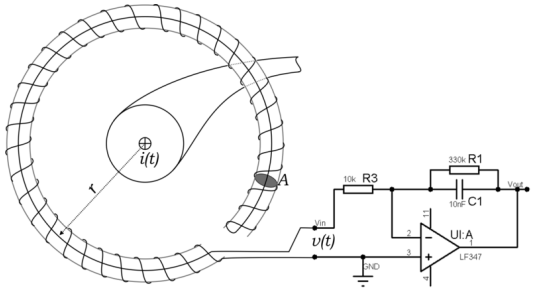
Graz University of Technology
Electric Drives and Machines Institute

Bachelor's Thesis

Design of Rogowski Coil Current Sensors for Power Electronic Applications

Motivation



Rogowski coils are toroidal air cored coils used to measure alternating currents. The advantages compared to conventional current transformers with an iron core are the absence of core saturation, low inductance, high bandwidth and the possibility of flexible DIY setups. Since the output voltage of a coil is proportional to the change of the measuring current, the received signal has to be integrated to obtain a voltage proportional to the current. This integration can be achieved by different methods where the signal is integrated either passively by an RC network, via an active analog amplifier circuit, digitally or by a combination of these approaches.
In the course of the bachelor thesis, existing measurement concepts with Rogowski coils for current measurement in power electronic circuits will be further improved and different integration methods and coil designs are compared.

Tasks

- Research of different concepts for the integration of the output signal and comparison of these methods with the already realized ones.
- Selection of a suitable integration method, practical realisation of a measurement system (coil + integrator) and test of the system in various applications.

image source: https://de.m.wikipedia.org/wiki/Datei:Rogowski_coil.png

Contact

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