Special Issue

Aerodynamics and Aeroacoustics of Vehicles, 3rd Edition

Message from the Guest Editor

Aerodynamics is a major factor in the design and development of vehicles, whether they are passenger or commercial road vehicles, race cars, trains or air vehicles. In the early days of vehicle aerodynamics, the major goals were improved fuel economy and speed gain via drag reduction, and the improvement of occupant safety and comfort through minimization of the effects of aerodynamic instability. However, with the development of faster ground vehicles and high-speed road and train transportation infrastructures, the induction of wind noise due to aerodynamic flow instability, and aeroacoustics becoming another significant design consideration, aeroacoustics have become integral to vehicle aerodynamic design. Though drag reduction and wind noise control are the primary considerations for passenger and commercial vehicles, race cars and high-performance road and street cars require the creation of an aerodynamic downforce for better traction and cornering. Thus, aerodynamics has become the single most important aspect in the design of race and performance vehicles.

Guest Editor

Prof. Dr. Mesbah Uddin

1. Professor, Department of Mechanical Engineering & Engineering Science, The University of North Carolina at Charlotte, Charlotte, NC 28228-0001, USA
2. Coordinator, Digital Design Optimization Initiative, The University of North Carolina at Charlotte, Charlotte, NC 28228-0001, USA
3. Chair, SAE Road Vehicles Aerodynamics Committee, Warrendale, PA, USA

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Fluids
Editorial Office
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland
Tel: +41 61 683 77 34
fluids@mdpi.com

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Editor-in-Chief

Prof. Dr. D. Andrew S. Rees
Department of Mechanical Engineering, University of Bath, Bath BA2 7AY, UK

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