SEMINAR

Seminar 1 Sunday and Monday June 17/18

– Booking for 2 days only –

BEHAVIORAL AVERAGE MODELING AND SPICE SIMULATION OF PWM AND RESONANT CONVERTERS 9:00am – 6:00pm

Instructor: Prof. Sam Ben-Yaakov, Ben-Gurion University, Israel

ABOUT THE INSTRUCTOR

Prof. Sam Ben-Yaakov received his PhD degree from the University of California at Los Angeles, UCLA, in 1970. He is presently professor at the Department of Electrical and Computer Engineering, Ben-Gurion University, Israel. He also serves as an independent consultant to industry on issues of Power Electronics, Analog Circuit Design and Simulation.

CONTENTS

- Overview of simulation methods
- Commercial 'average PWM' modules
- Commercial simulators
  Syntax / Type of analyses, Convergence problems
- The SIM/GSIM averaging methodology
  DCM/CCM, Duty Cycle Generator DCG, Examples
- Modeling and simulation of conduction losses
  Conduction losses, Efficiency
- Peak Current Mode / Average Current Mode
- MAGAMP regulators
- SEPIC converters
- CUK converters
- Dynamics of PWM systems
  Stability, Feedback design, Loop gain and phase margin
- Power Factor Correction System
  Large signal analysis, Small signal analysis, Feedback loops design, Examples, Analysis and design of new control strategies
- Average simulation of resonant converters
  Series-Parallel Resonant Converter, Series Resonant Converter
- Behavioral modeling of non-linear loads
  Fluorescent lamp
- Specialized topics
  Can SPICE teach us?, Current sharing, Ripple estimate, Symbolic expression
- ENVELOPE simulation

SEMINAR BENEFITS

- Introduces advanced features of modern circuit simulators
- Elucidates how to derive behavioral average models of switch mode, resonant converters and specialized loads
- Explains how to apply simulation tool in the design of feedback loops
- Demonstrates the design details of the feedback loops in APFC
- Illustrates how simulation can help the creative engineering process
- Introduces a new advanced model that includes CONDUCTION LOSSES

WHO SHOULD ATTEND

- Power supply engineers • Power quality engineers
- 'Analog Electronics' engineers interested in power electronics circuits

- The seminar will be conducted in a PC class for hands-on experience, using PSPICE Evaluation Version 8.
- A sample diskette will be given to each attendee for future reference