



Master thesis

Next Generation Powertrain

Methodology for increasing efficiency in the realization of large-scale production of electric traction drives through hybrid plant prototypes

Our profile:

The Chair of Production Engineering of E-Mobility Components (PEM) stands for future-oriented research and innovation in the field of e-mobility. Application-oriented research projects are complemented by numerous industrial cooperations.

The focus of the Electric Drive Production group is on the realization of an economic production and integration of the electric drive train and its individual components. In addition to the design of the product, the economic production is also investigated. The focus is on scalable products and production systems, which are researched on the available equipment.

The industrialisation of the latest generation of electric motors in the current market environment against the background of rapidly increasing demand is characterised by cost-intensive investments in plant and equipment and a high level of personnel expenditure even in the early process development phase and in the start-up phase. Hairpin stator technology in particular is characterised by a high degree of technological uncertainty due to complex interlinked special machines and cross-process interdependencies. At the same time, the hairpin stator technology is the most relevant product and process innovation in the field of electric traction drives, which has been developed in the context of e-mobility.

Your profile:

- Studies of mechanical engineering or industrial engineering and management (or comparable)
- Motivation and commitment
- Interest in production and/or automotive engineering
- Strong communication skills and interest in teamwork
- Secure handling of MS Office

Your task:

Your task is the development of a methodology for the planning of disruptive production technologies through a focused-oriented prototype and technology center phase for cost- and time-efficient industrialization. The hairpin stator production technology will be used as a field of application for a disruptive production technology and a focus will be put on the question of the optimal use of real or virtual machinery/plant prototypes.

The scope includes the evaluation of a study, the rough concept of the methodology and the design of a corresponding partial model of the methodology.

A prototype production system currently under construction and practical experience from an ongoing industrial project at an automotive Tier-1 supplier will serve as a demonstrator and validation.

Offered:

- Mitarbeit in einem spannenden und hochaktuellen Forschungsfeld
- Collaboration in an exciting and highly topical field of research
- Development of expert knowledge for future technologies in e-mobility
- Cooperation in a motivated team
- Delimited tasks, fast processing possible
- Contact to internationally leading automobile manufacturers and suppliers
- Possibility of jointly writing a paper

Have we aroused your interest?

Please send us a current grade sheet as well as your curriculum vitae to the e-mail address below.

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