PLECS WORKSHOP

Advanced Modeling and Simulation of Power Electronic Systems
Chalmers University of Technology, April 11, 2024

08:30	**Registration**
09:00	**Introduction to PLECS**
	▶ General use of PLECS Blockset and PLECS Standalone
	▶ Instantaneous switching
	▶ Variable and fixed-step operation
	Exercise: Modeling a switched-mode power supply
10:30	**Break**
11:00	**Solver Settings**
	▶ Definition of stiff and non-stiff systems
	▶ Explicit and non-explicit solvers
	▶ Stability domains
	▶ Accuracy considerations, step size control
	▶ Proper handling of discontinuities, zero-crossing detection
12:00	**Lunch**
13:00	**Introduction to Thermal Simulation**
	▶ Switching & conduction loss descriptions
	▶ Combined electrical-thermal simulation
	▶ Determining loss values from data sheets
	Exercise: Thermal modeling of a buck converter
14:30	**Break**
15:00	**Code Generation for Embedded Targets**
	▶ Automatic code generation for microcontrollers
	▶ Controller testing
	Demonstration: Automatic code generation with the PLECS Coder
15:30	**Real-Time Simulations**
	▶ Hardware-in-the-Loop (HIL)
	▶ Running simulations on the CPU and FPGA
	Demonstration: Sub-cycle averaging with the RT Box
16:00	**End of day**
Contact	**Plexim GmbH, +41 44 533 51 00, info@plexim.com**
Location	**Chalmers University of Technology, Fredrik Lamms room, Hörsalsvägen 11, 412 96 Göteborg, Sweden**

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electrical engineering software