

Modeling and Simulation of Magnetic Coupling in EMC Filters

Master's Thesis

Our research focuses on optimizing electromagnetic compatibility (EMC) filters for electric vehicles. As power electronics shrink, achieving EMC compliance becomes critical. With this Master's thesis you will work...

- ... in a motivated team: You'll engage with EMC engineering experts and collaborate in our team.
- ... in the industrial environment: You'll learn how to navigate industry standards and apply theoretical knowledge to practical solutions, so you'll get a glimpse into real-world challenges.
- ... on the transformation of the automotive sector: Bosch stands at the forefront of electric vehicle technology. By contributing to EMC advancements, you'll contribute to the performance and safety of electric vehicles worldwide.

Goal of the thesis:

- 1) Modeling and parametrization of typical EMC filter groups for mobility applications
- 2) Creation of parametrized predictive models of the filter performance
- 3) Visualization of magnetic coupling paths

Prerequisites: Strong background in electromagnetic field theory; interest in programming with basic skills in Matlab/Python, acquainted with CST Studio Suite.

The thesis is supervised by the EMC department and Corporate Research of Robert Bosch GmbH in cooperation with the TU Darmstadt.

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