

Master thesis / Bachelor thesis / Project thesis

Data-based energetic classification of electric powertrain systems

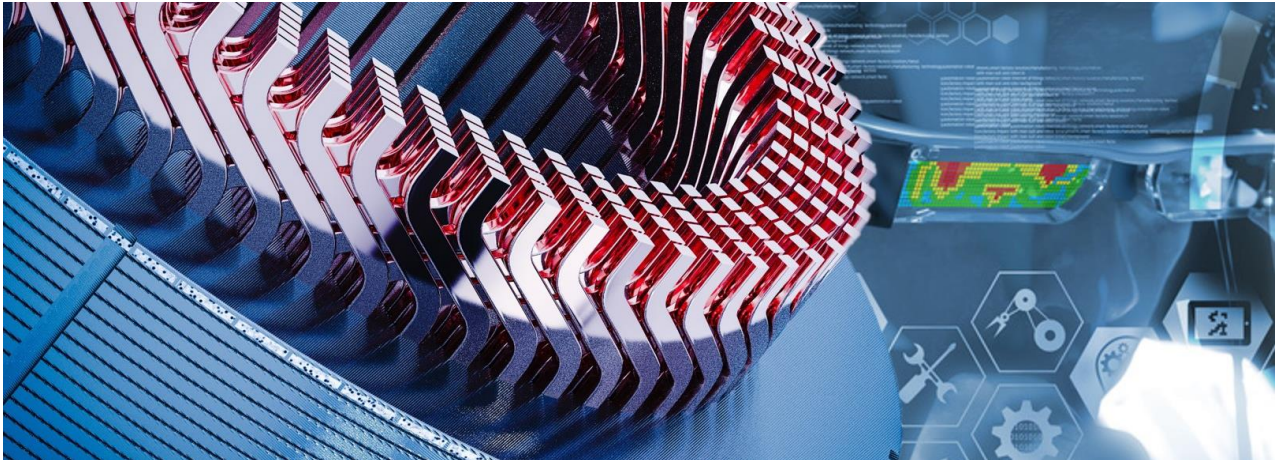


Image source: PEM of the RWTH Aachen

Initial situation:

According to current calculation methodologies, electrically powered traction motors are required in all major markets in order to meet emissions targets and accordingly, are represented in all future-proof drive systems. Of course, contrary to these calculation methods, the use of electric drives is also associated with CO₂ emissions. While the product-related CO₂ emissions resulting from the battery are already being intensively investigated due to increased public attention, it has not yet been comprehensively documented to what extent the electric motor contributes to CO₂ emissions over the service life of the vehicle.

Your task:

The product-related CO₂ emissions of an electric motor are determined by the efficiency of the energy conversion from electrical to kinetic energy. This in turn depends on the drive topology used, the product design and the usage behavior. Your task is to analyze the energy efficiency of electric drive systems relevant for automotive applications against the background of actual usage behavior. This activity is specifically divided into the following work packages:

- Identification of the relevant drive topologies and preparation of the topology-specific usage behavior
- Documentation of the component-related energy conversion processes
- Energetic modeling of these components in representative utilization cycles
- Classification of the electric motor in the context of the overall vehicle

Requirements:

- Degree in engineering, computer science (or comparable).
- Structured way of working
- Experience with modeling of technical systems preferred

Offered:

- Distinct tasks and flexible processing
- Professional support and insight into industry and practice
- Independent execution with flexible arrangement via Microsoft Teams or personal coordination

Interested?

Please send a current transcript as well as your resume and references to the address below.

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