



Bachelor Thesis / Master Thesis

Start: from now

- Faculty 1 - Mathematics, Computer Science and Natural Sciences
- Faculty 4 - Mechanical Engineering
- Faculty 6 - Electrical Engineering and Information Technology

Analysis of the influence of different winding configurations in electric motors 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 are dependent on the dimensions of drive components and the winding configuration in electric motors.

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 winding configurations in electric motors on high-frequency effects.

Your tasks:

- Literature research on winding configurations and parasitic coupling capacitances in electrical traction drives
- 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?

Yusa Tombul, M.Sc.
tombul@mmp.rwth-aachen.de
Phone: +49 (241) 80 - 48267

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](#)

