

Summer Semester 2024

MSEI Seminar Leistungselektronik und elektrische Antriebe MSPE Seminar Power Electronics and Electrical Drives

Registration

If you are interested in participating in the seminar, please email the stated supervisor about the topic that interests you. Each topic will be assigned to a maximum of two students. You will get a confirmation or rejection email from the supervisor within 2-3 days. In case of a positive answer, the supervisor will register you to the corresponding module in TUMonline.

(In case of a negative answer, you can contact other supervisors. [Please do not contact several supervisors at the same time.](#))

Objectives

After completion of the module, the students are expected

- to familiarise themselves independently with specified topics in the field of power electronics and electrical drives,
- to write a technical report on their work and
- to present and discuss their work in a scientific seminar with professional audiences.

Evaluation

- Regular meetings with supervisors on the progress of the work and the procedure (20%)
- Presentation of the results (15 minutes) followed by a discussion (5 minutes) (40%)
- Written research paper in IEEE style (5 pages) (40%) (download template from [GitLab](#))

Procedure

- Topics released on **18 April 2024**
- Kick-off meeting on **26 April 2024**, at 16:30 (for students with confirmed topics and supervisors)
- Presentation on **12 July 2024** at 13: 30
- Report submission before **26 July 2024**

Coordination and general topics

Wei Tian

Email: wei.tian@tum.de

(Only to be contacted for organisational questions. Please apply for the seminar directly to the supervisor of the topic(s) that interest(s) you)

List of topics (updated on 18 April 2024)

Topic	Supervisor
<ol style="list-style-type: none"> 1. Comparative Evaluation of 800V DC-Link Three-Phase Two/Three-Level SiC Inverter Concepts regarding switching losses. 2. Current-Source Converter Employing Monolithic Bidirectional 600V GaN Transistors – switching losses. 	<p>Christos Leontaris christos.leontaris@tum.de</p>
<p>Modelling and control of Modular Multilevel Converter (MMC)</p>	<p>Wei Tian wei.tian@tum.de</p>
<p>Modelling and Control of AC Machines</p>	<p>Julien Cordier julien.cordier@tum.de</p>
<p>Encoderless Control of Synchronous Reluctance Machines (SynRM)</p>	<p>Stefan Klaß stefan.klass@tum.de</p>
<p>A research on intelligent control strategies for power converters</p>	<p>Yongdu Wang yongdu.wang@tum.de</p>
<p>Modeling and losses analysis of DC/DC converters for EV chargers</p>	<p>Dehao Kong dehao.kong@tum.de</p>
<ol style="list-style-type: none"> 1. Detailed loss modelling in electric machines 2. Advanced modulation techniques for three-level converters 	<p>Oleksandr Pavlenko o.pavlenko@tum.de</p>
<p>Grid Impedance Estimation (Identification) for Grid-connected Converters</p>	<p>Yuanxiang Sun yuanxiang.sun@tum.de</p>
<ol style="list-style-type: none"> 1. Active EMI Filter for Power Electronics 2. Magnetics Design for High Power and High-Frequency Applications 	<p>Xingqi Yin xingqi.yin@tum.de</p>

1. Thermal management of PCB 2. Control of Trip Phase Shift (TPS) Dual Active Bridge (DAB)	Danqing Cao Danqing.cao@tum.de
Soft-switching non-isolated dc-dc converters	Gean Maia de Sousa gean.sousa@tum.de