

## EMC Professional Talk

### Dr.-Ing. Andreas Bendicks

Electrical hardware developer  
for automotive power modules  
Infineon Technologies, Warstein, Germany



## Active Cancellation of Electromagnetic Emissions of Power Electronic Systems

Power electronic systems tend to be considerable sources of electromagnetic emissions, and the compliance with standards on electromagnetic compatibility can be a challenging task. Passive filters, as conventional countermeasure against conducted emissions, usually suffer from their high weight and large volume. Active filtering or cancellation techniques (that aim at a destructive interference between noise and injected anti-noise) may help to reduce the necessity of passive filtering that can lead to smaller and lighter systems.

In this EMC professional talk, a generic theory for the active cancellation of electromagnetic emissions will be presented. Against this background, the potentials and limitations of established analog and digital active filters will be discussed. As a solution to some of these limitations, a digital active cancellation technique based on synthesized and synchronized signals will be presented that has been developed by the On-board Systems Lab of TU Dortmund University. Different demonstrator results for the conducted emissions (up to 30 MHz) of DC-to-DC converters and three-phase motor inverters will be discussed.

**28.06.2021, 17:00 Uhr**

**Zoom: <https://ovgu.zoom.us/j/92003900283>  
Meeting-ID: 920 0390 0283 Passwort: 008922**

The slides will be provided on demand after the meeting:

<http://sites.ieee.org/germany-emc/contact-us/>

#### **About the speaker:**

**Andreas Bendicks** received his B.S. and M.S. degrees in electrical engineering from RWTH Aachen University, Aachen, Germany in 2013 and 2016, respectively. From September 2016 to March 2021, he has been with the On-board Systems Lab, TU Dortmund University, Dortmund, Germany. There, he has first been a doctoral student and later, after his doctoral graduation on active cancellation of electromagnetic emissions of power electronic systems, a postdoctoral researcher. In this position, he supervised a small research group with two doctoral students on the topics of active cancellation and active gate control. Since April 2021, he is an electrical hardware developer for automotive power modules with Infineon Technologies in Warstein, Germany.

#### **Organisation:**

Dr.-Ing. Miroslav Kotzev, Rosenberger Hochfrequenztechnik GmbH  
IEEE German EMC Chapter - Coordinator Technical Teleconferences