PLECS WORKSHOP

Advanced Modeling and Simulation of Power Electronic Systems
Warsaw University of Technology, Tuesday, June 3rd, 2025

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	**Bringing Simulation and Real Hardware Together** **(Code Generation Workflow in PLECS)** ▶ Automatic code generation for microcontrollers ▶ Plant code generation for the RT Box ▶ Nanostep®, FlexArray and CPU solver engines ▶ Real-time simulation with 4ns step size for MHz switching Demonstration: HIL testbench with microcontroller and RT Box
16:00	**Q&A**
16:15	**End of day**
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