40th MATADOR Conference on Advanced Manufacturing 8-10 July 2019

Plenary Keynote Speakers

" Key Technologies and Applications of Digital Twin for Complex Equipment"

Professor Jianrong Tan, Academician of Chinese Academy of Engineering, Zhejiang University, China. *Professor Tan's research field is in mechanical design and digital manufacturing. He has put forward the combination of batch and custom mass customization design technology, engineering transition state with fuzzy state, random state model and digital prototype integrated simulation technology, and integrated numerical and geometric complicated equipment multi-unit association, with multi-level configuration and parameter matching analysis technology. He has won 7 national awards, and 7 provincial awards. He has 12 computer software copyrights, which have been successfully applied in a number of manufacturing enterprises. He has published 8 books, 142 papers in SCI/EI journals. In 2007, was elected to the Chinese Academy of Engineering.*

"Quality Assured Smart Additive Manufacturing"

Professor Jyoti Mazumder, Member of National Academy of Engineering, University of Michigan, USA, *a Robert H. Lurie Professor of Engineering in the Department of Mechanical Engineering and Materials Science and Director of Center for Laser Aided Intelligent Manufacturing. He has published more than 400 papers, co-authored books on Laser Chemical Vapor Deposition and Laser Materials Processing. He holds 23 U.S patents. Some of his laser-welding patents have been licensed to Ford Motor Company. He has received Schawlow Award for seminal contribution to Laser application research from Laser Institute of America in 2003, William T Ennor Award for manufacturing from ASME in 2006, Thomas A Edison Patent Award from ASME in 2010 for inventing the first closed loop Direct Metal Deposition system, Manufacturing Engineer of the Year (1986) from Society of Manufacturing Engineer. He had served as the President of Laser Institute of America and Editor-in-Chief of Journal of Laser Applications.*

"Creating Advanced Machinery for the 4th Industrial Revolution"

Professor Paul Shore, Fellow of Royal Academy of Engineering, UK, Director of Engineering, National Physical Laboratory, *which is the national measurement standards laboratory for the United Kingdom and is the largest applied physics organization in the UK. Paul was Professor of Precision Engineering at Cranfield University and led it's Precision Engineering Institute from 2002- 2015.*

Paul also held a number of technical positions at the International SKF Group. He worked in the Netherlands and Sweden, introducing pivotal new production systems and processes that opened up new markets such as large scale bearings applied to wind turbines. Paul was the President of the European Society for Precision Engineering and Nanotechnology (EUSPEN) from 2011-2013.

"Implementation of 'Internet of Things' Technology on Machine Tools from OT Layers"

Professor Wen-Yuh Jywe, President of National Formosa University, Taiwan, *is a specialist in optical precision measurement, machine tool calibration measurement and precise positioning stage design. During his doctoral study at University of Manchester Institute of Science and Technology (UMIST), he finished a measurement system for Ball Bar CNC machine tool, which was marketed worldwide. In 2003, he established the Precision Machine Center of NFU and served as the director. He organized a research team in which members were composed of over 10 professors with expertise including design, manufacturing, control, solid mechanics, optics, electronics and etc. He is also the independent directors of two foundations and is currently running an intelligent machine flagship-type plan.*

"Additive Manufacture of 3D Multi-Material and Functionally Graded Components using Multiple Jet Laser Powder Bed Fusion"

Professor Lin Li, Fellow of Royal Academy of Engineering, UK, *is the Director of Laser Processing Research Centre and Associate Dean of Faculty of Science and Engineering at The University of Manchester. He is the author or co-author of 380 publications in peer-reviewed journals and 60 patents related to laser processing and innovative manufacturing. He served as the President of Laser Institute of America, President of International Academy of Photonics and Laser Engineering, and President of Association of Industrial Laser Users (UK). He received Sir Frank Whittle Medal from the Royal Academy of Engineering, 2013 for his innovative manufacturing that has led to wide commercial applications. He received the Wolfson Research Merit Award from the Royal Society in 2014 for his research in micro/nano photonic science. He received Charles Main Award from the UK Institution of Mechanical Engineers for his work in laser based nuclear decommissioning.*

"History and Progress of Laser Intelligent Manufacturing"

Prof. Volodymyr Kovalenko an Academician of the Ukrainian National Academy of Engineering, Director of the Institute of Laser Technology of the Ukrainian National University of Science and Technology, Ukraine. *He is a National Distinguished Expert of China, and the former Vice-President of the Ukrainian National Academy of Engineering. In 2011, he won the National Friendship*

Award of the Chinese government and the West Lake Friendship Award of Zhejiang province. He is a Fellow of the International Academy for Production Engineering (CIRP), the Fellow of Laser Institute of America(LIA) and the Advisory Committee of the American Biographical Research Association. Since 1964, he has been engaged in the research of laser processing technology. He has published more than 700 publications, among which, 33 books have been published in Ukraine, Russia, the United States, Bulgaria, China and other countries. He has applied for more than 140 patents. The main research areas include laser equipment development, laser measurement, light sources, optical focusing systems, laser welding, laser cutting, laser cladding, laser strengthening technology etc. In 2004, Prof. Kovalenko began to cooperate with Zhejiang University of Technology.

"A New Look into Abrasive Waterjet Machining Technologies"

Professor Jun Wang, University of South Wales, Australia. *He served as the President of Australian Science and Technology Society, Chairman of International Committee for Abrasive Technology. He is the Editor-in-Chief of International Journal of Abrasive Technology. He received Thatcher Bros Prize from the Institute of Mechanical Engineers, London in 2015 and Life Time Achievement Award from Australian Science and Technology Society. He received a bachelor's degree from Dalian University of Technology in 1982, and a PhD from The University of Melbourne in 1993. His current research is primarily in the development of manufacturing technologies for fabricating multi-length scale structures using advanced (such as abrasive jets and high energy beams) and hybrid (e.g. laser-water jet, and laser-mechanical) approaches. He has 350 journal publications. Elsevier rated him the most influential and active researcher in abrasive water jet research in 2018.*

"Innovation and Application in Han's Laser Smart Equipment"

Mr. Yan Chen is the General Manager of Han's Laser Smart Equipment Group Co.,Ltd., China, *an member of Directors of Laser Institute of America, Executive director of Chinese Optical Society, Vice President of National Technical Committee of Optical Radiation Safety and Laser Equipment Standardization Technical Committee on Laser Materials Processing and Laser Equipment in China(TC284/SC1), an expert in laser industry and smart manufacturing applications, a pioneer of fiber laser cutting machines in China, a Leader of National Science and Technology Major Project Research Team, a Technical leader of Smart Manufacturing New Model Application Project of MIIT (Ministry of Industry and Information Technology of China).*

"Nano-scale 3D Printing of Functional Structures using Blended Resin Mixtures"

Professor Yongfeng Lu, University of Nebraska-Lincoln (UNL), USA, *is the Lott Distinguished Professor of Engineering. He received bachelor degree from Tsinghua University (China) in 1984 and M.Sc. and Ph.D. degrees from Osaka University (Japan) in 1988 and 1991, in electrical engineering. Dr. Lu has authored or co-authored over 480 journal papers. He is currently the President of International Academy of Photonics and Laser Engineering (IAPLE). He served as the President of the Laser Institute of America in 2014. He is the recipient of a number of prestigious awards, including the Schawlow Award from Laser Institute of America in 2016. He is the Co-editor-in-Chief of Journal of Laser Applications, and International Journal of Extreme Manufacturing.*

"Cultural Effects on Manufacturing R&D in Japan - with Comparison with USA, China and Europe"

Professor Jiwang Yan, Keio University, Japan, *obtained his Ph.D. from Tohoku University, Japan in 2000. He is the Director of Laboratory for Precision Machining and Nano Processing at Keio University. His research areas include ultraprecision machining, micro/nanomanufacturing, nanomaterial processing, and nanomechanics. He has led more than 20 nationally funded projects and over 60 joint research projects with industry as a principal investigator. He has authored/co-authored 200+ peer-refereed journal papers, 300+ conference papers, and given 100+ keynote/invited talks at international conferences and research institutions. He has received 30+ awards for his contribution in the manufacturing area, and his research results have been featured by several major newspapers and media in Japan for 20+ times. He serves on editorial boards of 11 international journals, and serves as the Editor-in-Chief for a few book projects including the Springer Micro/nano Fabrication Technology.*

"Personalised Medicine through Additive Manufacturing"

Professor Paulo Bartolo, Fellow of CIRP (International Academy of Production Engineering), Director of Bio-manufacturing Centre, at The University of Manchester, UK. *He holds a PhD degree in Polymer Physics from the University of Reading (UK, 2001), a MSc degree in Mechanical Engineering (1996) from the Technical University of Lisbon (Portugal). Paul is the Chairman of the CIRP Scientific Technical Committee on Electro-Physical and Chemical Processes (STC E). From Oct. 1996 to Oct. 1997, he was the Head of the Mechanical and Civil Engineering Department (ESTG/IPL), University of Leiria, Director of PAMI, a Portuguese Initiative for Additive Manufacturing. He is the Editor-in-Chief of Journal of Rapid and Virtual Prototyping, and Biomanufacturing Reviews. He is the general chair of the 40th MATADOR conference.*

"Engineers and the Grand Challenge of Waste – Engineering the Future"

Professor Paul Mativenga, Vice Dean (social responsibility), Faculty of Science and Engineering, The University of Manchester, UK. *Paul is a Professor in Multi-scale & Sustainable Manufacturing at the university. He obtained a PhD and MSc in Manufacturing Engineering and Advanced Manufacturing Systems and Technology, from The University of Liverpool and joined The University of Manchester, formally in UMIST in 2002. Paul's research area in related to developing engineering science solutions to tackle the major challenges of resource efficiency and industrial sustainability. Paul has published over 100 peer review papers in scientific journals. Paul is subject Editor of two leading international journals in manufacturing and also serves on a number of editorial boards. He is a Member of the International Academy of Production Engineering (CIRP). He is the co-chairman of the 40th MATADOR conference.*

" Progress and Future Prospects of Laser Surface Engineering Research"

Professor Jianhua Yao, is the Dean of Institute of Laser Advanced Manufacturing, Dean of College of Mechanical Engineering, Zhejiang University of Technology, China. *He has published more than 260 papers and completed more than 120 research projects. He is a Member of Laser Institute of America, Presidium Member of Laser Processing Committee of Chinese Optical Society, Vice-chairman of High Energy Heat Treatment Committee of Chinese Mechanical Engineering Society, Vice-Director of Engineering Research Center of Process Equipment and Remanufacturing, Ministry of Education. He has won the national technical innovation 2nd prize for his successful application of laser surface engineering in the turbine blade manufacture industry. He is a co-chairman of the 40th MATADOR conference.*