Strength Steel T-joints Dr Han FANG (The University of Adelaide)</p>
12:00	<p>21: Aerial deployment of a small quadrotor Mr Jonathan DANSIE (Defence Science and Technology Group)</p>	<p>83: Rapid production of aircraft interior replacement parts with additive manufacturing Mr Akesh SENANAYAKE (RMIT University)</p>	<p>331. Effect of heat treatment on the residual stress in laser clad hypereutectoid rail components using neutron diffraction Ms Olivia Kendall (Monash University)</p>	<p>87. Characterisation of Pseudo-Ductile Hybrid 3D Printed Continuous Fibre-Reinforced Composites Miss Cheng HUANG (Deakin University)</p>
12:20	Lunch Break (40 mins)			
13:00	AIAC Autonomous Systems/UAS & Industry	AIAC Additive Manufacturing Panel Session	ACAM Structural health monitoring and structural optimization 4	ACAM Structure-fluid interactions
13:00	<p>77: Feasibility of Ultra-Long Endurance Aerial Vehicles Mr Michael YOUNG (Defence Science and Technology Group)</p>	<p align="center">Additive Manufacturing Panel Session 120 Mins</p>	<p>182. Vibration-based Debonding Assessment on Tile Panels using Finite Element Numerical Simulation Miss Daiheng SHEN (Monash University)</p>	<p>204. Computational Fluid Dynamic Validation of a Two-Dimensional Marine Propeller Blade Mr Long Hin POON (Flinders University)</p>
13:20	<p>157: Monitoring patterns for UAS Bistatic LIDAR-based CO2 Concentration Monitoring in Precision Agriculture Mr Maidul ISLAM (RMIT University)</p>		<p>56. Novel osseointegration implant optimization Mr Shouxun LU (Monash University)</p>	<p>102. The Mechanical Contributions and Effects of Underwater Explosion Loading on Structural Responses Dr Steven DE CANDIA (Defence Science And Technology Group)</p>
13:40	<p>26: Aviation Transport Infrastructure Discussion Paper A/Prof Chrystal ZHANG (RMIT University)</p>		<p>111. Application of MobilenetV3-Large model improved by transfer learning and CBAM in crack recognition and classification Dr Liujiu CHEN (Guangzhou University)</p>	<p>5. Analytical Investigation on the Performance of a Morphing Forward-folding Blades Wind Turbine by Using Qblade Mr Yung Jeh CHU (City University Of Hong Kong)</p>
14:00	<p>12: Digital transformation in air travel at pre-flight stage Dr Iryna HEIETS (RMIT University)</p>		<p>103. Analysis and design approaches for a frequency-agile piezoelectric energy harvester Mr Jess FLICKER (Defence Science and Technology Group)</p>	<p>186. Aerodynamic damping estimation for a horizontal axiswind turbine (HAWT) with the consideration of blade flexibility and mountain slope Mr Yisu CHEN (UNSW)</p>
14:20	<p>69: Towards Australia's First Certified Remotely Piloted Aircraft System Mr Austin KONG (Capability Acquisition and Sustainment Group - Department of Defence)</p>		<p>211. Experimental Study of the Reflection Characteristic of the Fundamental Anti-symmetric Lamb Wave from Internal Defects in Structural Timber Members Jinhang WU (The University of Adelaide)</p>	<p>19. Vortex-Induced Vibration of a Textured Rigid Pipe at Subcritical Reynolds Numbers Assoc/Prof Kaiming BI (Curtin University)</p>
14:40	Afternoon Tea (20 mins)			

15:00		Day 3 continued				
		AIAC	AIAC	ACAM	ACAM	ACAM
15:00		Aerodynamics	Autonomous Systems/UAS 2	Fatigue, fracture and failure analysis of structures 3	Mechanics of geomaterials and concrete 2 and Biomechanics, bio/sustainable composites 2	Additive manufacturing and advanced manufacturing 3 / Structural health monitoring and structural optimization 4
15:00	61: The Role of Posture in Dragonfly-like Air Vehicles in Turning Flight. Ms Titilayo OGUNWA (University of South Australia)	52: Buffet Load Prediction via Frequency Response Functions Mr Stephan KOSCHEL (RMIT)	81. Numerical analysis of rolling contact fatigue crack growth on curved railway tracks Mr Yiping WU (Monash University)	43. Fluid-Elastic Versus Computational Fluid Dynamics Techniques in the Biomechanical Analysis of Coronary Arteries Miss Sophie HEATH (The University of Adelaide)	117. Influence of shot peening and ball burnishing on surface integrity and corrosion resistance of AZ31B Mg alloys Mr Vincent SANTOS (Unisa - Stem)	
15:20	165: Modal Investigation of Transonic Shock Buffet using Gappy Proper Orthogonal Decomposition Mr Arpan DAS (RMIT University)	76: Ice Crystal Icing Wind Tunnel: Characterisation and Experimental Results Dr Khalid SALEH (School of Mechanical and Electrical Engineering, University of Southern Queensland)	187. Warping/Flexural Torsion: A Consistent Explanation Prof Douglas Clyde (Retired UWA)	55. Effect of different proximal neck and iliac bifurcation angles on the biomechanics of saccular AAA Mr Xiaochen WANG (The University of Adelaide)	23. Bioinspired 3D Printing – Unravel the Secret behind Porcupine Quill Structure Mr Yun LU TEE (RMIT University)	
15:40	49: Investigating on flow characteristics of different fabrication methods of mimicking 3D corrugated dragonfly wing through PIV method Ms Nasim CHITSAZ (UNISA STEM, University of South Australia)	70: Development of autonomous systems for drone racing Mr Muddasir TAHIR (The University of Sydney)	115. Fatigue Analysis of Metallic-Plastic-Metallic Pipeline Systems Mr Ji-sung LEE (Deakin University)	148. Development of Soft Sensor Pad for Pressure Measurement Within Regions of Limb Socket Interface of a Lower Limb Prosthesis Co-presenters Mr Swapno ADITYA (University of Wollongong) &Mr Matthew SCHNEBLI	22. Triply periodic minimal surfaces (TPMS) based lattice structure to reduce stress shielding effect Miss Chenxi PENG (RMIT University)	
16:00	86: Modal Analysis of Corrupt Transonic Shock Buffet Data using Robust Dynamic Mode Decomposition Mr Arpan DAS (RMIT University)		196. Fatigue Properties and Design of Structures Fabricated with WAAM Process Mr Andrew SALES (University of Adelaide)	180. A Laboratory Model to Evaluate the Prospective of Multi-Material Bone Plate for Transverse Fracture Fixation of Long Bones MR K M Anamul HOSSAIN (University of Technology Sydney)	47. The correlation between frequency changes and residual strength after low-velocity impact for composite beams Miss Zhifang Zhang (Guangzhou University)	
16:20	<u>AIAC Closing and Awards Ceremony</u>			168. Development of laser peening device to prolong fatigue life of metallic infrastructure Prof Yuji SANO (Institute For Molecular Science)		
16:40				168. Fatigue life estimation for heavy-tailed cyclic stress distributions Dr Aditya KHANNA (The University of Adelaide)		
17:00	END					
Themes	Aeronautics (AIAC19)					
	HUMS Conference					
	Space Technology					
	ACAM					