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”EDRIVE#4 - Virtual measurements for exterior vibroacoustic problems using experimental modal models”

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“This paper explores the application of experimentally derived vibroacoustic state-space models in virtual sensor schemes. These models are obtained through Experimental modal analysis (EMA). The paper demonstrates how both in-band and out-of-band contributions can be integrated into a unified state-space model. Additionally, the study illustrates how various measurement types, such as acceleration or acoustic pressures, can be derived from the temporal evolution of the experimental state space model. This allows the state estimator, specifically a Kalman filter, to effectively merge data from both the acoustical and structural domains with the numerical process model. To validate the framework, an industrial test setup is utilized, where the complexity

prohibits the use of first-principle techniques for modelling. The results indicate that the state estimation outperforms forward simulation for excitation signals that were not initially incorporated into the model.”

Presenter(s) : STAIGER JULIAN

Classification par session : Survishno 14 / NVH of eco-efficient powertrains