Development and construction of a compact high-voltage capacitor charging circuit

Master or Bachelor Thesis

The progressive development and the associated increased use of power electronics lead to the fact that non-sinusoidal voltages occur more and more frequently even at higher voltage levels. In order to ensure the reliability of future components and systems, it is necessary to investigate the influence of the occurring non-sinusoidal high voltages on insulation materials. In recent years, a new and unique high-voltage source has been developed at the chair for High Voltage Equipment and Technology with which it is possible to generate rectangular high-voltages. In order to further increase the efficiency and the output voltage of the source and thus make it possible, for example, to investigate solid insulations, a compact high-voltage capacitor charging circuit is required. Within the scope of this work, this circuit will be designed and constructed.

Goals and Focus of the thesis:
Your focus and core tasks will be:

- Evaluation of concepts for a compact high-voltage capacitor charging circuit
- Selection, design and construction of one of the concepts
- Commissioning and validation of its functionality

Your Profile:

- Study in Engineering or Business Administration & Engineering or Computer Sciences
- Basic experience in practical work is of advantage
- Knowledge of power electronics is of advantage

Contact

Jan Vocke, M.Sc.
+49 241 80 - 90270
j.vocke@iaew.rwth-aachen.de

Focus

- Power electronics
- Planning and extension of a test bench
- Laboratory work