Preface

Harpe, Pieter; Baschirotto, Andrea; Makinwa, Kofi A.A.

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Pieter Harpe • Andrea Baschirotto •
Kofi A. A. Makinwa
Editors

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Advances in Analog Circuit Design 2022

Springer

Editors

Pieter Harpe
Department of Electrical Engineering
Eindhoven University of Technology
Eindhoven, The Netherlands

Andrea Baschirotto
Department of Physics
University of Milan-Bicocca
Milan, Italy

Kofi A. A. Makinwa
Department of Microelectronics
Delft University of Technology
Delft, The Netherlands

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Preface

This book is part of the Analog Circuit Design series and contains contributions of all 18 speakers of the 30th workshop on Advances in Analog Circuit Design (AACD). The event was organized by John Morrissey, Ivan O'Connell, Nicola Cooney, Paul Hyland, Kapil Bhate and Mary Kent and some students from MCCI – Microelectronic Circuits Centre Ireland, Tyndall National Institute, Cork, Ireland. The sponsors for this workshop were: Qualcomm, Analog Devices, AMD, Qorvo, Macom, Boston Scientific, Bosch, Renesas, Onsemi, u-blox, Infineon, Cadence, IDA Ireland, OTC Ireland, Vishay. The workshop was held in Cork, Ireland, from October 4 to 6, 2022.

ABOUT AACD

The aim of the AACD workshop is to bring together a group of expert designers to discuss new developments and future options. Each workshop is followed by the publication of a book by Springer in their successful series of Analog Circuit Design. This book is the 30th in this series. The book series can be seen as a reference for all people involved in analog and mixed-signal design. The full list of the previous books and topics in the series is included in this book.

ABOUT MCCI

Funded by Enterprise Ireland and the IDA, MCCI's mission is to deliver high impact research for the semiconductor industry and to generate innovative technology. MCCI is a national technology centre that works collaboratively in microelectronics circuit design to improve the performance of mixed-signal circuits required by their industry partners. MCCI's research focus is on mixed-signal, analog and RF circuits. The centre has established itself as a single point of contact in Ireland for access to high-calibre academic research in the field of microelectronics. MCCI is committed to the development of an engineering talent pipeline for the global semiconductor industry. For more information, visit www.mcci.ie

This book comprises three parts, each with six chapters from experts in the field, covering advanced analog and mixed-signal circuit design topics that are considered highly important by the circuit design community:

- Biomedical Electronics
- Noise Shaping ADCs
- Frequency References

We are confident that this book, like its predecessors, proves to be a valuable contribution to our analog and mixed-signal circuit design community.

Eindhoven, The Netherlands — Pieter Harpe
Milan, Italy — Andrea Baschirotto
Delft, The Netherlands — Kofi A. A. Makinwa

The Topics Covered Before in This Series

2021	Online	Analog Circuits for Machine Learning
		Current, Voltage and Temperature Sensors
		High-Speed Communication
2019	Milan (Italy)	Next-Generation ADCs
		High-Performance Power Management
		Technology Considerations for Advanced Integrated Circuits
2018	Edinburgh (Scotland)	Analog Techniques for Power Constrained Applications
		Sensors for Mobile Devices
		Energy Efficient Amplifiers and Drivers
2017	Eindhoven (The Netherlands)	Hybrid ADCs
		Smart Sensors for the IoT
		Sub-1V & Advanced Node Analog Circuit Design
2016	Villach (Austria)	Continuous-time $\Sigma\Delta$ Modulators for Transceivers
		Automotive Electronics
		Power Management
2015	Neuchâtel (Switzerland)	Efficient Sensor Interfaces
		Advanced Amplifiers
		Low Power RF Systems
2014	Lisbon (Portugal)	High-Performance AD and DA Converters
		IC Design in Scaled Technologies
		Time-Domain Signal Processing

2013	Grenoble (France)	Frequency References
		Power Management for SoC
		Smart Wireless Interfaces
2012	Valkenburg (The Netherlands)	Nyquist A/D Converters
		Capacitive Sensor Interfaces
		Beyond Analog Circuit Design
2011	Leuven (Belgium)	Low-Voltage Low-Power Data Converters
		Short-Range Wireless Front-Ends
		Power Management and DC-DC
2010	Graz (Austria)	Robust Design
		Sigma Delta Converters
		RFID
2009	Lund (Sweden)	Smart Data Converters
		Filters on Chip
		Multimode Transmitters
2008	Pavia (Italy)	High-Speed Clock and Data Recovery
		High-Performance Amplifiers
		Power Management
2007	Oostende (Belgium)	Sensors, Actuators and Power Drivers for the Automotive and Industrial Environment
		Integrated PAs from Wireline to RF
		Very High Frequency Front Ends
2006	Maastricht (The Netherlands)	High-Speed AD Converters
		Automotive Electronics: EMC issues
		Ultra Low Power Wireless
2005	Limerick (Ireland)	RF Circuits: Wide Band, Front-Ends, DACs
		Design Methodology and Verification of RF and Mixed-Signal Systems
		Low Power and Low Voltage
2004	Montreux (Swiss)	Sensor and Actuator Interface Electronics
		Integrated High-Voltage Electronics and Power Management
		Low-Power and High-Resolution ADCs
2003	Graz (Austria)	Fractional-N Synthesizers
		Design for Robustness
		Line and Bus Drivers

2002	Spa (Belgium)	Structured Mixed-Mode Design
		Multi-bit Sigma-Delta Converters
		Short-Range RF Circuits
2001	Noordwijk (The Netherlands)	Scalable Analog Circuits
		High-Speed D/A Converters
		RF Power Amplifiers
2000	Munich (Germany)	High-Speed A/D Converters
		Mixed-Signal Design
		PLLs and Synthesizers
1999	Nice (France)	XDSL and Other Communication Systems
		RF-MOST Models and Behavioural Modelling
		Integrated Filters and Oscillators
1998	Copenhagen (Denmark)	1-Volt Electronics
		Mixed-Mode Systems
		LNAs and RF Power Amps for Telecom
1997	Como (Italy)	RF A/D Converters
		Sensor and Actuator Interfaces
		Low-Noise Oscillators, PLLs and Synthesizers
1996	Lausanne (Swiss)	RF CMOS Circuit Design
		Bandpass Sigma Delta and Other Data Converters
		Translinear Circuits
1995	Villach (Austria)	Low-Noise/Power/Voltage
		Mixed-Mode with CAD Tools
		Voltage, Current and Time References
1994	Eindhoven (The Netherlands)	Low-Power Low-Voltage
		Integrated Filters
		Smart Power
1993	Leuven (Belgium)	Mixed-Mode A/D Design
		Sensor Interfaces
		Communication Circuits
1992	Scheveningen (The Netherlands)	OpAmps
		ADC
		Analog CAD

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