

GUEST EDITORIAL

This Special Issue on Electronics is already the 3rd one in the Engineering series of the Proceedings of the Estonian Academy of Sciences. Traditionally, the papers of the Electronics Issue have been based on publications presented a year before at the biennial Baltic Electronics Conference held in Tallinn already during more than 12 years. In this issue, six papers selected amongst the 102 papers presented at the 7th Baltic Conference on Electronics and Microsystems Technology BEC 2000, which took place at Tallinn Technical University in October 8–11, 2000, are published.

The Baltic electronics conferences have become the largest scientific forum in the field of electronics, microtechnology, and other areas related to electronics in the Baltic Sea region. In fact, the Conference has earned far more wider interest. The speakers from such countries as Germany, Hungary, Czech Republic, and France have become regular guests already, and scientists from Italy, the Balkans, Portugal, China, Korea, and the USA, even from Brazil and Oman, have been presented at the Conference. Nevertheless, the authors or at least co-authors of the papers published in this issue are Estonian scientists. It is so because, besides taking into account the results of international reviewing, the aim to reflect the mainstreams of research in Estonia was set up by selecting the papers.

The first two papers are devoted to a very important problem – computer-aided simulation, testing, and error location of complicated digital circuits and systems before their fabrication. The research in the field of digital testing and diagnosing, conducted by Prof. Raimund Ubar, has been one of the most fruitful research fields in Estonia over the two decades already, and it has obtained an incontestable international recognition in Europe.

In the next two papers, written by Prof. Vello Kukk and Ants Ronk, new ways of using extended Fourier analysis for simulation and adaptation of the non-linear and resonating narrow-band systems tending to oscillations are considered. The new methods may be implemented for design of the voltage controlled oscillators with low phase noise and also for developing waveform adaptive digital filters, accomplished using modern digital signal processors, suitable for real-time operations.

The fifth paper by Prof. Vello Männama and Toivo Paavle describes restrictions limiting the possibilities to obtain linear operation of a class of phase/frequency detectors applied in the phase-locked loop based frequency synthesizers, intensively used in wireless communication systems.

The last paper (authors Prof. Toomas Rang and Oleg Korolkov) is devoted to the application of a new and perspective semiconductor material, silicon carbide (SiC), in power electronics. The paper considers development of the technology for making large ohmic contacts to the SiC crystal.

Next year, in October 2002, the 8th Baltic Electronic Conference BEC 2002 will take place in Tallinn, and the following Special Issue on Electronics will be prepared after that event, where some other, and may be still embryonic fields of Estonian electronics will be presented.

I would like to thank the authors of the papers published in this issue, and to recognize the well-timed and accurate work of many other people, who helped to make this Special Issue available in the present form. And I wish a great success to the next Baltic Electronics Conference BEC 2002.

Mart MIN
Co-Chairman of the BEC 2000