

Preface

Welcome to the proceedings of PATMOS 2004, the fourteenth in a series of international workshops. PATMOS 2004 was organized by the University of Patras with technical co-sponsorship from the IEEE Circuits and Systems Society.

Over the years, the PATMOS meeting has evolved into an important European event, where industry and academia meet to discuss power and timing aspects in modern integrated circuit and system design. PATMOS provides a forum for researchers to discuss and investigate the emerging challenges in design methodologies and tools required to develop the upcoming generations of integrated circuits and systems. We realized this vision this year by providing a technical program that contained state-of-the-art technical contributions, a keynote speech, three invited talks and two embedded tutorials. The technical program focused on timing, performance and power consumption, as well as architectural aspects, with particular emphasis on modelling, design, characterization, analysis and optimization in the nanometer era.

This year a record 152 contributions were received to be considered for possible presentation at PATMOS. Despite the choice for an intense three-day meeting, only 51 lecture papers and 34 poster papers could be accommodated in the single-track technical program. The Technical Program Committee, with the assistance of additional expert reviewers, selected the 85 papers to be presented at PATMOS and organized them into 13 technical sessions. As was the case with the PATMOS workshops, the review process was anonymous, full papers were required, and several reviews were received per manuscript.

Beyond the presentations of the papers, the PATMOS technical program was enriched by a series of speeches offered by world-class experts, on important emerging research issues of industrial relevance. This year's keynote speech was offered by Prof. Hugo De Man, IEEE Fellow, IMEC and KUL, Belgium. The title of the keynote speech was "Connecting E-Dreams to Deep-Submicron Realities." Furthermore, the technical program was augmented with three invited talks, given by leading industry experts, namely Dr. Nick Kanopoulos, Director of Multimedia Communications, ATMEL, USA, Prof. Kiyo Itoh, Hitachi Fellow, Hitachi, Japan and Dr. Carlo Dallavalle, Telecom Group Process Technology Director, STMicroelectronics, Agrate Brianza, Italy. Finally, two tutorials were embedded within the technical program on two very hot emerging design issues. In particular, Prof. W. Nebel, OFFIS, Germany, gave a tutorial on the "Importance and Sources of Leakage Power in DSM-CMOS Circuits," while Sachin S. Sapatnekar, University of Minnesota, USA, presented "The Certainty of Uncertainty: Randomness in Nanometer Design."

Last, but not least, the rich social program coupled with the unique Santorini settings provided the additional opportunities for establishing new relationships

among the workshop participants. We sincerely hope that the attendees found PATMOS 2004 at Santorini a stimulating and fruitful experience and that they enjoyed their stay on Santorini throughout the duration of the event. We would like to thank the several people who voluntarily worked to make this edition of PATMOS possible, the expert reviewers, the members of the technical program and steering committees, and the invited speakers who offered their skill, time, and deep knowledge to make PATMOS 2004 a memorable event.

September 2004

Enrico Macii
Vassilis Paliouras
Odysseas Koufopavlou

Organization

Organizing Committee

General Co-chairs	Assist. Prof. Vassilis Paliouras, U. of Patras, Greece Prof. Odysseas Koufopavlou, U. of Patras, Greece
Technical Program Chair	Prof. Enrico Macii, Politecnico di Torino, Italy
Industrial Chair	Dr. Roberto Zafalon, STMicroelectronics, Italy
Conference Co-ordinator	Dr. Konstantina Karagianni, U. of Patras, Greece

PATMOS Technical Program Committee

B. Al-Hashimi - University of Southampton, UK
A. Alvandpour - Linköping University, Sweden
D. Auvergne - LIRMM, France
D. Bertozzi - University of Bologna, Italy
A. Bogliolo - University of Urbino, Italy
J. Bormans - IMEC, Belgium
J.A. Carballo - IBM, USA
N. Chang - Seoul National University, Korea
J. Figueras - University of Catalunya, Spain
E. Friedman - University of Rochester, USA
C.E. Goutis - University Patras, Greece
J.L. Guntzel - Universidade Federal de Pelotas, Brazil
A. Guyot - TIMA laboratory, France
R. Hartenstein - University of Kaiserslautern, Germany
J. Juan Chico - University of Sevilla, Spain
S. Khatri - University of Colorado, USA
P. Larsson-Edefors - Chalmers Technical University, Sweden
V. Moshnyaga - University of Fukuoka, Japan
W. Nebel - University of Oldenburg, Germany
J.A. Nossek, Technical University Munich, Germany
A. Nunez, University of Las Palmas, Spain
M. Papaefthymiou - University of Michigan, USA
F. Pessolano - Philips, The Netherlands
H. Pfeleiderer - University of Ulm, Germany
C. Piguët, - CSEM, Switzerland
M. Poncino, University of Verona, Italy
R. Reis - University of Porto Alegre, Brazil
M. Robert - University of Montpellier, France
A. Rubio - University of Catalunya, Spain
D. Sciuto - Politecnico di Milano, Italy
D. Soudris, - University of Thrace, Greece
J. Sparsø - DTU, Denmark

VIII Organization

A. Stauffer - EPFL, Lausanne, Switzerland
A. Stempkowsky - Academy of Sciences, Russia
T. Stouraitis - University of Patras, Greece
A.M. Trullemans - University of Louvain-la-Neuve, Belgium
R. Zafalon - STMicroelectronics, Italy

PATMOS Steering Committee

D. Auvergne, University of Montpellier, France
R. Hartenstein, University of Kaiserslautern, Germany
W. Nebel, University of Oldenburg, Germany
C. Piguet, CSEM, Switzerland
A. Rubio, University of Catalunya, Spain
J. Figueras, University of Catalunya, Spain
B. Ricco, University of Bologna, Italy
D. Soudris, University of Thrace, Greece
J. Sparsø, DTU, Denmark
A.M. Trullemans, University of Louvain-la-Neuve, Belgium
P. Pirsch, University of Hannover, Germany
B. Hochet, EIVD, Switzerland
A.J. Acosta, University of Sevilla/IMSE-CSM, Spain
J. Juan, University of Sevilla/IMSE-CSM, Spain
E. Macii, Politecnico di Torino, Italy
R. Zafalon, STMicroelectronics, Italy
V. Paliouras, University of Patras, Greece
J. Vounckx, IMEC, Belgium

Executive Steering Subcommittee

President	Joan Figueras, University of Catalunya, Spain
Vice-president	Reiner Hartenstein, University of Kaiserslautern, Germany
Secretary	Wolfgang Nebel, University of Oldenburg, Germany

Additional Reviewers

L. Fesquet	N. Kaczorek	S. Mamagkakis
C. Layer	M. Hillers	M. Dasygenis
O. Pfänder	D. Helms	E. Lattanzi
J. Rauscher	A. Stammermann	A. Bona
W. Schlecker	A. Nanarelli	V. Zaccaria
E. Sönmez	T. Bjerregaard	G. Bertoni
H. Kabza	S.-M. Yoo	M. Loghi
R. Michalzik	F. Gebara	S. Salerno
H. Schumacher	G. Koytroumpetis	P. Maurine
A. Schulz	K. Tatas	