Editorial

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Biographical notes: Mahdi Mohammadpour is a Senior Lecturer in Dynamic Research Group of the Wolfson School of Mechanical, Electrical and Manufacturing of Loughborough University. He received his PhD in Tribodynamics from the Loughborough University in 2014. His research focuses mainly on dynamics, tribology, energy efficiency and the related subjects. He is an associate editor for *International Journal of Powertrains*. He is also on the editorial board of *Shock and Vibration Journal*.

Mahdi Shahbakhti is an Associate Professor of Mechanical Engineering at the University of Alberta in Canada. He was previously a faculty member at Michigan Tech University (2012–2019), and post-doctoral scholar at the University of California-Berkeley (2010–2012). Over the past 21 years, he and his research group has worked on developing physical/data-driven dynamical models and model-based control techniques for automotive systems including conventional/hybrid/electric vehicles as well as connected and automated vehicles. He is currently the Chair of ASME Dynamic Systems Control Division Automotive and Transportation Systems Technical Committee and the Former Chair (2018–2020) of Energy Systems Technical Committee.

Christos Spitas is a Professor of Machine Design and Leader of the Space, Industry and Transportation Cluster at Nazarbayev University. Previously, he has served as a Professor of Embodiment Design and the Head of the Product Engineering Section at the Delft University of Technology and as well as in a number of positions in the defence and high-tech industry. His research covers various aspects of design from the architecture to the component and (meta)material level, with applications in the aerospace, automotive, energy and high-tech sectors.

Robert Prucka is an Alan Kulwicki Professor of Motorsports Engineering within the Department of Automotive Engineering at the Clemson University. His research and teaching interests include the design, control, calibration, performance and emissions of advanced powertrain systems. He is currently researching the use of artificial intelligence and/or optimal control strategies for the design and operation of electrified powertrains used in autonomous off-road vehicles. He also has active research related to novel low-emissions internal combustion engine concepts. He is also active in other motorsports engineering initiatives at the Clemson University Robert H. Brooks Sports Science Institute. He is a select committee member for the Emerging Trends and Technology Network (ETTN) at the Specialty Equipment Market Association (SEMA), member of the Society of Automotive Engineers (SAE) Combustion Committee, and an associate editor for the *International Journal of Powertrains*. He obtained his PhD in Mechanical Engineering from the University of Michigan in 2008.

Umberto Montanaro received his MSc in Computer Science Engineering and PhD in Control Engineering and Mechanical Engineering from the University of Naples Federico II, Naples, Italy in 2005, 2009 and 2016, respectively. He is currently a Lecturer in Control Engineering and Autonomous Systems with the University of Surrey, Guildford, UK. His research outcomes have been the subject of more than 65 scientific articles published in peer-reviewed international scientific journals and conferences. His research interests include adaptive control, and control of piecewise-affine, mechatronic, automotive, connected autonomous vehicles and vehicle platooning.

Liangfei Xu received his BE and PhD degrees from the School of Vehicle and Mobility (SVM) at Tsinghua University in Beijing of China in 2003 and 2009, respectively. After graduation, he worked as a Research Assistant and Associate Research Fellow at SVM. In 2017, he was promoted as an Associate Professor. His research interests include dynamic modelling, diagnosis, control, and design of automotive polymer electrolyte membrane fuel cell (PEMFC) systems. He has published more than 100 SCI/EI papers, owns more than 50 patents and has achieved numerous prestigious awards and titles.

The first part of this special issue, marking the 10th anniversary of *International Journal of Powertrains* (*IJPT*) disseminated novel results of researchers and engineers in the field of modern and green powertrains. This part, presenting the second set of five papers in this special issue presents further cutting-edge results, focusing on the state-of-the-art in this field. Papers include vehicle and powertrain level investigations and outline pioneering works of authors in this transformative stage from hybrid powertrains to modern, green and sustainable power sources. Specifically, three papers gain deep insights of hybrid powertrains regarding architecture development, energy optimisation and the basic load spectrum on fatigue damage of components, while one paper studies the hydrogen PEM fuel cell system; the paper on vehicular HAVC systems provides another perspective for further improving the energy efficiency. We hope this novel body of work(s) will contribute to the exciting engineering efforts in tackling climate change as the biggest challenge of human history.