

Advanced Modal Vehicle Emission Analysis for Modern Vehicle Concepts

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Pollutant and greenhouse gas (GHG) emissions drive the technical innovations in automobile industry. The reduction of pollutant emission is established state of the art technology. Now fuel efficiency, CO₂ and the electrification of the powertrain are most important challenges. Emission measurement is an important and well-established tool for the development and approval of required new technologies.

Up-coming electrified powertrain concepts, which will have very different operation modes of the combustion engine, will make some of the well-established technologies for exhaust after treatment systems as well as the emission measurement obsolete. Refined and new methods for the measurement are needed. It is very important, that the measurement system by itself does not influence the behavior of the system, which is under observation.

The current and near future powertrain concepts and the related emission measurement methods will be presented. The tutorial will discuss the underlying basic concepts as well as first findings of new challenges, upcoming problems and possible solutions. Finally, requirements for the measurement new methods will be discussed, which need a solution in the next years.

About the speaker: After engineering courses at the Technical University in Graz, Kurt Engeljehringer joined the Physics R&D department of AVL List GmbH in 1986. First focus was the evaluation of dynamic particulate effects and measurement methods. Starting in 1991 he moved to the USA for the development of the first transient partial flow dilution system. In the following years the work on emission measurement systems continued. Since 1997, he is leading the gaseous emission test system development team. In 2000 he was appointed as application manager for emission test systems and 2009 as business development manager. Mr. Engeljehringer has several patents and is co-author of two books in the emission technology. Additionally he wrote a large number of publications.

