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PROCEEDINGS SPI 2014

2014 18th IEEE Workshop on Signal and Power Integrity (SPI)

May 11-14, 2014 – Ghent, Belgium

Het Pand Convention Centre

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PROGRAM

MAY 11 – SUNDAY

15.00-16.30 Tutorial 1: SI/PI and EMC analysis of PCBs using EM simulation
(Session Chair: T. Dhaene)

15.00-15.45: ***Part 1*** – J. Van Hese
Agilent Technologies, Belgium
15.45-16.30: ***Part 2*** – F. Demuynck
Agilent Technologies, Belgium

16.30-17.00 Coffee break

17.00-18.00 Invited Lecture: Passive Macromodeling: a Review of Cross-Disciplinary Applications
(Session Chair: D. Deschrijver)

S. Grivet-Talocia[1], B. Gustavsen[2]
[1]Politecnico di Torino, Italy; [2]SINTEF Energy Research, Norway

18.30 – Welcome reception – 't Pand, Gent

MAY 12 – MONDAY

9.00-9.15 Opening ceremony

D. De Zutter – *Ghent University, Belgium*

9.15-10.00 Keynote 1: 3D Integration, Definitions, Status and Roadmap
(Session Chair: D. De Zutter)

E. Beyne – *IMEC, Belgium*

10.00-10.30 Coffee break

10.30-12.30 SPECIAL SESSION on 3D IC
(Session Chair: M. Swaminathan)

10.30-11.00 ***3D IC: Short and Long Range Opportunities***
P. Franzon
North Carolina State University, USA

11.00-11.30 ***Power Noise Awareness in Design and Diagnosis of VLSI Systems***
M. Nagata
Kobe University, Japan

11.30-12.00 ***Challenges and Emerging Solutions in Testing 2.5D- and 3D-Stacked ICs***
E. J. Marinissen
IMEC, Belgium

Invited Lecture: ***Passive macromodeling: a review of cross-disciplinary applications***

Sunday, May 11th 2014, 17.00-18.00

Stefano Grivet-Talocia, Politecnico di Torino, Italy ; Bjørn Gustavsen, SINTEF Energy Research, Norway

Abstract

Passive macromodeling has been an active research topic during the last two decades. This is especially true in electrical and electronic applications, for which there is a strong demand of compact dynamical models for complex interconnect and components, so that system level verification via numerical simulation becomes accessible with moderate computational resources. Many applications to Signal and Power Integrity verification at chip, package and board level have been demonstrated, and passive macromodeling is now a well-established part of modern design flows.

This talk aims at crossing the boundaries of electrical and electronic applications. After a short review of theoretical aspects and most successful algorithms, we review a number of cross-disciplinary fields for which passive macromodeling has been proven very effective, including mechanical, hydraulic, and naval systems in addition to the more standard electrical, electronic, and electromagnetic applications. This widespread diffusion tracks down to the analogy between constitutive laws and first principle physical descriptions of different phenomena, thus enabling a common approach to compact dynamical modeling.

Biographies

Stefano Grivet-Talocia received the Laurea and the Ph.D. degrees in electronic engineering from Politecnico di Torino, Italy. From 1994 to 1996, he was with the NASA/Goddard Space Flight Center, Greenbelt, MD, USA. Currently, he is an Associate Professor of Circuit Theory with Politecnico di Torino. His research interests are in passive macromodeling of lumped and distributed interconnect structures, modeling and simulation of fields, circuits, and their interaction, wavelets, time-frequency transforms, and their applications. He is author of more than 120 journal and conference papers. He is co-recipient of the 2007 Best Paper Award of the IEEE Trans. Advanced Packaging. He received the IBM Shared University Research (SUR) Award in 2007, 2008 and 2009. Dr. Grivet-Talocia served as Associate Editor for the IEEE Transactions on Electromagnetic Compatibility from 1999 to 2001. He is co-founder and President of IdemWorks.

Bjørn Gustavsen was born in Norway in 1965. He received the M.Sc. and Dr.Ing. degrees in electrical engineering from the Norwegian Institute of Technology (NTH), Trondheim, Norway, in 1989 and 1993, respectively. Since 1994, he has been with SINTEF Energy Research, Trondheim, where he is a Chief Research Scientist. His interests include the simulation of electromagnetic transients and modeling of frequency-dependent effects. He spent 1996 as a Visiting Researcher at the University of Toronto, Toronto, ON, Canada, and 1998 at the Manitoba HVDC Research Centre, Winnipeg, MB, Canada. He was a Marie Curie Fellow at the University of Stuttgart, Stuttgart, Germany, from 2001 to 2002.