Day 2 – Thursday 16th September

08.50 **Opening of Day 2 Paulo Bartolo (paulojorge.dasilvabartolo@manchester.ac.uk)**

Plenary Session

Chair: Paulo Bartolo

09.00 - 09.50 *Smart and Appropriate Manufacturing Technologies*
Prof Sung-Hoon Ahn
Seoul National University

09.50 – 10.40 *Towards Factories of the Future through Smart Manufacturing*
Prof Lihui Wang
KTH Royal Institute of Technology

11.00 – 12.20 Parallel Sessions 1.

	Session 1-A: Product Design **Chair: Murat Kilic** zekaimurat.kilic@manchester.ac.uk	**Session 1-B: Intelligent Robotics & Automation Systems** **Chair: Andrew Longstaff** a.p.longstaff@hud.ac.uk	**Session 1-C: Measurements and Digital Technologies** **Chair: Jinglei Ouyang** Jinglei.ouyang@manchester.ac.uk
11.00 – 11.20	MAT21-148 4D printing applications in the cardiovascular system Ebrahim Vahabli University of Western Australia	MAT21-108 Digital twins for CNC machining – a review Charlie Walker University of Strathclyde	MAT21-116 A method for down-selecting temperature sensor locations for machine thermal error modelling Nemwel Ariaga University of Huddersfield
11.20 – 11.40	MAT21-113 3D/4D Printing a bioinspired leaf biosensor Mohamed Hassan The University of Manchester	MAT21-110 New online position correction approach of an industrial robot by using a new photogrammetric measurement system Luis Garcia Hochschule Aalen	MAT21-134 A Voronoi diagram based framework for fast and accurate inspection of closed 2D free-form profiles Samuel GL Indian Institute of Technology, Madras (IIT Madras)
11.40 – 12.00	MAT21-133 Investigating the in vitro degradation properties of polyethylene terephthalate glycol Yanhao Hou The University of Manchester	MAT21-111 New photogrammetric approach for measuring the position of a Tool-Center-Point Uwe Bielke Glasgow Caledonian University	
12.00 – 12.20	MAT21-115 Design and evaluation of a novel core-shell bio-additive extrusion system for tissue engineering Jiong Yang The University of Manchester	MAT21-112 Model based view planning for the robot-guided automation of optical 3D digitization based on a variable mesh resolution processing approach Kilian Geiger Laboratory for Machine Tools and Production Engineering	MAT21-135 Mobile Measuring Machine for Large Round Parts Drew Devitt American Offshore Energy

12.20 - 13.10 Break

13.10 - 14.30 Parallel Sessions 2.

	Session 2-A: Manufacturing Processes **Chair: Lin Li** lin.li@manchester.ac.uk	**Session 2-B: Manufacturing Systems (& processes? Combine with 2-A?)** **Chair: Judith Apsley** j.apsley@manchester.ac.uk	**Session 2-C: Intelligent Robotics & Automation Systems** **Chair: Samia Nefti-Meziani** s.nefti-meziani@salford.ac.uk
13.10 – 13.30	MAT21-102 Application of machine learning to optimize process parameters in fused deposition modeling of PEEK material Feng Qi Institute for Machine Tools, University Stuttgart	MAT21-123 A fog computing based framework for context-aware and real-time energy usage analysis in discrete manufacturing systems Huajun Cao Chongqing University	MAT21-120 Cobot assisted "intelligent sorting" of additively manufactured parts James McEwan Lancaster University
13.30 – 13.50	MAT21-103 Selectively weakened material for post-processing of additively manufactured components Clemens Maucher Institut for Machine Tools - University of Stuttgart	MAT21-146 New approach for the extension of virtual commissioning models by considering structural dynamics and drive control behaviour Andreas Otto Fraunhofer Insitute of Machine Tools and Forming Technology IWU	MAT21-126 Low latency object detection with neural networks for mobile resources using 5G and edge computing in production environments Mohammad Hossein Jafari Laboratory for Machine Tools and Production Engineering WZL of RWTH Aachen
13.50 – 14.10	MAT21-106 Multi-step electrochemical polishing of additively manufactured 316L stainless steel components Haitao Zhu Lancaster University	MAT21-118 Rectilinear strain sensing framework for real time compensation of structural distortions in precision machinery Simon Fletcher University of Huddersfield	MAT21-128 Review of the Key Challenges, Guidelines and Cost-effective Digital Solutions for SMEs Idil Tartici The University of Manchester
14.10 – 14.30	MAT21-109 Low carbon emission laser cleaning processes Nazanin Mirhosseini University of Manchester	MAT21-136 Milling stability prediction using non-iterative multi-frequency solution Z. Murat Kilic The University of Manchester	

Plenary Session

Chair: Paulo Bartolo

14.40 - 15.30 *Additive Manufacturing of Elastomer, Ceramic and Metal Multi-functional Structures*
Prof Eric MacDonald
University of Texas at El Paso

15.30 **Closing of Day 2 Paulo Bartolo, (Joined by Paul Mativenga?)**

Day 3 – Friday 17th September

Held virtually. All times are in British Summer Time. Parallel session presentation times might change in the run-up to the conference – please check this programme regularly.

09.25 **Opening of Day 3 Paulo Bartolo**

09.30 – 10.30 **Parallel Sessions 3.**

	Session 3-A: Manufacturing Processes **Chair: Akos Cseke** akos.cseke@manchester.ac.uk	**Session 3-B: New Machine Concept Technologies** **Chair: Yihe Huang** yihe.huang@manchester.ac.uk	**Session 3-C: Measurements and Digital Technologies** **Chair: Simon Fletcher** s.fletcher@hud.ac.uk
09.30 – 09.50	MAT21-107 Effect of Fixturing on surface quality of Ti-6Al-4V in Vibratory Manufacturing Processes Yuvaraj Hemanth Kumar Nanyang Technological University	MAT21-105 Observation of local heat dissipation in NiCr microcircuit Jiaxuan Liu University of Tokyo	MAT21-131 Dimensional nanometrology to support UK science and industry Andrew Yacoot National Physical Laboratory (NPL)
09.50 – 10.10	MAT21-140 High-speed abrasive machining of Al-SiC composite using uni-layer brazed diamond tool with patterned grit distribution Trilochan Prasad Nanda Indian Institute of Technology Madras	MAT21-138 Real-time machining and adaptative closed-loop control with 5G Rodrigo Siqueira de Souza Advanced Manufacturing Research Centre (AMRC) North West, University of Sheffield	MAT21-137 Personalized Design and Fabrication: Intelligent Solution for Fashion Industry Charlie C.L. Wang The University of Manchester
10.10 – 10.30	MAT21-125 Processing of Fe-Cr-Co hard magnetic alloy by two stage thermomagnetic treatment technique Ali Haider National university of science and technology, Islamabad, Pakistan	MAT21-104 Electrical discharge machining of dental implants in ultrasonic stimulated dielectric Lisa Marie Rickerts Hochschule Wismar	MAT21-124 Machined Surface Texture Investigation and Modelling of End Milling Process Wencheng Pan University of Huddersfield

Plenary Session

Chair: Paulo Bartolo

10.35 – 11.25 *Implications of Carbon Neutral Economy on Manufacturing*
Prof Seeram Ramakrishna
National University of Singapore

11.25 - 11.40 **Break**

11.40 - 12.40 **Parallel Sessions 4.**

	Session 4-A: Manufacturing Processes **Chair: Charlie Wang** charlie.c.l.wang@gmail.com	**Session 4-B: Manufacturing Systems** **Chair: Nazanin Mirhosseini** nazanin.mirhosseini@manchester.ac.uk	**Session 4-C: Measurements and Digital Technologies** **Chair: Simon Fletcher** s.fletcher@hud.ac.uk
11.40 – 12.00	MAT21-144 Innovative and new development in broaching machining process: Mechanistic force modelling Peace Onawumi University of Sheffield. AMRC with Boeing	MAT21-149 Laser precision cutting CFRP and the relative mechanical performance analysis Haonan Li Jiangsu University	MAT21-122 Digital technologies for the prevention and management of occupational chronic obstructive pulmonary disease Zhihao Jiang The University of Manchester
12.00 – 12.20	MAT21-132 Feasibility of improving productivity through the usage of higher axial depth of cut per pass during MQL based sustainable micro-milling Suman Saha IIT Kharagpur	MAT21-127 Analysing Tool Strength of an SPTT with Grooved Micro-channel on Tool Rake for Enhanced Heat Transfer. Arindam Santra Jadavpur University, Kolkata, India	MAT21-121 On-CMM core temperature measurement using ultrasonic phase-shift method Olaide Olabode University of Huddersfield
12.20 – 12.40	MAT21-139 Multi-Axis Additive Manufacturing with Controlled Anisotropic Strength Guoxin Fang The University of Manchester	MAT21-141 Ultrashort Pulsed Laser induced micro/nano scale surface structures on Inconel 718 Samuel GL Indian Institute of Technology, Madras (IIT Madras)	MAT21-147 Interoperable Systems: Adaptive B2MML bus layer for discrete manufacturing Mathew Gonzalez-Green Advanced Manufacturing Research Centre (AMRC) North West, University of Sheffield

12.40 - 13.40 **Break**

Plenary Session

Chair: Paulo Bartolo

13.45 - 14.35 *An Overview of Smart Manufacturing and its Implications for Innovation and Growth*
Prof Amaresh Chakrabarti
Indian Institute of Science (IISc), Bangalore

14.40 - 15.30 *Digital Machining*
Prof Yusuf Altintas
The University of British Columbia

15.35 - 16.25 *How Smart is Smart Manufacturing?*
Prof Ajay Malshe
Purdue University

16.25 – 16.40 **Closing of Conference Paulo Bartolo, Paul Shore, Lin Li, Paul Mativenga**