



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

Hardware Design of Rotor Temperature Telemetry System with inductive power supply

Performance and power density of electrical machines can be significantly increased by application of dedicated rotor conditioning. To identify the exact temperature distribution in a Permanent Magnet Synchronous Machine a telemetry system is to be developed. Basis will be a concept from previous work. A CAD design should be realized, including choice of materials, assembly and jointing concepts as well as the circuit layout on PCB. Furthermore, the existing concept is to be enhanced by an inductive power supply and then miniaturized. Ideally, the finished design will be simulated regarding mechanical stability.

Your tasks / your profile:

- Hardware design of compact telemetry system based on an available concept
- Choice of materials
- CAD construction design of rotor
- Testing/ Validation on actual PMSM on test bench

The Teaching and Research Area for Mechatronics in Mobile Propulsion is located between the domains of mechanical and electrical drive components as well as control algorithms. Under the guidance of Professor Jakob Andert, the institute researches innovative, environmentally friendly vehicle drives and particularly emphasizes electrification and simulation-based development methods.

The automotive sector is currently undergoing a major transformation that is in particular affecting the drive technology. Electrification is gaining enormous relevance as one of the key technologies to reduce or avoid emissions. Regardless of the specific technology, a steadily increasing complexity of both the hardware and the associated control algorithms is leading to the evolution of modern drives towards software-intensive, embedded mechatronic systems.

