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Einladung zum Gastvortrag von Herrn DI Dr. Tobias GEYER

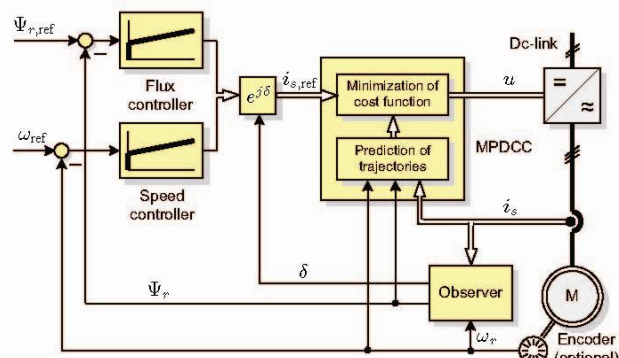
“Predictive Control in Medium-Voltage Drives”

09.05.2011, 16:00 Uhr

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Abstract

This talk provides an introduction and a review of the rapidly emerging model predictive control methods for variable speed drives. It is shown, how the related computational challenges, which are due to the combinatorial explosion of the number of admissible switching sequences, can be addressed. The resulting steady-state performance is similar to the one obtained with optimized pulse patterns. During transients, however, very fast current and torque response times are achieved, similar to deadbeat control. Simulations and selected experimental results are presented that demonstrate these performance characteristics, using three- and five-level medium-voltage drives with induction machines as illustrative examples.



Source: T. Geyer, "Model Predictive Direct Current Control for Multi-Level Converters", IEEE 2010

Bio

Tobias Geyer received his Dipl.-Ing and PhD degrees in Electrical Engineering from ETH Zürich, Switzerland, in 2000 and 2005, respectively. From 2006 to 2008, he was with General Electric's corporate research centre in Munich, Germany, where he was a project leader with a focus on control schemes for medium-voltage electrical drives. In late 2008 he joined the University of Auckland, New Zealand, where he is currently a senior research fellow. His research interests are at the intersection of control theory, mathematical optimization and power electronics, including model predictive control and electrical drives. Dr. Geyer is a recipient of the second prize paper award of the 2008 IAS annual meeting and a senior member of the IEEE.