

PLECS WORKSHOP

Advanced Modeling and Simulation of Power Electronic Systems

Scuola Universitaria Professionale della Svizzera Italiana (SUPSI), March 12th 2025

08:30	Registration
09:00	Introduction to PLECS <ul style="list-style-type: none">▶ 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 <ul style="list-style-type: none">▶ 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 <ul style="list-style-type: none">▶ 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	Overview of PLECS Tools <ul style="list-style-type: none">▶ Custom components▶ Steady-state and small-signal analysis▶ State machine, simulation scripting, C-Script, and the DLL block
15:30	HIL Testbench Demonstration <ul style="list-style-type: none">▶ Automatic code generation for microcontrollers▶ Plant code generation for the RT Box▶ Running simulations on the CPU and FPGA
16:00	Q&A
16:15	End of day
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Location	Scuola Universitaria Professionale della Svizzera Italiana (SUPSI) ISEA - Edificio Balestra / Balestra Building Via Serafino Balestra 16 CH-6900 Lugano (TI)