

# AACHEN ACOUSTICS COLLOQUIUM

November 25 – 27, 2019

**Place:**

Aachen, Germany

**Title:**

Sound Quality Metric Development for EV Whine Noise

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**Abstract:**

The trend towards vehicle powertrain electrification leads to an indispensable need for quantification of tonal content in vehicle interior noise. According to this, research on hearing models is essential to improve the predictive accuracy of tonality approaches. With current progress made on such models, reliable acoustic predictors are meanwhile available for instrumental evaluation of tonal noise.

Based on these predictors, sound quality metrics for EV powertrain whine noise are designed as regression models that correlate with jury ratings on the perceived acoustic quality. A reliable model might be used as a key evaluation tool for target setting in competitor studies as well as for vehicle refinement in the routine development process.

This article presents current progress in the development of sound quality metrics for EV powertrain whine noise and highlights advantages of cross-validation approaches in exemplary studies.

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