

# Progress in Vehicle Aerodynamics and Thermal Management

Jochen Wiedemann  
Editor

# Progress in Vehicle Aerodynamics and Thermal Management

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*Editor*

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# Welcome Message

The individual freedom given by a personal road vehicle is likely to continue. It is still an important attribute of our life. In response to the environmental challenges, the incentives to improve the efficiency of road vehicles are strong and continuously growing.

Following the recent discussions related to emissions, the electrification of cars seems to be the principle path of future development processes. Despite several specific aero-/thermal concerns for electrically driven vehicles, the overall aerodynamic issues for both electric cars and conventional ones are similar. However, it should not be forgotten that the efficiency of aerodynamic measures is enhanced in the case of electric power trains because of possible regenerative braking.

Consequently, continuous reduction of driving energy for road vehicles remains the main task without forgetting passenger comfort, driving stability, and thus safety, internal/external noise generation, and thermal management.

The main topics of this year's conference are on new vehicles, new on-road, and new cooling/thermal management results with a special focus on unsteady aerodynamics.

Usually, the aerodynamic development process of vehicles in wind tunnels relies on steady-state conditions disregarding any unsteady aerodynamics present on the road. Low turbulence intensity flow and fixed test objects at zero degree to the wind are the main boundary conditions.

On the road, the vehicle almost never experiences these conditions, and thus, more and more attention is paid to reduce the gap between steady-state wind tunnel results and later behavior under real conditions. To diminish this gap, tools and methods are discussed nowadays to install or improve simulation techniques in wind tunnels. Achieving early information or predictions on car handling will reduce the development process considerably.

Joining the FKFS-Conference is an ideal opportunity to meet experts from industry, universities, or other institutions; to exchange new ideas; and to learn about the latest developments, methods, and tools.

Traditionally, as a unique feature, the FKFS-Conference offers live demonstrations showing measurement technologies applied in the FKFS wind tunnels and laboratories.

August 2017

Jochen Wiedemann

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