

MIXED-SIGNAL CONTROLLERS FOR EMERGING LOW-POWER SWITCH-MODE POWER SUPPLIES

Thursday, April 16, 2015 | 15:00 – 17:00 | Sala Caminetto

Prof. Aleksandar Prodić

Department of Electrical and Computer Engineering
University of Toronto

Abstract

Switch-mode power supplies (SMPS) are widely used in virtually all electronic devices today to provide well regulated voltage or current for various functional blocks. In space-constrained low-power applications, analog-controlled SMPS are among the main contributors to the overall size, price, and weight of the devices. They also have a significant influence on the battery operating time.

In this talk, mixed-signal controllers for improving the performances of SMPS will be described. The challenges related to the implementation of hardware-efficient mixed-signal controllers will be addressed and several architectures enabling utilization of mixed-signal control for low power SMPS will be presented. Also, advanced mixed-signal controllers that introduce new features and push the performance of the SMPS to their physical limits (both in terms of dynamic response and power processing efficiency) will be presented. In the last part of the presentation, utilization of the advanced controllers in developing novel SMPS topologies and avenues for possible future research will be presented.

About the speaker

Aleksandar Prodić is a full professor at the ECE Department of the University of Toronto. He obtained his Dipl. Ing. degree from the University of Novi Sad (Serbia) in 1994 and received M.Sc. and Ph.D. degrees from the University of Colorado, Boulder, in 2000 and 2003, respectively.

His research interests include converter topologies, advanced control and mixed-signal IC design for low-power high-frequency power electronics, and power management systems. He has published more than 100 research papers and 15 patents, most of them have become commercial products.

Prof. Prodic is a two-time recipient of the Inventor of the Year Award from the University of Toronto (2012 and 2013), an IEEE Power Electronics Transactions Prize (2008), and multiple awards from Canadian Government. He is most proud of 3 Excellence in Teaching awards (2005, 2007 and 2013), elected and given by the University of Toronto Students.

For more information, please contact:

Prof. Lorenzo Capineri
lorenzo.capineri@unifi.it
+39 055 275 8627



UNIVERSITÀ
DEGLI STUDI
FIRENZE

DINFO

DIPARTIMENTO DI
INGEGNERIA DELL'INFORMAZIONE