

## Background

The power-electronic focused research at IAS is directed towards new applications and topologies of power-electronic circuits.

New semiconductor materials such as GaN or SiC have enabled the development of higher performance DC-DC converters, while significantly increasing the impact of parasitic circuit elements. Thus, the physical layout and packaging play an important role when switching in the megahertz-range.

While detailed EM simulations of RF-circuits are commonly employed, this type of simulation in power-electronics is still rarely used.

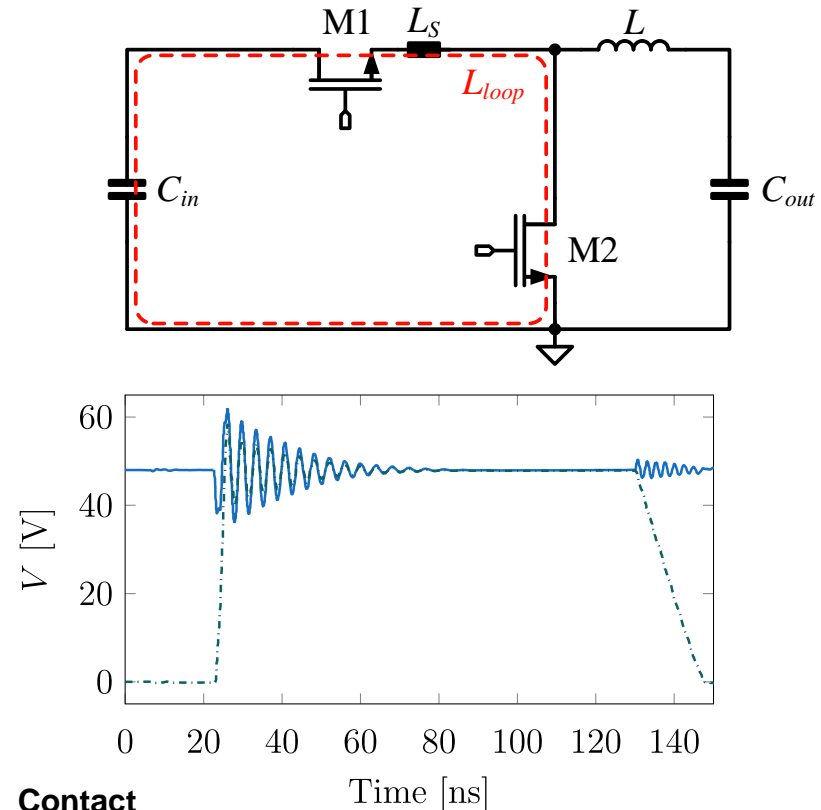
Analyzing and understanding the benefits and limitations of PCB-level EM-simulations in power-electronic applications is becoming more and more relevant due to increasing semiconductor performance and demands in switching converter performance.

## Task

The proposed work aims to analyze the effects of parasitic elements in the operation of high-speed DC-DC converters through simulation and comparison by measurement of different powerstage designs.

The thesis can be written in English or German.

**Bachelorthesis / Masterthesis**



## Contact

Jan Grobe, M.Sc.

Kopernikusstr. 16, 52074 Aachen

ICT Cubes 2nd floor, Room 208

☎ 0241 80-20154

✉ [jan.grobe@ias.rwth-aachen.de](mailto:jan.grobe@ias.rwth-aachen.de)