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GUEST EDITORIAL

Guest editorial: Introduction to the special issue on selected papers from the ELECO'2011 conference

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Welcome to the Special Issue on Selected Papers from the ELECO-2011 Conference!, the seventh International Conference on Electrical and Electronics Engineering, held 1–4 December 2011, in Bursa-Turkey.

ELECO conferences are organized at international level in odd numbered years and as national conferences in even numbered years. As such ELECO-2011 is the seventh international conference, with participants coming from various countries, presenting papers from the rich spectrum of electrical and electronics engineering discipline. ELECO-2011 is jointly organized by Uludağ University, Bursa; Istanbul Technical University (ITU) and the Chamber of Turkish Electrical Engineers (EMO), Bursa Section. The IEEE-Turkey Section and The Scientific and Technological Research Council of Turkey (TÜBİTAK) are co-sponsors of ELECO-2011. We are grateful to them for their contributions.

Considering the broad scope of the technical program, it was probably the largest electrical and electronics engineering conference ever held in Turkey. The scope of the conference covers topics ranging over electric power systems, electrical machines and drives, power electronics, high voltage techniques, electrical materials, electronics, circuits and systems, signal processing, electromagnetics, antennas and propagation, microwave theory, communication systems, mechatronics, control theory, control applications, automation systems, robotics and intelligent control systems.

This year 288 papers have been submitted for presentation and 166 papers have been accepted. If we look at the contributions with respect to geographical point of view, it is seen that ELECO'2011 contributions are coming from 19 different countries.

Selected papers from previous international ELECO Conferences were invited to be published in extended form in special ELECO issues of international journals, under peer review. Two special ELECO issues appeared in the journal Analog Integrated Circuits and Signal Processing containing selected papers from ELECO'2001 and ELECO'2007. Furthermore, four special ELECO issues appeared in the journal TJEECS: Turkish Journal of Electrical Engineering and Computer Sciences where selected papers from ELECO'2003, 2005, 2007 and 2009 were published in extended form, respectively.

This Special Issue on Selected Papers from ELECO'2011 contains extended versions of ten papers presented at the conference. Two papers are selected from invited talks given by world-known scientists during the conference. The other eight are chosen from regular submitted manuscripts.

The paper by Yahya Lakys and Alain Fabre entitled "Multistandard Transceivers: State of the Art and a New Versatile Implementation for Fully Active Frequency Agile Filters" was presented at ELECO-2011 as an invited paper. In this paper various architectures of transceivers for current standards are firstly compared, different possibilities to achieve multi-standard transceivers are also recalled and compared. It is demonstrated that the second generation current controlled conveyor operating in current mode is perfectly suitable for the realization of frequency-agile filters. A

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second order frequency agile bandpass filter operating in current mode is implemented with CCCII+. It has four central frequencies whose values could be selected digitally.

The paper by Zdenek Kolka, Dalibor Biolek, Viera Biolkova entitled "Frequency-Domain Steady-State Analysis of Circuits with Mem-Elements" was also presented as an invited paper at ELECO-2011. The paper deals with frequency-domain models of memristor, memcapacitor, and meminductor, and their use in the steady-state analysis by means of the harmonic-balance method. The models are based on a polynomial approximation of constitutive relations, allowing analytical formulation of relations between the spectral components of stimulus and response, for both periodic and quasi-periodic steady-state conditions.

The paper by Fatma Sarica and Avni Morgül entitled "Basic Circuits for Multi-Valued Sequential Logic" presents a new latch and restoration circuit which improves the performance of the previously designed flip-flop circuit. Multi-valued logic design is still an open area, especially the sequential design part. Unfortunately there are not available algorithms or methods for the simplification of multilevel logic equations and design of sequential circuits. This study is just a step to that open area and needs improvements in circuit level and extended system level implementation.

The paper by Ali Sahafi entitled "Ultra Low Power Frequency Divider for 2.45 GHz ZigBee Frequency Synthesizer" describes an ultra low power CMOS frequency divider whose modulus can be varied from 481 to 496. It has been customized to be used in 2.45 GHz Integer-N PLL frequency synthesizers utilized in ZigBee standard. Post layout simulation results exhibit 420 μW power consumption for 4 bit frequency divider in 2.45 GHz ISM frequency band that proves 40 % reduction compared to same previous works.

The paper by Emre Arslan, Bilgin Metin, Hakan Kuntman and Oguzhan Cicekoglu entitled "MOS-Only Second Order Current-Mode LP/BP Filter" proposes a current-mode dual output low-pass (LP) and band-pass (BP) filter using only six MOSFET transistors. Transconductances and gate-to-source capacitances of the MOS transistors are employed instead of passive resistors and capacitors.

The paper by Mustafa Sayginer, Metin Yazgi, H. Hakan Kuntman and Bal S. Virdee entitled "1–8 GHz High Efficiency Single-Stage Travelling Wave Power Amplifier" describes a Class-A/AB wideband power amplifier that comprises of a single-stage transistor travelling wave structure in which capacitive coupling and frequency dependent lossy artificial-line are employed at the input of the active device. The proposed technique significantly enhances the amplifier's gain-bandwidth product, input match and gain flatness performance.

The paper by Jiri Vavra and Josef Bajer entitled "Current-Mode Multiphase Sinusoidal Oscillator Based on Current Differencing Units" describes the design and experimental verification of a current-mode multiphase sinusoidal oscillator (MSO) employing current differencing units (CDU).

The paper by Jan Jerabek, Jaroslav Koton, Roman Sotner and Kamil Vrba entitled "Adjustable Band-Pass Filter with Current Active Elements: Two Fully-Differential and Single-Ended Solutions" presents four adjustable band-pass filtering solutions. Two of them are suitable for single-ended (S-E) signal processing and the other two are their fully-differential (F-D) equivalents.

The paper by Norbert Herencsar, Shahram Minaei, Jaroslav Koton, Erkan Yuce and Kamil Vrba entitled "New Resistorless and Electronically Tunable Realization of Dual-Output VM All-Pass Filter Using VDIBA" introduces a new active element called voltage differencing inverting buffered amplifier (VDIBA). Using single VDIBA and a capacitor, a new resistorless voltage-mode first-order all-pass filter is proposed, which provides both inverting and non-inverting outputs at the same configuration simultaneously.

The paper by Yunus Akbey, Osman Palamutçuoğulları entitled "A Broadband, Differential Transimpedance Amplifier in 0.35 μm SiGe BICMOS Technology for 10 Gbit/s Fiber Optical Front-Ends" presents a broadband differential transimpedance amplifier designed with 0.35 μm Si Ge heterojunction bipolar transistors. It is shown that the transimpedance amplifier is well-suited for 10 Gbit/s data rate fiber optical receivers.

The guest editors would like to thank Editor-in-Chief, Prof. Mohamed Ismail, for valuable supports, and Janani Kalidasan and other staff at Journals Editorial Office for their assistance in producing this volume. We hope you very much enjoy reading this special ELECO'2011 issue of Analog Integrated Circuits and Signal Processing.

Guest Editors of the Special Issue on Selected Papers from ELECO'2011.

Serdar Özoğuz received his B.S.E.E., M.S.E.E. and Ph.D. degrees in Electronics Engineering from Istanbul Technical University in 1991, 1993 and 2000 respectively. Since 2009, he is working as a full professor in Istanbul Technical University. His research interests include analog circuit design, chaotic circuits and chaos applications. Serdar Ozoguz has become a recipient of the Young Scientist Award of the Scientific and Technical Research Council of Turkey (TUBITAK) in 2004 and the Outstanding Young Scientist Award of the Turkish Academy of Sciences in 2002. He is the author or co-author of about 100 papers published in scientific journals or conference proceedings.

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Oguzhan Cicekoglu received the B.Sc., and M.Sc., degrees from Bogazici University and the Ph.D. degree from Istanbul Technical University all in Electrical and Electronics Engineering in 1985, 1988 and 1996, respectively. He served as lecturer at the School of Advanced Vocational Studies Electronics Prog. of Bogazici University where he held various administrative positions between 1993 and 1999. He has also given lectures at the Turkish Air Force Academy. He was with the Biomedical Engineering Institute of the Bogazici University between 1999 and 2001. He is currently a professor at the Electrical and Electronics Engineering Department of the same University. Oguzhan Cicekoglu served in organizing and technical committees of many national and international conferences. He was the Guest co-editor of a Special Issue of the Journal Analog Integrated Circuits and Signal Processing Journal. One of the publications he co-authored in IEEE Transactions on Circuits and Sytems II-Analog and Digital Signal Processing is among the top cited papers listed in IEEE Circuits and Systems Society web page. He received the Research Excellence Award of Bogazici University Foundation in 2004. Currently he serves as the Associate Editor of International Journal of Electronics (SCI). His current research interests include analog circuits, active filters, analog signal processing applications and current-mode circuits. He is the author or co-author of about 150 papers published in scientific journals or conference proceedings and conducts review in numerous journals including Analog Integrated Circuits and Signal Processing, IEEE CAS-I, IEEE CAS-II, International Journal of Electronics, ETRI Journal, IEE Proceedings Pt.G and others. Oguzhan Cicekoglu is a member of the IEEE.