



## 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

### Modeling of bearings in electric drive components under consideration of aging effects

A significant aging effect of rolling bearings, whose failure is the most common failure mechanism of electric machines, are inverter-induced bearing currents. With time they lead to a degradation of the metallic bearing components and its lubricant. To enable a more precise life-time estimation of electric machines and gearboxes, the aim of this thesis is the tribological and electrical modeling of rolling bearings under consideration of aging due to bearing currents.

#### Your tasks:

- Literature research on rolling bearings in electric machines and gearboxes as well as their tribological and electrical modeling
- Development of simulation models under consideration of aging due to bearing currents

#### Your competences:

- Basic knowledge of Matlab/Simulink
- Interest in different physics disciplines

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