		MaDE2022 Programme			
Tuesday 25 Jan	nuary 2022				
	Registration Opens				
(Conference Opening (Great Room 4)				
9:00 AM - 9:30 AM	MIHI: TBC OFFICIAL OPENING: Professor Jim Metson, Deputy Vice Chancellor - Resear				
	Session Chair: Professor Olaf Diegel, MaDE2022 Co-Chair and Director of The University of Auckland's Creative Design and Additive Manufacturing Lab				
	Keynote Speaker: Frances Valintine CNZM (CEO and Founder, Tech Futures Lab) STEPPING INTO OUTER SPACES - A JOURNEY INTO UNCHARTERED FUTURES				
9:30 AM - 10:00 AM	STEPPING INTO UNIES SPACES - A QUANTEE INTO UNCHARLIERED FOLLOWS. Session Chair: Professor Old Diegel, MaDE 2022 Co-Chair and Director of The University of Auckland's Creative Design and Additive Manufacturing Lab				
	Room: Great Room 4				
	Morning Tea (Great Room 1) - sponsored by University of Waikato Poster and Exhibition Viewing				
	CONCURRENT CONFERENCE SESSION 1				
	Industry 4.0 - NZ Manufacturing	Advances in Additive Manufacturing	Commercialisation and Value-Add		
	Session Co-Chairs: Nick Pickering and Kevin Marett Room: Great Room 2	Session Co-Chairs: Jérôme Leveneur and Juan Schutte Room: Great Room 3	Room: Great Room 4		
	INDUSTRY 4.0 REQUIREMENTS BEYOND THE PANDEMIC HORIZON - Frank Phillips, LMAC New Zealand Ltd	INDUSTRY APPLICATIONS FOR MULTI JET FUSION – ENABLING THE BENEFITS OF HP MJF FOR ADDITIVE MANUFACTURING - Jonathin Zyalo, EVOR3D NZ	FROM A BRIGHT IDEA, THROUGH R&D TO A COMMERCIAL COMPANY: THE JOURNEY OF INHIBIT COATINGS LTD. - Jim Johnston, Victoria University of Wellington		
	HORTICULTURE SYSTEM OF SYSTEMS IMPLEMENTING AN AUTONOMOUS SURVEY ROBOT AND ORCHARD DIGITAL TWIN - NICk Pickering, University of Walkato	A SUSTAINABLE METHOD FOR CREATING 3D FORM UTILISING NATURAL SHRINKAGE AND THE PRECISION OF DIGITAL DEPOSITION - Nayanathara Kuruppuarachchi, Victoria University of Wellington	LEANING ON STRENGTHS AND PARTNERING FOR SUCCESS - Matt Bradley, Blender		
	INDUSTRIAL REVOLUTIONS - RISE OF THE MACHINES AND THE ROLE OF HUMANS - Allan Orr, Aspect PT and Caleb Millen, Beckhoff Automation Ltd	ADVANCED PLASMA STRATEGIES FOR SPATIAL ADDITIVE MANUFACTURING OF TENSILE STRUCTURES - Jérôme Leveneur, GNS Science	COMPANY GROWTH WITH A LITTLE HELP FROM INNOVATIVE SUPPLIERS! - Anne Staal, AUT		
10:30 AM -12:30 PM	THE PHARMA INDUSTRY 4.0: BLOCKCHAIN APPLICATION IN UPSTREAM SUPPLY CHAIN - Amirhossein Mostofi, Victoria University of Wellington	GENERATIVE DESIGN OF PROGRAMMED MATERIALS FOR CONTROLLED FREQUENCY RESPONSES - Wuxin Yang, AUT	OPPORTUNITY FOR AN AGRI-ROBOTICS INNOVATION ECOSYSTEM IN NEW ZEALAND - Mike Duke, University of Waikato		
	DEFINING AN APPROPRIATE PROCUREMENT MATURITY MODEL TO ASSESS AND IMPROVE INNOVATION PROCUREMENT IN FAST-GROWING/FRONTIER FIRMS IN NEW ZEALAND - Elizabeth McGill, AUT	AUTOMATING COMPLEXITY WITH nTOPOLOGY - Juan Schutte, CDAM Lab, The University of Auckland	MAKING MAKERS AND MAKING ENGINEERS: SEEDING THE NEXT GENERATION OF ENGINEERS THROUGH HANDS- ON SKILLS - Mark Jeunnette, The University of Auckland		
	DIGITAL TWIN-DRIVEN ONLINE ANOMALY DETECTION FOR AN AUTOMATION SYSTEM - Hulyue Huang, The University of Auckland	HIGH PERFORMANCE CONTINUOUS FIBRE COMPOSITE 3D PRINTING: PROTOTYPING AND PROCESS CHARACTERISATION - Josh Hares, CACM, The University of Auckland	FOILING OR FAILING: IT'S A FINE LINE – UNIVERSITY/INDUSTRY ENGAGEMENT, HOW HARD CAN IT BE? - Graeme Finch, CACM, The University of Auckland		
	AUGMENTED REALITY AND IOT - DRIVING TRANSFORMATION AT SCALE - Kevin Marett, LEAP Australia	ADDITIVE MANUFACTURE OF CEMENTITIOUS MATERIALS - Joel Epps, University of Canterbury	A CASE STUDY OF THE COMMERCIAL REAUTIES OF POLYMER ADDITIVE MANUFACTURING PRODUCTION, AKA "TALES FROM A SERVICE BUREAU" - Derek Manson, Flinnovations		
	HUMAN CAPITAL 4.0: THE NEW CONCEPT AND NEW COMPETENCE TYPOLOGY FOR THE WORKFORCE IN INDUSTRY 4.0 - Emmanuel Flores, The University of Auckland	FUNCTIONALLY GRADED CORE MATERIAL AND HARD-POINT INTERFACES FOR COMPOSITE SANDWICH PANELS - Ben Murton, University of Canterbury	ADDING VALUE TO THE SAWMILL PROCESS THROUGH VISION SCANNING - Daniel Kulasingham, Sequal		
12:30 PM - 1:30 PM	Lunch (Great Room 1) - sponsored by Fisher and Paykel Healthcare				
	Exhibition Viewing Keynote Speaker: Matt Darley (Recovery Systems Manager, Rocket Lab)				
1:30 PM - 2:00PM	TURNING ROCKET LAB'S ELECTRON ROCKET INTO A REUSABLE LAUNCH VEHICLE				
1.50 PW - 2.00PW	Session Chair: Professor Jim Johnston, MaDE2022 Co-Chair and Professor - School of Chemical and Ph	ysical Sciences, Victoria University of Wellington			
	Room: Great Room 4 CONCURRENT CONFERENCE SESSION 2				
l l	Applications in Additive Manufacturing	Design Innovations	Innovations in Manufacturing		
	Session Co-Chairs: Don Clucas and Troy Dougherty Room: Great Room 2	Session Co-Chairs: Tim Miller and Craig Shannon Room: Great Room 3	Session Co-Chairs: Emilio Callius and Simon Bickerton		
-	ROOM: Great ROOM 2				
	VAT DASED 3D DINITING OF FLECTROACTIVE DOLVMANDS	A ROBOTIC 3D/4D PRINTING CONSTRUCTION METHOD TO CREATE SUSTAINABLE LARGE SCALE TEMPORARY	Room: Great Room 4		
	VAT-BASED 3D PRINTING OF ELECTROACTIVE POLYMERS - Kyle Engel, The University of Auckland	A ROBOTIC 3D/4D PRINTING CONSTRUCTION METHOD TO CREATE SUSTAINABLE LARGE SCALE TEMPORARY STRUCTURES	Room: Great Room 4 METAMATERIALS, ADDITIVE MANUFACTURING AND DESIGN IN MECHANICAL ENGINEERING - Emilio Calius, AUT		
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2:00 PM -2:-20 PM	 - Kyle Engel, The University of Auckland FDM PRINTING OF POLYLACTIC ACID: TENSILE TESTING OF STRENGTH CONFIGURATIONS FOR MECHATRONICS - Benjamin Orwin-Higgs, Massey University 	A ROBOTIC 3D/4D PRINTING CONSTRUCTION METHOD TO CREATE SUSTAINABLE LARGE SCALE TEMPORARY STRUCTURES - Tim Miller, Victoria University of Wellington, School of Design Innovation VIRTUAL REALITY AS A DESIGN TOOL - Ben Thomsen, Blender INSOURCING VS OUTSOURCING AND BLENDED TEAMS - DELIVERING VALUE FOR PRODUCT DEVELOPMENT IN A	METAMATERIALS, ADDITIVE MANUFACTURING AND DESIGN IN MECHANICAL ENGINEERING - Emilio Calius, AUT MANUFACTURING RELATED DEFECTS IN CARBON FIBRE REINFORCED PLASTIC STRUCTURES — WHERE AND WHY THEY OCCUR, AND DO THEY MATTER? - Simon Bickerton, CACM, The University of Auckland A COST-EFFECTIVE HYBRID APPROACH FOR THE MANUFACTURING OF HIGH-PERFORMANCE INJECTION MOULD		
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Table Tabl	•				
Part Section Part	9:15 AM - 9:30 AM				
Manual and Table Name Manu	9:30 AM - 10:00 AM	Keynote Speaker: Bronwyn Fox (Chief Scientist, CSIRO and prev. Deputy Vice-Chancellor - Research & En THE INDUSTRY-RESEARCH NEXUS IN THE ADVANCED MANUFACTURING SECTOR Session Chair: Doctor Marcel Schaefer, MaDE2022 Co-chair and Programme Director, BEngTech, Mec Room: Great Room 4	terprise, Swinburne University of Technology)		
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SOUR MATERIAL SUCCESS TOWN Season Curry Principle Individuos, NUIDED 2D Co-Chair and Professor - School of Chammod and Physical Sciences, Victoria University of Wellington Source Contest Season Co-Chairs Paid found and George School Season Co-Chairs Paid found and School Season Co-Cha	12:00 PM - 1:00 PM	Exhibition Viewing			
Hothbrace Applications Session Co-Chair: Paid Evert and George Shotel Session Co-Chair: Tonds Servanne and Man Ser	1:00 PM - 1:30 PM	GALLAGHER SUCCESS STORY Session Chair: Professor Jim Johnston, MaDE2022 Co-Chair and Professor - School of Chemical and Ph	ysical Sciences, Victoria University of Wellington		
Sesion Co-Chairs: Thomas Borrane and Mark Battley Boom: Great Room 2 PISHER B PAYTEL MEATHCREE EVONA NASAL ADSSIN DUMPY PISHER B PAYTEL MEATHCREE EVONA NASAL B PAYTEL B PA					
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- Lorens Garda, ALT - Brent Young, The University of Auction THE USE OF ENGINEERING THEORY AND SENSOR TECHNOLOGIES TO DEVELOP SPORTS EQUIPMENT TESTING TECHNOLOGY - Paul Event, Winter List COMPARISON OF MULTIDIRECTIONAL SOMETICS STRINGTH TO PEPPLOP IN A SEATED POSITION USING A SIMPLE ANALYTICAL MODEL AND EXPRISED. AND EXPRESSION OF MULTIDIRECTIONAL SOMETICS STRINGTH TO PEPPLOP IN A SEATED POSITION USING A SIMPLE ANALYTICAL MODEL AND EXPRISED. A SEATED POSITION USING A SIMPLE ANALYTICAL MODEL AND EXPRISED. A SEATED POSITION USING A SIMPLE ANALYTICAL MODEL AND EXPRISED. A SEATED POSITION USING A SIMPLE ANALYTICAL MODEL AND EXPRISED. A SEATED POSITION USING A SIMPLE ANALYTICAL MODEL AND EXPRISED. A SEATED POSITION USING A SIMPLE ANALYTICAL MODEL AND EXPRISED. A SEATED POSITION USING A SIMPLE ANALYTICAL MODEL AND EXPRISED. A SEATED POSITION USING A SIMPLE ANALYTICAL MODEL AND EXPRISED. A SEATED POSITION USING A SIMPLE ANALYTICAL MODEL AND EXPRISED. A SEATED POSITION USING A SIMPLE ANALYTICAL MODEL AND EXPRISED. A SEATED POSITION USING A SIMPLE ANALYTICAL MODEL AND EXPRISED AND COLLED POLYMERS ACTUAL TOP SEATED. A SEATED POSITION USING A SIMPLE ANALYTICAL MODEL AND EXPRISED AND COLLED POLYMERS ACTUAL THE MODEL AND EXPRISED AND COLLED AN					
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ANALYTICAL MODEL AND EMPRIKCAL RESULTS - George Stilvell, University of Canterbury - George Stilvell, University of Canterbury - ARTIFICIAL MUSCLES FOR SOFT BEHABILITATION SYSTEMS: A MANUFACTURING PROCESS OF TWISTED AND COILED POLYMERS ACTUATORS WITH MICK RESISTANCE WIRE - Alberto Gonzalez Vazquez, AUT FROM BENCHTOP TO BEDSIDE: A CASE STUDY ON COMMERCIALISING A MEDICAL DEVICE - Deboral Munic, University of Canterbury, Mechanical Engineering - Philipp Nieke, The University of Audiand - Philipp Nieke, The University of Audiand - Philipp Nieke, The University of Audiand Afternoon Tea (Great Room 1) - Exhibition pack-down commences - PAREL DECUSSION 2 - TOPIC: ADVANCED MANUFACTURING TRANSFORMATION IN NZ - THE INDUSTRY-RESEARCH NEXUS - Room: Great Room 4 - ADJUDICATOR: Rachael Tighe - Senior Lecturer, Mechanical Engineering, University of Walkato - PAREL DESISTANCE Advanced Manufacturing Manager, University of Walkato - PAREL DESISTANCE Advanced Manufacturing TP Lead, MBIE - John Potgeter - Professor of Robotics, School of Food and Advanced Technology, Massey University Centre for Advanced Manufacturing - School of Food and Advanced Technology, Massey University Centre for Advanced Manufacturing - School of Food and Advanced Technology, Massey University Centre for Advanced Manufacturing - School of Food and Advanced Technology, Massey University Centre for Advanced Manufacturing - School of Food and Advanced Technology, Massey University Centre for Advanced Manufacturing - School of Food and Advanced Technology, Massey University Centre for Advanced Manufacturing - School of Food and Advanced Technology, Massey University Centre for Advanced Manufacturing - School of Food and Advanced Technology, Massey University Centre for Advanced Manufacturing - School of Food and Advanced Technology, Massey University Centre for Advanced Manufacturing - School of Food and Advanced Technology, Massey University Centre for Advanced Manufacturing - School of Food and Advanced Technology, Massey University Centre for Advanced Ma	1:30 PM - 3:00 PM				
POLYMERS ACTUATORS WITH NICK RESISTANCE WIRE - Alberto Gonzalez Vazquez, AUT - FROM BENCHTOP TO BEDSIDE: A CASE STUDY ON COMMERCIALISING A MEDICAL DEVICE - Deborah Munro, University of Canterbury, Mechanical Engineering - Philipp Nieke, The University of Auddand - Philipp Nieke, T		ANALYTICAL MODEL AND EMPIRICAL RESULTS			
- Deborah Munro, University of Canterbury, Mechanical Engineering - Philipp Nieke, The University of Auckland 3:00 PM - 3:30 PM Exhibition pack-down commmences PANEL DISCUSSION 2 TOPIC: ADVANCED MANUFACTURING TRANSFORMATION IN NZ - THE INDUSTRY-RESEARCH NEXUS Room: Great Room 4 ADJUDICATOR: Rachael Tighe - Senior Lecturer, Mechanical Engineering, University of Waikato PANELUSTS: 3:30 PM - 4:30 PM Catherine Beard - Director of Advocacy, BusinessNZ Frank Philips - Advanced Manufacturing Manager, LMAC Consulting NZ Hunter Nottage - Philips Director and Advanced Manufacturing ITP Lead, MBIE Johan Potgleter - Professor of Robotics, School of Food and Advanced Technology, Massey University Centre for Advanced Manufacturing Kahl Betham - CEO & Executive Director, Gallagher Awards and Conference Closing - sponsored by GNS Science Session Co-Chairs: Professors Jim Johnston and Olaf Diegel		POLYMERS ACTUATORS WITH NICT RESISTANCE WIRE			
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4:30 PM - 3:00PM Session Co-Chairs: Professors Jim Johnston and Olaf Diegel	3:30 PM - 4:30 PM	PANEL DISCUSSION 2 TOPIC: ADVANCED MANUFACTURING TRANSFORMATION IN NZ – THE INDUSTRY-RESEARCH NEXUS Room: Great Room 4 ADJUDICATOR: Rachael Tighe – Senior Lecturer, Mechanical Engineering, University of Waikato PANELUSTS: Catherine Beard – Director of Advocacy, BusinessNZ Frank Phillips – Advanced Manufacturing Manager, LMAC Consulting NZ Hunter Nottage – Policy Director and Advanced Manufacturing ITP Lead, MBIE Johan Potgleter – Professor of Robotics, School of Food and Advanced Technology, Massey University Centre for Advanced M	lanufacturing		
Session Co-Chairs: Professors Jim Johnston and Olat Diegel	4:30 PM - 5:00PM	Awards and Conference Closing - sponsored by GNS Science			

Poster Presenta	ations	
RESILIENCE FOR NEW ZEALAND MANUFACTURING (FUTURE	GENERATION OF BIOGAS USING FIXED-DOME ANAEROBIC DIGESTER FOR SMALL-SCALE INDUSTRIAL APPLICATIONS IN NEW ZEALAND	
UNIVERSITY, CRI, INDUSTRY R&D COLLABORATIONS	ACADEMIC LEADERSHIP + TECHNICAL SUPPORT) × STUDENT LEARNING OPPORTUNITIES = RESEARCH AND DEVELOPMENT TO INDUSTRY Lauane Andrade, Waikato Institute of Technology (Wintec)	
	DPTIMISATION OF SENSORY FACTORS AND ENVIRONMENTAL PERFORMANCE OF FOOD PRODUCTS: A CASE STUDY OF A VEGETABLE-BASED PATTY - Madison Franks, Massey University	
	A FLEXIBLE MONITORING SYSTEM FOR MACHINERY HEALTH MANAGEMENT IN INDUSTRY 4.0 FRAMEWORK Minjung Kim, The University of Auckland	
	MEASURING MOISTURE INGRESS INTO HOUSINGS FOR LONG-TERM WIRELESS IMPLANTABLE SENSORS Simon Blue, University of Canterbury	
	INVESTIGATION OF CONDENSATION-FROSTING ON COATING-FREE TOPOGRAPHIC WETTING GRADIENTS FOR HEAT TRANSFER SURFACE APPLICATIONS Chris Hughes, University of Otago	
- INNOVATIONS IN	FINITE ELEMENT ANALYSIS METHODS IN SPINAL FUSION Sebastian Jones, University of Canterbury	
	MULTI-AXIS SPIN COATING ON CURVED SURFACES -Finn McIntyre, University of Canterbury	
	ARTIFICIAL INTELLIGENCE AND MULTI-MATERIAL 4D PRINTING IN PHYSICAL FILM DESIGN AND MANUFACTURE Andrew Roberts, Victoria University of Wellington	
	THE USE OF 4D PRINTING TO PRODUCE MYCELIUM ('FUNGI ROOTS') MATERIALS Deane Thomas, University of Canterbury	
	DESIGN, MANUFACTURING AND MECHANICAL TESTING OF SMALL-SCALE WIRELESS CHARGING PADS FOR ROADWAYS Kai-Yeung Li, The University of Auckland	
c	CONCURRENT OPTIMISATION TOOLS FOR MULTI-PART COMPOSITE YACHT STRUCTURES Tobias Lorimer, The University of Auckland	
	CREATING A LIVING 4D PRINTING PLATFORM Chris Bainbridge, The University of Auckland	
	MATERIAL AND STRUCTURAL TAILORING WITH ADAPTIVE BIO-BASED MATERIALS AND ADDITIVE MANUFACTURING FOR ENHANCED COMFORT OF PROSTHETICS AND ORTHOTICS - Dayna Cracknell, The University of Auckland	
- ADDITIVE MANUFACTURING AND	POST-PRODUCTION MECHANICAL PROPERTY MODIFICATION OF "LIVING" GELS VIA PET-RAFT Patrick Imrie, The University of Auckland	
DESIGN INCLUDING 3D AND 4D P	PLASTIC IN PRACTICE: AN EMPIRICAL APPROACH TO 3D PRINTED UPCYCLING IN NEW ZEALAND SCHOOLS - Maddison Jessop-Benseman, Victoria University of Wellington	
F -	FAST HYDROLYTICALLY DEGRADABLE 3D PRINTED OBJECT BASED ON ALIPHATIC POLYCARBONATE THIOL-YNE PHOTORESINS Yimel Wu, The University of Auckland	
	APPLICATION OF PURE TITANIUM COATINGS FOR MEDICAL PURPOSES Hong Zhou, Waikato Institute of Technology (Wintec)	
MANUFACTURING PROCESSES AND TECHNOLOGIES INCLUDING	REMOTE ACCESS AND CONTROL OF PLC LAB EQUIPMENT Praneel Chand, Waikato Institute of Technology (Wintec)	
ROBOTICS, AUTOMATION AND VIRTUAL	DESIGN OF A LOW-COST SOIL DRYING OVEN Praneel Chand, Waikato Institute of Technology (Wintec)	