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## Editorial

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**Biographical notes:** Wen-Bin Shangguan received his PhD from the Department of Automotive Engineering at Tsinghua University, PR 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.

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Noise, Vibration and Harshness (NVH) is an important vehicle factor in overall customer satisfaction. In fact, NVH comes among the top five attributes of most vehicles. (The other four are safety, reliability, fuel economy and cost). So NVH has a particular added importance in cars.

Elastomeric components, such as engine mounts, flexible couplings, torsional vibration absorbers of engine crankshaft, hydraulic bushings of a suspension control arm, etc., are used widely in the automotive industry for reducing the NVH of a car. To design the components and the subsystem containing these components effectively, one must consider many criteria and limitations, such as load requirement, motion control of the supported body and maximum fatigue life, in addition to vibration control and isolation performances.

The static, dynamic and fatigue characteristics of an elastomeric component are vital to the NVH control and isolation for a sub-system, such as the powertrain mounting system, exhaust system, suspension system, body and cab system, and engine auxiliary driven system. So the calculation and experimental methods for determining characteristics of elastomeric components are important during the vehicle design stage and tuning phase for a vehicle NVH.

Editing a special issue focusing on new research and development techniques and applications of elastomeric components in automobile industry is our attempt to assist engineers to understand basic characteristics of elastomeric components and system NVH requirements for different sub-systems of a vehicle. Topics covered in this issue include modelling of elastomerics and applications of the modelling methods in vibration and isolation analysis in a vehicle sub-system with elastomeric dampers. An important elastomeric component, the engine mounts, and an important sub-system, the powertrain mounting system, which has great influence on a vehicle NVH performance, are discussed and reviewed. One paper contributes a novel method for improving measurement precision for torsion vibration of an engine in the transient state, which is very important for providing measurement results in designing a torsion vibration damper of the crankshaft in an engine. It is also clear that a wide range of topics that are not covered in this issue, such as vibration isolation of exhaust system, suspension, etc., must be addressed in NVH design and analysis. Some state-of-art papers related to other elastomeric mounts and sub-systems can be found in the bibliography below.

Finally, many thanks to Inderscience Publishers for opportunity to edit this special issue, and to all authors have contributed their work to this project. We hope you find it useful for your research.

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