Analysis of gear rattle

Motivation:
The irregular rotation of the combustion engine can cause comfort-reducing gear rattle resulting from the clearance in transmission gearing. Due to the trends towards downspeeding and downsizing in engine development, gear rattle is still a problem.

Problem:
How can the influence of different transmission parameters on gear rattle be quantified?

Objective:
Experimental analysis on component and overall vehicle level to identify the control parameters of the system
Development of an evaluation tool which allows the objective evaluation of the probability of gear rattle by using the identified parameters

Solution:
Knowledge of the system and specific changes in the primary excitation and internal gear rattle mechanisms in accordance with previously defined critical parameters in order to reduce the probability of gear rattle effectively

Influence of the transmission oil on gear rattle

Comparison of single and dual-mass flywheel in the overall vehicle