

Workshop: Advanced Modeling and Simulation of Power Electronic Systems at the University of Eindhoven

Eindhoven, April 12th, 2010

Speakers: Prof. Elena Lomonova, Eindhoven University of Technology
Dr. John Schönberger, Research and Applications Engineer Plexim

Agenda: **April 12 Advanced Modelling and Simulation**

08:30 am **Arrival & Coffee**

09:00 am **Introduction and Welcome**

09:15 am **Simulation of power electronic systems**

- An introduction in modelling and simulation techniques

Introduction to PLECS

- Operating principle of PLECS
- Interaction with the Simulink solver; stiffness; zero-crossings
- Introduction to PLECS Standalone

Thermal modelling concepts for system simulation

- Heat sink concept & defining losses

Advanced features of PLECS

- Steady state analysis
- Control design tools

12:30 pm Lunch

13:15 pm **Exercise:** Modelling of a forward converter

Exercise: Thermal modelling of a buck converter

Exercise: Non-linear and custom components models

- Development of a non-linear photovoltaic model using PLECS
- Creating custom component models using the PLECS sub-circuit

Use of the C-Script block in PLECS

- Custom controllers & components

Exercise: Implementing a state machine and a PI controller

Discussion and Outlook (Plexim Product Roadmap 2010-2012)

Q&A

5:30 pm End

Venue: Eindhoven University of Technology, Auditorium 14

The workshop contains hands on exercises. Please bring your own computer with you. PLECS licenses may be obtained ahead of the workshop from: http://www.plexim.com/store/plecs_trial.html

Registration: http://w3.ele.tue.nl/nl/epe/registration_for_the_plecs_workshop_2010/