
Editorial

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Biographical notes: Wen-Bin Shangguan received his PhD from the Department of Automotive Engineering at Tsinghua University, China. He is currently a Professor with the school of mechanical and automotive engineering at the South China University of Technology. His research interests include design, analysis and vibration control of vehicle applications using elastomeric materials.

Jian Pang received his PhD in Mechanical Engineering from the University of Oklahoma in 1996. He has worked as a senior engineer, a technical specialist, team technical leader in Stewart & Steven Service, Inc. (Texas) and in Ford Motor Company. He has 23 years of diversified experience in Vehicle and Ship Engineering. He has published more than 40 papers in international and national journals and conferences and more than 50 industrial technical reports in the area of automotive system dynamics, noise and vibration, durability, ship structure, and calculation method analysis.

A vehicle design is the process of the integration of different subsystems, and a subsystem design is the integration of different components. So the approach and flow charts of the integration are essential for the development of a new vehicle. Although publications on design methods for vehicle subsystem or components are available, the integration process methods and specification determination for a subsystem or a component are mainly to be found as working flow-charts in the company, thus rarely published.

This special issue of IJVD, with respect to design process integration, theoretical design methods, laboratory experiments, and specification determination, is edited to assist engineers to better understand recent researches concerned with the design methods and integration procedures for some important subsystems or components

Papers in this issue can be divided into the following three categories:

(1) Four papers related to automotive crash safety: two papers propose the methodology to model and analyse safety for occupants and pedestrians in automotive

crashes, one paper develops a method of structural topometry optimisation for crashworthiness, and one paper presents the failure analysis and design method of a front bumper.

(2) Two papers with respect to powertrain mounting systems: one paper proposes a method for measurement of inertia parameters for an engine, and one paper develops a design process for selecting mount stiffness and locations for a powertrain mounting system if there are different powertrains and if only one set of mounts is used for these powertrain mounting systems. A design flow-chart for an automotive component is proposed in the paper titled 'Multi-stage design of an automotive component.

(3) Three papers focusing on specific component design method: one paper proposes methods for design of a lightweight wheel carrier for commercial vehicles, one paper describes methods for design of a smart actuator to improve sportiness of a luxury car, and one paper presents a method for design of exhaust silencer.

Finally, many thanks go to Inderscience Publishers for giving the opportunity to edit this special issue, and to all the authors for contributing their work. Hopefully, the achievements published in this issue could be useful for your research.