

Distinguished Lecture I

Prof. Dr.-Ing. K. Genuit, HEAD acoustics GmbH
"Future Acoustics of Electric-Vehicle"

Abstract:

Since currently a technological shift from automobiles with internal combustion engines now to electric vehicles occurs, new challenges in vehicle acoustics must be met.

Although, one of the core duties of NVH engineers will still be the prevention and treatment of disturbing noises, the targeted creation of intended and designed sounds will gain in importance significantly. This sound design task is no longer a choice but a necessity. In the scope of hybrid and electric cars a new kind of acoustic feedback must be created. Surely, the simple electric motor sound, the "tram on wheels", will not be the final solution accepted by customers.

Besides the mandatory use of technical methods like transfer path analysis enabling the reliable identification of the reasons for acoustical problems by separation of sources and transfer paths or binaural panel contribution analysis, investigations of customer preferences on the basis of simulated and real test drives will become more important. All in all, successful NVH and sound design is only done within a chain of precisely fine-tuned working steps and must not be interpreted as a purely technical challenge.

Also exterior noise of electric vehicles is currently a hot topic. As audible warning signals are recommended to avoid the danger of not hearing quiet vehicles, the "side effects" of such intentions also need to be evaluated. In this respect sustainable concepts and intelligent solutions are needed, not precipitous actions defining the introduction of improper acoustic alerting signals.

The lecture will address the new tasks and challenges in the scope of sound engineering for the interior and exterior sound of electric vehicles.

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