## **TUTORIAL 7**

"Industrial Medium-voltage Drives: From Components to Systems and Applications"

Medium-voltage drives are vital in decarbonizing the planet by generating renewable energy and electrifying transportation systems and heavy industry. This tutorial provides a comprehensive introduction, overview and assessment of such drives. A particular emphasis is laid on system aspects, integrating the transformer, converter, electrical machine and load into a high-performance drive system that is scalable, reliable and cost competitive.

To minimize the cost of such drive systems - or conversely - to maximize their hardware capability in terms of rated voltage and current, model predictive pulse pattern control (MP3C) offers a disruptive way of achieving this, as will be shown in this tutorial. The classic control methods, scalar control, field-oriented control and direct torque control will be introduced as well.

Medium-voltage drives are highly tailored to their specific application. As such, the understanding of the key drive applications is vital, including Marine propulsion, rolling mills of the Metals industry, crushers and mine hoists of the Mining industry, Wind power generation, and pumps and compressors used in the Oil and Gas industry.

Tobias Geyer

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This tutorial will introduce the exciting world of medium-voltage drive systems, it will showcase the opportunities they offer, will briefly introduce the quickly growing field of non-motoric applications and will point out challenging research problems for academics and researchers in industry alike.



Registration open at:

https://www.iemdc.org

## **BIOS**

"Industrial Medium-voltage Drives: From Components to Systems and Applications"

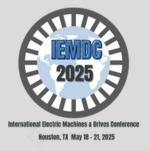


He has received six IEEE prize paper awards, filed about 90 patents, and co-authored more than 170 peer-reviewed publications. He has organized about 15 tutorials at international conferences and has given 8keynote lectures. Dr. Geyer has co-supervised more than 25 students, among them 8 PhD students. He is a former distinguished lecturer of PELS and a former associate editor of the Transactions on Power Electronics. Dr. Geyer is a Fellow of the IEEE.



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