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Guest editorial: introduction to the special issue on selected papers from the ELECO'2021 conference

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Welcome to the Special Issue on Selected Papers from the ELECO-2021 Conference!, ELECO conferences are traditionally organized at international level in odd numbered years and as national conferences in even numbered years. As such, ELECO 2021 is the 13th international conference, with participants from various countries, presenting papers from the rich spectrum of electrical and electronics engineering. ELECO 2021 is jointly organized by Bursa Uludag University, Bursa; Istanbul Technical University (ITU), Istanbul and the Chamber of Turkish Electrical Engineers (EMO), Bursa Branch. The IEEE Turkey Section and The Scientific and Technological Research Council of Turkey are technical co-sponsors of ELECO 2021.

The conference ELECO'21 was held virtually due to COVID-19 concerns.

The scope of the conference covers topics ranging over energy sources, 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. The conference papers are the result of extensive analytical, experimental and computational works.

Selected papers from international ELECO Conferences were invited to be published in extended form in special ELECO issues of international journals, under peer review.

This Special Issue on Selected Papers from ELECO'2021 contains extended versions of ten selected papers presented at the conference.

The paper by Gülnur Yılmaz et al. entitled *Synchronization of hyperchaotic Wang-Liu system with experimental implementation on FPAA and FPGA* is concerned with the synchronization of hyperchaotic Wang-Liu system by using the Pecora-Carroll complete replacement method.

In the paper by Deniz Ozenli et al. *A new implementation of the capacitance multiplier is proposed with Voltage Differencing Transconductance Amplifier* for the low frequency applications such as biomedical and speech processing implementations.

In the paper by Mustafa Gözüküçük et al. entitled *A flux controlled electronically tunable fully floating OTA based memristor emulator*, flux controlled high frequency floating/grounded type memristor emulator circuit based on single OTA (Operational Transconductance Amplifier) is introduced by using CMOS technology.

In the paper by Ersin Alaybeyoglu et al. entitled *An electronically tunable active-C based analog baseband filter for multi-standard applications*, a 4th order CCCII based reconfigurable LPF is proposed for the ABB of multi-standard transceivers. The operation frequency of the active-C based filter is suitable for the applications of Bluetooth, CDMA2000, Wideband CDMA, and IEEE 802.11a/b/g/n wireless LANs, 3G/4G. TSMC 0.18 μm technology is used in the design of LPF.

In the paper by Oğuzhan Coşkun et al. entitled *The effect of ferrite bead on conducted emission in an automotive LED driver module with DC–DC converters,* the behavior of the ferrite bead used for reducing the emissions generated by the LED driver module of the front fog lamp of a passenger vehicle has been experimentally investigated in the low-frequency region.

The paper by Ali Tangel et al. entitled *A TIQ based 6 bit 8 Gs/s time interleaved ADC design* presents the design of a 6 bit two channel time interleaved (TI) ADC in TSMC 180 nm CMOS technology.

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In the paper by Bilgin Metin et al. entitled *Supplementary MOSFET-C Transimpedance Mode Filters for Wireless Systems,* the authors proposed several transimpedance-mode bandpass filter topologies suitable for MOSFET-C-based implementation for wireless systems. The results are promising for the realization of small-size on-chip filters to obtain advanced wireless systems and applications.

In the paper by Ercem Yeşil et al. entitled *An ISM-Band Direct Down-Conversion Double-Balanced Mixer for Biomedical Applications*, the design of a direct down- conversion, double-balanced Gilbert Mixer at 432 MHz is presented.

The paper by Ali Doğuş Güngördü et al. entitled A Fully-Differential, Flipped-Voltage-Follower-based (FVF) Transimpedance Design for Optical Receivers with Large-Area Photodetectors presents a transimpedance amplifier (TIA) design suitable for 1 Gbps operation using a 4-level pulse amplitude modulation (PAM-4) scheme.

In the paper by Emre Altuner et al. entitled *High-Linearity Gilbert-Cell Mixer Design for Cryogenic Applications*, a Gilbert-cell mixer is designed for operation in cryogenic conditions (−196 °C) using UMC 180 nm CMOS technology.

The guest editors would like to thank Editor-in-Chief, Prof. Mohammed Ismail, for valuable supports and staff at Journals Editorial Office for their assistance in producing this volume. We hope you very much enjoy reading this special ELECO'2021 issue of Analog Integrated Circuits and Signal Processing.

Guest Editors of the Special Issue on Selected Papers from ELECO'2021.

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Serdar Ozoguz received his B.Sc., M.Sc. 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. He is the author or co-author of about 200 papers published in scientific journals or conference proceedings. Currently, he serves as the head of Electronics and Communication Engineering Department of Istanbul Technical University.



Oguzhan Cicekoglu received the B.Sc. and M.Sc. degrees from Bogazici University and the PhD. degree from Istanbul Technical University all in Electrical and Electronics Engineering in 1985, 1988 and 1996 respectively. He joined Electrical and Electronics Engineering Department of the same University where he is currently a professor. Between 2007 and 2010 he was the Dean of Engineering at Corlu Engineering Faculty of Namik Kemal University, Turkey. During his period, four new undergraduate programs and several M.Sc. level programs are started. Between 2013 and 2016 he was the founding Dean of Engineering Faculty at Turkish-German University, Istanbul-Turkey. During his period, several new undergraduate engineering programs were established. Oguzhan Cicekoglu served in organizing and technical committees of many national and international conferences. He was the guest co-editor of several previous Special Issues of the 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 was 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. He served as the co-chair of Amplifiers and Comparators track in 50th IEEE Midwest-Newcas Joint Conference which is held in Montreal-Canada as a track chair in the 52th IEEE Midwest Symposium held in Cancun-Mexico. His current research interests include analog circuits, active filters, analog signal processing applications, current-mode and MOS only circuits. He is the author or co-author of about 200 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, AEU-International Journal of Electronics and Communications, International Journal of Circuit Theory and Applications, IEE Proceedings Pt.G, ETRI Journal and several others. Oguzhan Cicekoglu is a member of the IEEE and is the Associate Editor of International Journal of Electronics.



H. Hakan Kuntman received his BSc, MSc, and PhD degrees from Istanbul Technical University in 1974, 1977, and 1982, respectively. In 1974, he joined the Department of Electronics and Communication Engineering at Istanbul Technical University. In 1993, he became Professor of Electronics in the same department (retired, 2016). His research interest includes design of electronic circuits, modeling of electron devices and electronic systems, active filters, and design of analog IC topologies. Dr. Kuntman has authored many publications on modeling and simulation of electron devices and electronic circuits for computer-aided design, analog VLSI design, and active circuit design. He is the author or the co-author of 129 journal papers published or accepted for

publishing in international journals, 179 conference papers presented or accepted for presentation in international conferences, 161 Turkish conference papers presented in national conferences, and 10 books related to the above-mentioned areas. (h-index 37). He advised and completed the work of 16 PhD students and 44 MSc students. Dr. Kuntman is a member of the Chamber of Turkish Electrical Engineers (EMO). From 2001 to 2004, he acted as the head of the Department of Electronics and Communication Engineering, and from 2004 to 2010, he was the dean of the Electrical and Electronics Engineering Faculty at Istanbul Technical University. Furthermore, Dr. Kuntman is one of the founders of the ELECO conferences and acted as the Conference Chairman several times.