

DAGA 2013

Title: Auralization of road traffic noise and its value for environmental noise assessment

Short title: Psychoacoustic noise mapping

Classification: Lärmschutz

Structured session: Auralization of environmental noise

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Abstract:

In order to obtain a deeper understanding of the relationship between predicted environmental noise and actual noise annoyance and complaints, current research projects address this issue in detail. One approach for a reliable prediction of annoyed people in cities is to work with auralization techniques, which would allow for calculating psychoacoustic parameters and even experiencing the “real” noise exposure. For example, by means of auralized road traffic scenarios it could be possible to include psychoacoustic evaluation metrics in noise maps.

In the European research project CityHush, auralization tools were developed over the last three years. The objective was to auralize road traffic composed of hybrid and electric vehicles as well as vehicles with internal combustion engines.

For the synthesis of pass-by noise of different passenger car types as well as of complete traffic scenarios with complex traffic compositions, a traffic noise synthesizer was developed. Measurement data, simulations of road traffic scenarios as well as resulting psychoacoustic noise maps will be presented and discussed with respect to their explanatory power. Further, the benefits and limitations of the developed traffic noise synthesizer with regard to noise mapping and urban planning will be discussed.

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