Editorial

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Biographical notes: Lirong Wang received her two PhDs in Automotive and Mechanical Engineering from Tsinghua University, Beijing, China, in 2002, and Tokyo Institute of Technology, Tokyo, Japan, in 2004, respectively. She was a JSPS Postdoctoral Researcher from 2004 to 2006 and an Associate Professor at the Tokyo Institute of Technology in 2007–2010. She was a Professor in the Chinese Academy of Sciences in 2009–2014 before moving to Stony Brook University as a Research Scientist in 2014. She is currently a Research Associate at Virginia Tech., Blacksburg, VA, USA. She has published more than 50 journal and conference papers. Her research interest includes vehicle engineering, vibration, energy harvesting and autonomous vehicle. She is a member of SAE, ASME and JSAE.

Ichiro Hagiwara received his BS and MS in Applied Mathematical Engineering from Kyoto University in 1970 and 1972, respectively. He received his PhD in Mechanical Engineering from the University of Tokyo in 1990. He was a Researcher at the Research Center of Nissan Motor Co., Ltd. from April of 1972 to March of 1996. He was a Professor in the Department of Mechanical Sciences and Engineering, Graduate School of Science and Engineering, Tokyo Institute of Technology (TIT) from 1996 to 2012. Since then, he has been a Professor in Meiji University and the Director of Institute for Advanced Study of Mathematical Sciences (MIMS), and a Professor in the organization for the Strategic Coordination of Research and Intellectual Property (Emeritus Professor of TIT). He has published more than 300 journal papers. His research interest includes vehicle engineering, vibration, origami engineering and computational mechanics. He is a fellow of JSME, a fellow of ASME, a fellow of JSAE, a fellow of JSIAM (Japan Society for Industrial and Applied

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Liangyao Yu received his BE and MS in Automotive Engineering and the PhD in Mechanical Engineering from Tsinghua University, Beijing, China, in 1997, 1999 and 2007, respectively. He has seven years of full-time industrial research experience (August 2001–December 2008) with the Tsinghua Automotive Engineering Institute, Beijing. Since December 2008, he has been an Associate Professor with the Department of Automotive Engineering, Tsinghua University. He is an author/co-author of over 60 peer-reviewed papers in journals and conference proceedings and holds over 20 patents. His current research interests include modelling, estimation, and control of vehicle dynamics systems, advanced braking system, electric vehicle (EV), vehicle electronics, in-vehicle network, energy harvesting, and mechatronic systems. He is a Member of the Society of Automotive Engineers (SAE) and American Society of Mechanical Engineers (ASME).

With the concern in recent years over environmental issues and the shortage of energy supplies, modern vehicle design and development have been paid much attention to energy saving or transferring technologies. Several types of energy commonly used in vehicle include vibration energy, potential energy, sound energy, kinematic energy, thermal energy and so on. These types of energy can be handled in different ways to be absorbed, saved or harvested. Vibration energy needs to be absorbed by structural deformation to improve safety. Sound energy can be muffled to improve comfortability and reduce the influence of NVH (noise, vibration and harshness). On the other hand, some energy like thermal energy, kinematic energy and braking energy can be harvested during the operation process of a vehicle as a supplement source to reduce the fuel consumption. Meanwhile, with the development of electronics and computer technology, more and more electrical and information technologies are being developed to dynamically control the process of energy conversion and to meet the higher customer requirements for vehicle ride comfort, safety and handling stability.

This special issue aims at encouraging scholars and engineers to present their latest advancements in vehicle energy saving, control and harvesting technology. Six papers focused on new and original research on energy absorbing and harvesting are presented as following:

- study on sound absorbing mechanism of MPP affected by bending resonance of panel
- design of resonance frequency of smart Helmholtz resonator
- the deformation mechanism on origami-based foldable structures
- hydroforming process of manufacturing for reverse spiral origami structure
- heat source temperature control investigation of a hydraulic retarder based organic Rankine cycle
- vehicle energy absorbers consisting of foldable cylinders using response surface methodology.

We believe that these papers will offer valuable references for readers in the field of vehicle vibration energy absorbing and harvesting. We would like to thank the authors for their contributions and the reviewers for their invaluable time and efforts to improve the quality of the papers.