

Master-Thesis

„Fast switching GaN and SiC MOSFET based power stage for inductive loads, with low voltage ringing“

With us you can realize the electro mobility and electrification in the automotive and truck sectors and design the technology of the future. Our goal is to support the growing mobility industry with innovative high power mechatronic technologies, from concept to mass production.

CPM (Compact Power Motion GmbH), is part of the **SONCEBOZ-GROUPE (CH)** (www.sonceboz.com) and consists of a small innovative team of international specialists.

The scope of our activities ranges from the development of innovative concepts through initial preliminary studies to products, ready to be manufactured. The development is mainly focused on the electrical power train and high-speed electric motors.

Goal:

GaN and SiC MOSFET's render fast switching of high voltages possible. The challenge is, to achieve the theoretical possible rise and fall times in real applications without high voltage ringing. This is only possible with a perfect layout of the power stage, with low parasitic inductances. The goal of the thesis is to design a power stage for an inductive load, with low voltage ringing.



Tasks:

- Literature review on GaN and SiC MOSFET based power stage design
- Development and simulation of power stage topologies
- Implementation and layout of first prototypes
- Measurement of the real behaviour

