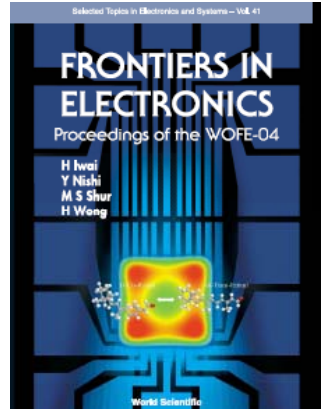
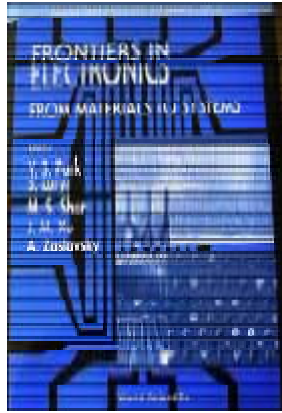


PREFACE

The Workshop on Frontiers in Electronics – WOFE-07 – took place in Cozumel, in December of 2007. This meeting was the fifth in the series of the WOFE workshops (see Figure 1) and strongly reinforced the tradition of scientific quality and visionary research.



Proceedings of several past WOFE conferences

Close to sixty leading experts from academia, industry, and government agencies came to Mexico to report on the most recent and exciting developments in their fields. The warm and friendly atmosphere* was ideal for inciting the participants to exchange frank and sometimes controversial views on future trends and directions of the electronics and photonics industry.



The youngest WOFE-07 participants focus on the Book of Abstracts

The issues addressed ranged from THz and infrared electronics to nanoelectronics and photonics. The papers focused on the fabrication, characterization and applications of nanodevices, wide band gap structures, and state-of-the-art FETs. The participants also discussed the device physics and processing issues including aspects related to SOI and germanium-on-insulator technologies, TFT, and advanced CMOS and MOSFETs. It is this cross-pollination between different but related fields that made this conference very special.

* Only two major accidents have occurred. First, a nano-jelly-fish attempted to interact with a distinguished speaker. Second, one tie has once been seen in the conference room. The latter problem was solved promptly.

The Plenary Talk by Nick Donofrio, Senior Vice-President of IBM Corporation, addressed challenges faced by electronics industry and focused on recent achievements and future plans of the IBM Research. This exciting talk generated a lot of interest but also some controversy and prolonged and heated discussions with some of the participants questioning the gaming research and strategic global priorities of the IBM corporation.



Nick Donofrio

Our aim was to go beyond the publication of WOFE Proceedings which would contain the serial list of contributions. Instead, our book has been designed to compile full-length *invited* papers, selected at the conference and reviewed by international leaders.

The book has been divided in four sections introducing distinct flavors. The common denominator is the ‘nano-device’, present under various metamorphoses in the wide CMOS and optoelectronics arena.

The rich and polyvalent content of WOFE–07 is of high interest to professional scientists, industry R&D engineers, and visionary research leaders. Its reading is also recommended to graduate students working at the frontiers of the nanoelectronics and micro science.

On behalf of the WOFE Organizing, Program, and Steering Committees, we would like to thank all participants and especially the invited contributors to this issue for making WOFE–07 a successful conference. We also gratefully acknowledge generous support of this workshop by the Airforce Office of Scientific research, US Office of Naval Research, and National Science Foundation. Our special thanks go to the Members of Organizing, Program, and Steering Committees, and to Session Organizers for their tireless work and inspiration.

And we are already thinking about WOFE-2010 in December 2010, once again, in Caribbean. What topics will dominate WOFE–2010? Will it be ballistic transport, terahertz electronics, and graphene devices? We do not know. But we are certain that, once again, WOFE-2010 will strike a nice balance between scientific curiosity and applications, and between formal talks and informal discussions.

Sorin Cristoloveanu and Michael Shur
Editors