
Introduction

Guangqiang Wu

Automotive School,
Tongji University,
4800 Caoan Road, Shanghai 201804, China
Email: wuguangqiang@tongji.edu.cn
Website: <http://ias.tongji.edu.cn/>

Biographical notes: Guangqiang Wu earned his PhD from Jilin University in China, and then he became an Associate Professor at Harbin Institute of Technology. He is currently served as a Professor and the Director of the Institute for Automotive Simulation Science, Tongji University, China and a Visiting Professor at the Institute of Industrial Science, University of Tokyo, Japan. His research interests include advanced design and co-simulation, nonlinear structure/system dynamics and control, self-driving autonomous vehicles and intelligent drive. He is the owner for about 30 granted patents; 20 research, teaching and talent awards from governments or institutes; 400 published journal/conference papers. He is also an Editorial Member for a number of academic journals, such as *International Journal of ITS Research*, *Journal of Harbin Institute of Technology*, and the judge for numerous national and international awards and prizes founded by different organisations. On numerous occasions, he delivered the keynote address or invited speech at important international conferences.

Vehicle performance associated with noise, vibration and harshness (NVH) has become increasingly critical during the research and development process as well as for consumers' decision making for vehicle purchase.

Researchers from both academia and industry are committed to exploring the simulation method and test technology for vehicle NVH subject, in which they have achieved dramatic progress in recent years. The theories and methods for accurate modelling might include the lumped-mass-spring-damping parameters, multi-body dynamics (MBD), finite element (FE), dynamic substructure (DS), boundary element (BE), statistical energy analysis (SEA) etc. With these methods, mechanisms of induced air noise, electromagnetic noise, mechanical noise and vibration and their suppressing measures (vibration/noise isolation, absorption, elimination or contribution/optimisation/active control/prediction) can be analysed systematically, while test technologies can be developed and generally used to verify simulation results and the validity of those measures. The advanced methods of test, data acquisition and processing as well as the subjective-objective sound quality evaluation method have been investigated and applied to the NVH studies.

The *International Journal of Vehicle Performance* is a perfect host to provide this platform for researchers to share the current emerging ideas. The following five papers of this special issue cover the topics of chassis, powertrain and body related recent advances in vehicle NVH:

- Mathematical modelling and simulation of epicycloidal path type centrifugal pendulum vibration absorber applied on three-staged stiffness clutch damper
- Simulation and experimental validation of damping characteristic for a valve-controlled adjustable shock absorber
- Experimental evaluation on vehicle aerodynamic noise performance
- Free modal analysis of wet friction plates with three different kinds of oil groove structures
- Parameters optimisation of vehicle suspension system for better ride comfort

We hope that the readers can get a valuable reference from this special issue and researchers can make further progress together in the research field of NVH. As the Guest Editor of this IJVP special issue, I acknowledge the contribution of the authors and give special thanks to the reviewers for their efforts throughout the review process to ensure the high quality of the issue. Finally, I would like to thank Dr. Xiaobo Yang for his continuous support and effort in planning, soliciting and reviewing the issue.