

# PLECS WORKSHOP

Advanced Modeling and Simulation of Power Electronic Systems  
INP Toulouse ENSEEIHT, February 14<sup>th</sup>, 2013

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08:30	Registration
09:00	<b>Introduction into PLECS</b> <ul style="list-style-type: none"><li>▶ General use of PLECS Blockset and PLECS Standalone</li><li>▶ Instantaneous switching</li><li>▶ Variable and fixed step operation</li></ul> Exercise: Modelling of a forward converter
10:00	Coffee break
10:30	<b>Solver Settings</b> <ul style="list-style-type: none"><li>▶ Definition of stiff and non-stiff Systems</li><li>▶ Explicit and non-explicit solvers</li><li>▶ Stability domain</li><li>▶ Accuracy considerations, step-size control</li><li>▶ Proper handling of discontinuities, zero-crossing detection</li></ul> Exercise: Solver Settings
12:00	Lunch
13:00	<b>Introduction to Thermal &amp; Magnetic Modelling &amp; Simulation</b> <ul style="list-style-type: none"><li>▶ Switching &amp; conduction loss descriptions</li><li>▶ Combined electrical-thermal simulation</li><li>▶ Permeance Capacitance Analogy Model</li></ul> Exercise: Thermal modelling of a buck converter
14:30	Coffee break
15:00	<b>Overview of PLECS tools</b> <ul style="list-style-type: none"><li>▶ AC sweep and impulse response analysis</li><li>▶ Steady-state analysis</li><li>▶ Implementing custom components</li></ul> Exercise: Creating a custom PV string model
16:00	End of day
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