

PLECS WORKSHOP

Modeling and Simulation of Power Electronic Systems
University of Nottingham, October 22, 2014

09:00	Registration
09:15	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
10:15	Break
10:30	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 Exercise: Solver accuracy and settings
12:00	Lunch
13:00	Introduction to Thermal & Magnetic Modeling & Simulation <ul style="list-style-type: none">▶ Switching & conduction loss descriptions▶ Combined electrical-thermal simulation▶ Magnetic modeling in PLECS Exercise: Thermal modeling of a buck converter, magnetic modeling of a forward converter
14:30	Break
15:00	Mechanical Modeling in PLECS <ul style="list-style-type: none">▶ Simulation of electromechanical systems▶ Inelastic collisions Exercise: Modeling an electric vehicle using the PLECS mechanical domain
16:00	End of day
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