

MaDE2020 DRAFT Programme

Monday 7 December 2020

8:00 AM - 8:45 AM	Registration Open		
9:00 AM - 9:30 AM	Conference Opening (Great Room 4) MIHI: Jeremy Hēma OPENING: Prof Jim Metson		
9:30 AM - 10:00 AM	Keynote Speaker: Catherine Beard (Executive Director, Manufacturing NZ) Room: Great Room 4		
10:00 AM - 10:30 AM	Morning Tea Break (Great Room 1) - sponsored by AUT Poster and Exhibition Viewing (POSTER PRESENTERS TO BE AVAILABLE AT THEIR POSTERS FOR VIEWING AND JUDGING)		
10:30 AM - 12:30 PM	CONCURRENT CONFERENCE SESSION 1		
	Room: Great Room 2	Room: Great Room 3	Room: Great Room 4
	Entrepreneurial Mindset and Manufacturing DESIGNING RESEARCH FOR IMPACT - Don Cleland, Massey University and SFTI	Industry 4.0 - An Overview IOT WITHOUT INTERNET OR THINGS - Aryaman Taore, Beckhoff Automation	Additive Manufacturing - An Overview DEMOCRATISING MEDICAL DEVICES: 3D PRINTING AND OPEN SOURCE SYSTEMS FOR DESIGN, DEVELOPMENT AND DISTRIBUTION - Simon Fraser, Victoria University of Wellington
	RESEARCHER – INDUSTRY PARTNERSHIP TO ENABLE INNOVATIVE PROCESSES: A CASE STUDY - Pauline Calloch, Callaghan Innovation	WHAT IS INDUSTRY 4.0? DISPELLING THE COMMON MYTHS AND FEARS - Yuqian Lu, The University of Auckland	DESIGNING AND 3D PRINTING A 25 KG STAINLESS STEEL BUILDING STRUCTURAL NODE - Mike Fry, TIDA
	MARKET SHAPING FOR DEEP-TECH INNOVATION - Julia Fehrer, Business School, The University of Auckland	APPLICATION OF AUGMENTED REALITY AND INDUSTRIAL INTERNET OF THINGS TECHNOLOGIES TO HIGH VALUE MANUFACTURING PROCESSES - Kevin Marret, LEAP Australia	OPTIMISED 3D PRINTED STRUCTURES: DEVELOPING A SIX-AXIS ROBOTIC SPATIAL PRINTING SYSTEM - Hamish Morgan, Victoria University of Wellington
	CAN YOU TEACH ENTREPRENEURSHIP TO UNDERGRADUATE ENGINEERS? - Nick Pickering, University of Waikato	HEMO RD SCULPTURE: AN INTERSECTION WITH INDUSTRY 4.0 - Derek Kawiti, Victoria University of Wellington	A HYBRID ADDITIVE MANUFACTURING STRATEGY FOR INJECTION MOULD INSERTS - Simon Chan, The University of Auckland
	THE FORM AND FUNCTION OF INTERMEDIARIES IN A SCIENCE AND TECHNOLOGY CONTEXT - Paul Woodfield, Auckland University of Technology	A PRACTICAL JOURNEY INTO INDUSTRY 4.0 - Paul Gravatt, Motion Design	ADDITIVE MANUFACTURING WITH FLAME RETARDANT MATERIALS - Sarat Singamneni, Auckland University of Technology
	RESEARCH AND DEVELOPMENT FUNDING OPPORTUNITIES VIA REGIONAL BUSINESS PARTNER NETWORK - David Claridge, ATEED	TAILORING INSPECTION TO APPLICATION – A DOUBLE EDGED SWORD - Rachael Tighe, University of Waikato	APPLICATION OF ADDITIVE MANUFACTURING FOR RAPID PRODUCT DEVELOPMENT – A CASE STUDY - Arno Ferreira, DFAM Lab, The University of Auckland
	LEADTIME QUOTATION AND PRICING FOR MAKE-TO-ORDER MANUFACTURING SYSTEMS - Tava Olsen, The University of Auckland	SELF-SERVICE SILO – CUSTOMER CONVENIENCE 24/7 - Caleb Millen, Beckhoff Automation NZ, and Nikk King, NZ Controls	USING THE RIGHT TOOL FOR THE RIGHT JOB - Juan Schutte, The University of Auckland
DEVELOPING ENGINEERING DESIGN AND MANUFACTURING TALENT THROUGH THE FORMULA-SAE COMPETITION - Lizzy Grant, Department of Mechanical Engineering, The University of Auckland	APPLICATION OF RFID SENSORS IN DETECTION OF ILLICIT CONNECTIONS, SURFACE FLOWRATES, AND SEWER BLOCKAGES - Sundra Rami Reddy Tatiparthi, The University of Auckland	HIGH STRENGTH ALUMINIUM ALLOY LASER POWDER BED FUSION - Zhan Chen, Auckland University of Technology	
12:30 PM - 1:30 PM	Lunch Break (Great Room 1) - sponsored by Fisher & Paykel Healthcare Exhibition Viewing		
1:30 PM - 2:00PM	Keynote Speaker: David Chuter (CEO and Managing Director, Innovative Manufacturing CRC) Room: Great Room 4		
2:00PM - 3:30 PM	CONCURRENT CONFERENCE SESSION 2		
	Room: Great Room 2	Room: Great Room 3	Room: Great Room 4
	Innovation in Manufacturing, Design and Entrepreneurship ENHANCING GEOTHERMAL ENERGY RECOVERY AND FACILITATING ENVIRONMENTAL REMEDIATION THROUGH A NEW NANOSTRUCTURED CALCIUM SILICATE TECHNOLOGY - Jim Johnston, Victoria University of Wellington	NZ and The Circular Economy BEYOND THE CIRCULAR ECONOMY WITH THE SDGS – MOVING ON FROM EFFICIENT TO EFFECTIVE - Barbara Nebel, thinkstep-anz	Pre-recorded Oral Presentation DIGITALISING MATERIALS INSPECTION: PROCESS CONTROL AND QUALITY ASSURANCE USING SMART IN-MOULD SENSORS - Andrew Gillen, Netzsch Australia Pty Ltd (<i>Pre-recorded presentation</i>)
	INVESTIGATION OF NEW ZEALAND'S NATURAL MAGNETIC MINERALS FOR APPLICATION IN INROAD CHARGING SYSTEMS - Bill Trompeter, GNS Science	AIR-CRAFTED ARTEFACTS: ADDITIVE UPCYCLING PLASTICS WITHIN THE AVIATION TOURISM INDUSTRY - Courtney Naismith, Victoria University of Wellington	PANEL DISCUSSION 1 TOPIC: How can we develop our MaDE students to be industry ready? Adjudicator: Mark Battley Room: Great Room 4
	DESIGN: IT'S ALL IN THE DETAILS - Alistair Patterson, Blender Design Ltd	LIFE CYCLE THINKING IN PRODUCT DESIGN - Oliver McDermott, Blender Design Ltd	
	DESIGN AND DEVELOPMENT OF AN APPLE FRUITLET THINNING END-EFFECTOR - Rahul Jangali, The University of Waikato	3D PRINTING RENEWABLE MATERIALS - Marie-joo Le Guen, Scion	
DICHROIC COLOUR-CHANGING MATERIALS - Emma Wrigglesworth, Victoria University of Wellington	THE USE OF LCA IN EARLY DESIGN TO OPTIMISE THE ENVIRONMENTAL PERFORMANCE OF ACTIVE PRODUCT SYSTEMS - Mike Horrell, Massey University		
NEW ZEALAND FIRMS: REACHING FOR THE FRONTIER - Geoff Lewis, New Zealand Productivity Commission	DEVELOPMENT OF A BUILDING-INTEGRATED PHOTOVOLTAIC PRODUCT FOR LONG RUN METAL ROOFING - Benjamin McGuinness, University of Waikato		
3:30 PM - 4:00 PM	Afternoon Tea (Great Room 1) Poster and Exhibition Viewing (POSTER PRESENTERS TO BE AVAILABLE AT THEIR POSTERS FOR VIEWING AND JUDGING)		
4:00 PM - 5:00 PM	CONCURRENT CONFERENCE SESSION 3		
	Room: Great Room 2	Room: Great Room 3	Room: Great Room 4
	4D Printing A DESIGN-SCIENCE COLLABORATION: TAILORING BIO-MATERIALS AND 4D PRINTING FOR NEW PRODUCT OPPORTUNITIES - Tim Miller, Victoria University of Wellington	Design for Medical Applications DESIGN OF A NOVEL STENT FOR HAEMORRHAGE CONTROL - Lorenzo Garcia, Auckland University of Technology	Innovation in Manufacturing, Design and Entrepreneurship SURFACE ENGINEERING BY TITANIUM PIM. - Paul Ewart, Waikato Institute of Technology
	POLYMERS FOR 4D PRINTING - Patrick Imrie, The University of Auckland	DESIGN AND MANUFACTURE OF PATIENT HANDLING SYSTEM FOR A NOVEL UPRIGHT MRI SYSTEM - Christy Wells, School of Design, Victoria University of Wellington	MODELLING AND OPTIMISING THE FLOW PROFILE OF A GAS VALVE - John Riley, Fisher & Paykel Appliances Ltd
ADDITIVE MANUFACTURING WITH RESPONSIVE COMPOSITE MATERIALS AND BIOBASED POLYMERS - John McDonald-Wharry, The University of Waikato	DEVELOPMENTS AND OPPORTUNITIES IN MEDICAL TEXTILES - Nimesh Kankariya, Centre for Materials Science and Technology, University of Otago	A REVIEW OF THE MOST RECENT DEVELOPMENT IN ADHESIVELY BONDED JOINTS FOR METAL/COMPOSITE STRUCTURAL FRAMEWORKS - Ardeshir Saniee, Auckland University of Technology	
NEW OPPORTUNITIES FOR MICROFABRICATION - Andrea Bubendorfer, Callaghan Innovation	DESIGN AND DEVELOPMENT OF A QUICK RELEASE ARM BRACE FOR A PARALYMPIC CYCLIST - George Stilwell, University of Canterbury	SURFACE MODIFICATIONS AND COATINGS FOR IMPROVED ENERGY EFFICIENCY AND PERFORMANCE - Jérôme Leveener, GNS Science	
5:00 PM - 5:30 PM	No activity planned		
5:30 PM - 7:00 PM	Student Innovation Showcase (Happy Hour) - sponsored by The University of Waikato		
6:00 PM - 7:00 PM	Pre-dinner drinks		
7:00 PM - 10:00 PM	Conference Dinner (Great Room 4) - sponsored by Beckhoff. Dinner Welcome: TBC Key Dinner Address: Brett O'Riley (CEO, Employers and Manufacturers Association)		

Tuesday 8 December 2020			
8:30 AM - 9:15 AM	Registration Opens		
9:15 AM - 9:30 AM	Introduction of Day (Great Room 4)		
9:30 AM - 10:00 AM	Keynote Speaker: Rebecca Percasky (CEO, The Better Packaging Co.) Room: Great Room 4		
10:00 AM - 10:30 AM	Morning Tea Break (Great Room 1) - sponsored by Ministry of Business, Innovation and Employment Poster and Exhibition Viewing (POSTER PRESENTERS TO BE AVAILABLE AT THEIR POSTERS FOR VIEWING AND JUDGING) CONCURRENT CONFERENCE SESSION 4		
10:30 AM - 12:00 PM	Room: Great Room 2	Innovation in Materials Manufacturing and Dynamics	Additive Manufacturing Applications
		SCALING-UP: COMMERCIALISING OUR SCIENCE - Nigel Sharplin, Infact Limited	COMPLIANT GRIPPERS - AN ADDITIVE APPROACH - Josh Barnett, University of Waikato
		EFFECT OF CNC MACHINING ON PERCEIVED TACTILE PROPERTIES OF NATIVE AND NON-NATIVE TIMBERS - Nicholas Emerson, University of Canterbury	DEVELOPMENT OF HTV SILICONE WITHIN NEW ZEALAND - Charlotte Bunnett, New Zealand Artificial Limb Service
		FATIGUE BEHAVIOUR OF CARBON-FIBRE EPOXY COMPOSITES WITH RESIN FLOW CHANNELS - Kariappa Maletira Karumbalah, The University of Auckland	HIGH RESOLUTION ELECTROHYDRODYNAMIC PRINTING FOR FLEXIBLE ELECTRONICS AND SENSOR FABRICATION - Muhammad Asif Ali Rahmani, Massey University
		FABRICS AS SENSORS: EFFECTS OF EXTERNAL FACTORS ON PERFORMANCE - Sophie Wilson, University of Otago	FABRICATION AND CHARACTERISATION OF 3D PRINTED MICROCHANNELS - Swagna Jaywant, Massey University
		EFFECT OF YARN ARRANGEMENT IN FABRIC ON WATER TRANSFER FROM WET TEXTILE TO VITRO-SKIN* - Sahar Abdolmaleki, University of Otago	THERMAL 3D SCREEN PRINTING OF SACRIFICIAL WAX MOULDS - Hossein Najaf Zadeh, University of Canterbury
		PLANAR TO WHIRLING – A RESONANT ENERGY TRANSFER PHENOMENA EXHIBITED IN LEN LYE'S KINETIC ART - Angus McGregor, University of Canterbury	THE DESIGN FOR ADDITIVE MANUFACTURING OF COMPLIANT MECHANISMS FOR APPLICATION IN THE AVIATION INDUSTRY - Ishaan Singhal, The University of Auckland
12:00 PM - 1:00 PM	Lunch Break (Great Room 1) - sponsored by Fisher & Paykel Appliances Exhibition Viewing		
1:00 PM - 2:00 PM	CONCURRENT CONFERENCE SESSION 5		
	Room: Great Room 2	Application-based Additive Manufacturing	Application-based Design
		3D-PRINTED MONOLITHIC POROUS STRUCTURES FOR BIOLOGICAL SEPARATIONS - Conan Fee, School of Product Design, University of Canterbury	MEASUREMENT OF DIAL FEEL ON APPLIANCES - Stephen Gibson, Fisher & Paykel Appliances Ltd
		UTILISING PARAMETRIC CUSTOMISATION TO TRANSLATE AUXETIC STRUCTURE THEORY INTO ADDITIVELY MANUFACTURED MULTIMATERIAL PERFORMATIVE GEOMETRIES - Brittany Mark, Victoria University of Wellington	THE EXPERIENCE OF PROTOTYPING FOR DESIGN STUDENTS IN A DISTRIBUTED WORLD - Euan Coultts, University of Canterbury
	ENERGY ABSORPTION OF FDM 3D PRINTED TPMS STRUCTURES - Ben Murton, University of Canterbury	DESIGN OF A TANDEM RACING BICYCLE - Digby Symons, University of Canterbury	ENGINEERING AND MARKETING COLLABORATION AT THE FRONT END OF INNOVATION: A CASE STUDY OF A MEDICAL DEVICE COMPANY - Lizanne Gomes, The University of Auckland
	INKJET PRINTING: ADDING VALUE TO TRADITIONAL MANUFACTURING - Jonathan Stringer, The University of Auckland	DEVELOPMENT OF A NON-DESTRUCTIVE TESTING TOOL FOR INSULATED PIPE INSPECTION - Joseph Bailey, Victoria University of Wellington	EXPORTING KIWI INNOVATION - Ben Thomsen, Blender Design Ltd
2:00 PM - 3:15 PM	PANEL DISCUSSION 3 TOPIC: How should MaDE be different for New Zealand post-pandemic? Adjudicator: Olaf Diegel Room: Great Room 4		
3:15 PM - 3:45 PM	Awards and Conference Closing - sponsors: GNS Science and PDMA NZ Session Co-Chairs: tbc		
4:00 PM	Post-conference Cocktails - sponsored by University of Canterbury		

Poster Presentations

02. Innovation, design, product development and manufacturing in a green, energy efficient environment	AUTOMATED BANDSAWN PLYWOOD CLADDING PRIME AND PAINT MACHINE / POSTER - Mohammad Al-Rawi, CEID/Waikato Institute of Technology
02. Innovation, design, product development and manufacturing in a green, energy efficient environment	DEVELOPMENT OF INNOVATIVE CROSS-DISCIPLINARY ENGINEERING SHOWCASE - Jai Khanna, Waikato Institute of Technology
02. Innovation, design, product development and manufacturing in a green, energy efficient environment	GLASS REINFORCED EPOXY LAMINATE ELECTRODES FOR SENSING APPLICATIONS - Kartikay Lal, Massey University
02. Innovation, design, product development and manufacturing in a green, energy efficient environment	ATV TYRE ROLLING RESISTANCE IN AGRICULTURE - Tim Petterson, University of Canterbury
04. Additive Manufacturing – including specialist products and mass customisation	TOPOLOGY OPTIMIZATION AND GENERATIVE DESIGN OF PRODUCTS UTILIZING SLM - Daniel Song, The University of Auckland
04. Additive Manufacturing – including specialist products and mass customisation	DESIGN AND TOPOLOGY OPTIMIZATION OF AN AUTONOMOUS DRIVING SHUTTLE BODY FOR ADDITIVE MANUFACTURING - Benedictus Notoprodjo, Massey University
04. Additive Manufacturing – including specialist products and mass customisation	CONTINUOUS, HIGH SPEED RESIN 3D PRINTING BY INTERFACE TEMPERATURE CONTROL - Jason Collingwood, Massey University
04. Additive Manufacturing – including specialist products and mass customisation	IN-SITU LOW POWER LASER RE-MELTING OF DIRECT METAL PRINTED SPECIMENS FOR IMPROVED SURFACE FINISH - Tanisha Pereira, Massey University
04. Additive Manufacturing – including specialist products and mass customisation	ENVIRONMENTAL IMPACTS: VISUALISING A CHANGING MORPHOLOGY IN PRINT - Jessica Salter, School of Design, Victoria University of Wellington
05. Advanced and functional materials in product design and manufacturing including additive manufacturing	ASSESSING THE DESIGN OF BONE INTERFACING ADDITIVE MANUFACTURED TITANIUM MEDICAL DEVICES VIA IMAGING - Kenzie Baer, University of Otago, Christchurch
05. Advanced and functional materials in product design and manufacturing including additive manufacturing	ELECTROSPINNING OF PROTEIN NANOFIBERS - Qun Chen, The University of Auckland
05. Advanced and functional materials in product design and manufacturing including additive manufacturing	DEVELOPMENT OF A SHEEP KNEE FINITE ELEMENT MODEL TO OPTIMISE THE DESIGN OF ADDITIVE MANUFACTURED IMPLANTS - Josephine Shum, University of Otago, Christchurch
05. Advanced and functional materials in product design and manufacturing including additive manufacturing	CHARACTERISATION OF THE RELATIONSHIP BETWEEN HYDROGEL PROPERTIES AND 3D-PRINTING PARAMETERS - Melissa Ishii, University of Canterbury
05. Advanced and functional materials in product design and manufacturing including additive manufacturing	PROTEIN-BASED BIOMATERIALS FOR 3D & 4D PRINTING - Heliana Agnieray, The University of Auckland
05. Advanced and functional materials in product design and manufacturing including additive manufacturing	INFLUENCES OF AMBIENT TEMPERATURE ON SINTERING OF BIODEGRADABLE POLYLACTIC ACID (PLA) USED IN FUSED DEPOSITION MODELLING (FDM) - Adel Ameer, University of Waikato
05. Advanced and functional materials in product design and manufacturing including additive manufacturing	MICRO-CONTACT PRINTED, SELF-ASSEMBLED PATTERN-BASED ARSENIC DETECTION - Swapna Jaywant, Massey University
05. Advanced and functional materials in product design and manufacturing including additive manufacturing	NOVEL POLYMER MATERIAL FOR WIRELESS IMPLANTABLE SENSORS - Simon Blue, University of Canterbury
07. Industry 4.0 and Data Driven Design and Innovation	DEVELOPMENT OF AN OPERATION MONITORING AND MANAGEMENT SYSTEM FOR SMART FACTORIES - Reza Hamzeh, The University of Auckland
07. Industry 4.0 and Data Driven Design and Innovation	COMPLEX DESIGNER: PHYSICAL INTERACTION AND IMMERSIVE VISUALIZATION WITH VIRTUAL PRODUCTS - Annabelle Ritchie, University of Canterbury
07. Industry 4.0 and Data Driven Design and Innovation	A SMART MONITORING PLATFORM FOR MACHINERY HEALTH MANAGEMENT IN THE FRAMEWORK OF INDUSTRY 4.0 - Madhurjya Dev Choudhury, The University of Auckland
07. Industry 4.0 and Data Driven Design and Innovation	RETROFITTING STRATEGY OF MANUFACTURING SYSTEMS TO INDUSTRY 4.0 STANDARD - Dylan Luther Malvar, Auckland University of Technology
07. Industry 4.0 and Data Driven Design and Innovation	INNOVATING IN THE AGE OF AI, AN EXPLORATION OF HUMAN-AI COOPERATION IN INTERNATIONAL BUSINESS - Jitao Yan, The University of Auckland
07. Industry 4.0 and Data Driven Design and Innovation	AUGMENTED REALITY-ENABLED MACHINE MAINTENANCE FOR CYBER-PHYSICAL MACHINE TOOLS - Zexuan Zhu, The University of Auckland
08. Digital tools for manufacturing, automation and control including robotics and automation	RECONDITIONING FESTO MANUFACTURING MACHINES FOR USE WITH ROCKWELL AUTOMATION EQUIPMENT - Praneel Chand, Waikato Institute of Technology
15. Human Capability Development	HUMAN CAPITAL 4.0: COMPETENCES AND SKILLS FOR DISRUPTIVE CHALLENGES - Emmanuel Flores, The University of Auckland
16. Other	MINIMISING CONSTRUCTION AND DEMOLITION WASTE TO ACHIEVE A CIRCULAR ECONOMY - Rohit Gade, Auckland University of Technology