

Master's Thesis

Three Level PWM Inverter – PWM Schemes

Motivation

The advantages of multi-level converter topologies include lower voltage stress on the semiconductor devices and thus larger possible output power of the converters, lower stress on the insulation and thus longer service life of electrical machines supplied, as well as better behavior in terms of electromagnetic compatibility.

Research Questions

- Which criteria for comparing PWM patterns are reasonable?
- How can certain suitable PWM patterns be implemented on a given hardware?

Tasks

- Starting from an existing circuit, modulation methods known from the literature are to be compared with regard to the quality of the output signals and the possibility of implementation on existing hardware.
- Selected algorithms should be compared by simulation, for which comparison criteria must be defined.
- At least one of the algorithms should be selected for implementation and testing in the laboratory. Measurements will be carried out to demonstrate the functionality of the algorithm and for comparison with the simulation results.

Contact

Ass.-Prof. DI. Dr.techn. **Klaus Krischan**
Electric Drives and Machines Institute
Graz University of Technology
Inffeldgasse 18, A-8010 Graz, Austria
Tel: +43 (316) 873-7745.
E-mail: klaus.krischan@tugraz.at
www.eam.tugraz.at

Univ.-Prof. Dr.-Ing. **Annette Mütze**
Electric Drives and Machines Institute
Graz University of Technology
Inffeldgasse 18, A-8010 Graz, Austria
Tel: +43 (316) 873-7240
E-mail: muetze@tugraz.at
www.eam.tugraz.at

