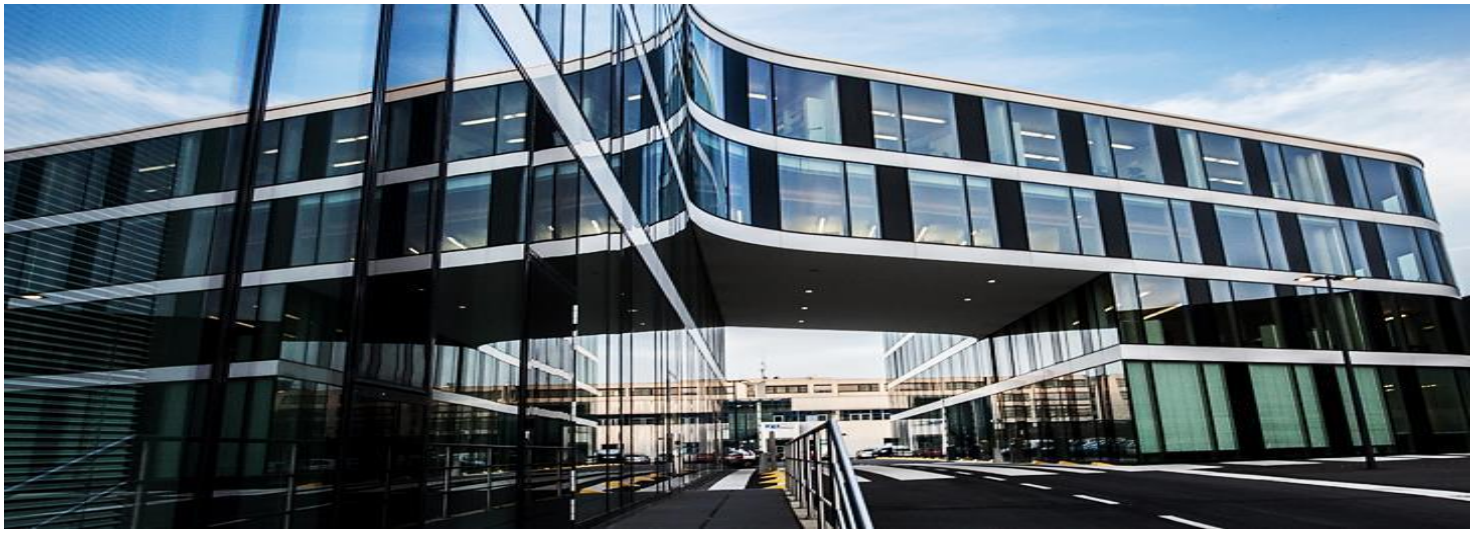

Teaching and Research Area Mechatronics in Mobile Propulsion | RWTH AACHEN UNIVERSITY

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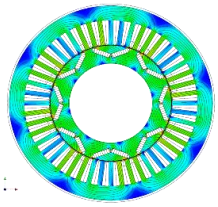
We are the Teaching and Research Area Mechatronics in Mobile Propulsion (MMP). Our heart beats for the technology of tomorrow's mobility. Around the interdisciplinary topics of mechanics, electrical engineering and information technology, we research sustainable and demand-oriented drive and vehicle concepts. We bring the future into drives!

You want to know more about us? Then you will find more information under the following links:

- Who we are
- What drives us
- What we research
- Where we are involved
- How we bring research into teaching



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Bachelor Thesis / Master Thesis

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Influence of different electric motor topologies on parasitic high-frequency effects

The pulse width modulation of inverters as the source and parasitic coupling capacitances as the propagation path result in high-frequency effects like bearing currents and transient overvoltages which shorten the lifetime of electric motors. The parasitic couplings in electric motors are dependent on the winding configuration and the topology.
With FEM simulations it is possible to calculate the coupling capacitances already during the design phase. The aim of this thesis is to develop FEM models in order to analyze the influence of different electric motor topologies on high-frequency effects.

Your tasks:

- Literature research on topologies and parasitic coupling capacitances in electric motors
- Development of FEM simulation models to determine the coupling capacitances
- Scientific evaluation of the results regarding high-frequency effects

Would you like to know more?

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