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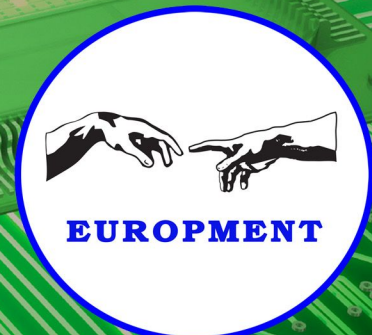
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New Aspects of Microelectronics, Nanoelectronics, Optoelectronics

**9th WSEAS International Conference on
Microelectronics, Nanoelectronics,
Optoelectronics (MINO '10)**

**Electrical and Computer Engineering Series
A Series of Reference Books and Textbooks**

Catania, Italy, May 29-31, 2010



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Preface

This year the 9th WSEAS International Conference on MICROELECTRONICS, NANO ELECTRONICS, OPTOELECTRONICS (MINO '10) was held in Catania, Italy, May 29-31, 2010. The conference remains faithful to its original idea of providing a platform to discuss microelectronics, nanoelectronics, quantum electronics, biomolecular electronics, optoelectronics etc. with participants from all over the world, both from academia and from industry.

Its success is reflected in the papers received, with participants coming from several countries, allowing a real multinational multicultural exchange of experiences and ideas.

The accepted papers of this conference are published in this Book that will be indexed by ISI. Please, check it: www.worldses.org/indexes as well as in the CD-ROM Proceedings. They will be also available in the E-Library of the WSEAS. The best papers will be also promoted in many Journals for further evaluation.

A Conference such as this can only succeed as a team effort, so the Editors want to thank the International Scientific Committee and the Reviewers for their excellent work in reviewing the papers as well as their invaluable input and advice.

The Editors

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Plenary Lecture 1

System-on-Package (SoP) Technologies to Integrate mm-Wave Radio Systems



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Abstract: In this lecture, system-on-package (SoP) technologies based on LTCC (low-temp. co-fired ceramic) will be presented for mm-wave radio system applications. The key issues to implement compact SoP modules are the attenuation at the transmission lines and transitions for interconnection between components, crosstalk between them, compact passive devices such as LPF, BPF and antenna, and their integration in SoP modules. Several research approaches have been tried to solve these issues will be presented. Especially, transmission lines and transitions using air cavities integrated in the LTCC substrate are discussed for loss reduction. Resonant behaviors due to 3-D structures are analyzed and structures proposed for their suppression are explained using LTCC modules. Research results of compact 3-D passive devices such as a LPF, BPF, diplexer, and antenna are also in detail presented. Finally, compact-sized 60GHz transmitter, receiver and transceiver LTCC SoP modules integrating LTCC passive components and their link-test results are presented.

Brief Biography of the Speaker:

Young Chul Lee received his B.S. and M.S degrees in electronic engineering from Yeungnam University, Gyeongsan, Korea, in 1995 and 1997, respectively, and Ph.D. degree in electronic engineering from Information and Communications University (ICU), Daejeon, Korea, in 2005. From 1997 to 2000, he was with the R&D Division, LG Semicon Inc., Cheongju, Korea, where he was involved in the development of MOSFET devices for DRAM applications. In 2005, he joined Mokpo National Maritime University (MMU), Mokpo, Korea, as an assistant professor in Division of Marine Electronics and Communication Engineering. His professional interests are millimeter-wave circuits and systems, 3D integration of RF circuits using LTCC based System-in-Package (SiP) technology, and reconfigurable RF circuits based on tunable dielectric thin films.

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