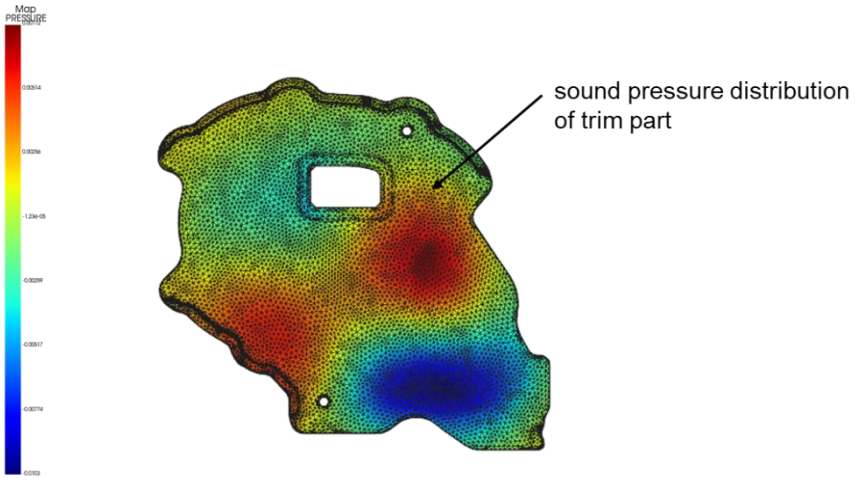
Diplomarbeit Theme

Topic: FE-based analysis of sound leakages of glass wool absorbers



Porous absorbers are widely used in the automotive industry to reduce unpleasant noises and to increase interior comfort for the driver. Glass wool is a promising material for porous absorber applications. With using advanced manufacturing techniques panels or enclosures can be produced from glass wool.

Acoustic enclosures can be placed around noise sources, such as electric motors, to reduce sound radiation directly at the source. In particular, the high frequency content of electric drives leads to the need for secondary measures such as absorbers and trim parts.

To reduce development time, it is essential to have proper simulation tools to address design matters at a very early stage of development. One issue that significantly affects acoustic efficiency is sound leakage due to design gaps between the cover and the electric drive housing.

The offered thesis will address this issue by building up a methodology to analyze and minimize these leakages by means of FE simulation. The thesis will be carried out in cooperation with DBW Advanced Fiber Technologies GmbH.

The following points can be defined as work objectives:

- Performing literature survey on modelling of sound radiation from plates
- Modelling radiation of sound leakages using FE software
- Conducting study how design parameters affect the efficiency of the enclosure
- Building up an appropriate validation set-up and verifying the FE simulation

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