

Working Student in the Field of Wireless Power Transfer

Contribution to a Research Project on the Design of an Inductive High-Power Charging Station

The Professorship of Energy Conversion Technology (EWT) focuses on research questions concerning the mobility of tomorrow. In addition to novel energy storage technologies, the charging infrastructure and innovative charging strategies are a decisive factor in increasing the suitability of electric vehicles for everyday use. For example, inductive charging systems enable wireless and thus convenient charging of the vehicle battery. Therefore, EWT is conducting research to improve wireless charging systems. Here, the electromagnetic design of the coils and the system simulation at the circuit level are the focus.

To assist in different research activities, we are looking for a working student for a maximum of 10h/week. The focus of the work lies on the simulation of inductive charging systems. There are versatile, challenging subprojects, which are to be solved in self-responsibility and partly in small student groups and to be actively contributed to the research project.

The work may include the following topics:

- Design and evaluation of different coil topologies in FE simulations
- Magnetic field propagation/stray fields of inductive charging systems and shielding of fields
- Circuit analysis, circuit design and compensation of inductive charging systems
- Development of functions and methods for the design of inductive charging systems
- Analytical loss calculation and thermal modeling

Requirements and prerequisites:

- High level of commitment and interest in inductive charging systems and simulations
- High dedication and a diligent, structured and self-reliant style of working
- Solid fundamentals in electrical engineering (especially electromagnetic fields and circuit analysis)
- Basic knowledge of MATLAB is required
- Basic knowledge of Python, ANSYS Electromagnetics is recommended

Start: October 2023 or later

Duration: 3 months initially, extension possible

Application: cover letter, resume, and proof of qualifications via email

In case of interest or questions, please contact:

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