

# Curriculum Vitae

Piero Malcovati

## General Information

<b>Born</b>	in Milan, Italy on May 17 <sup>th</sup> 1968.
<b>Resident</b>	in Viale Indipendenza 58, 27100 Pavia, Italy, Phone: +39 0382 34626, Mobile: +39 334 3212082, E-Mail: piero.malcovati@unipv.it.
<b>Degrees</b>	<u>Master Degree</u> in Electronic Engineering from University of Pavia on January 30 <sup>th</sup> 1992 with the grade 110/110 magna cum laude, discussing a thesis entitled “Digitally Programmable Micropower CMOS Equalization Cells for Hearing Aids”, Tutors Prof. F. Maloberti and Prof. G. Torelli. <u>Ph. D. Degree</u> in Technical Sciences from Swiss Federal Institute of Technology Zurich (ETH Zurich) on January 24 <sup>th</sup> 1996, discussing a thesis entitled “CMOS Thermoelectric Sensor Interfaces”, Tutor Prof. Dr. H. Baltes, Cotutor Prof. F. Maloberti.
<b>Present position</b>	<u>Full Professor</u> of Electrical and Electronic Measurements at University of Pavia from October 1 <sup>st</sup> 2017. Head of the Sensor and Microsystem Laboratory of the Department of Electrical, Computer, and Biomedical Engineering at University of Pavia.
<b>Previous positions</b>	<u>Grant Fellow</u> at University of Pavia from April to October 1992 for studying integrated circuits for non-volatile memories in collaboration with STMicroelectronics. <u>Research Assistant</u> of Prof. Dr. H. Baltes at the Physical Electronics Laboratory of the Swiss Federal Institute of Technology Zurich (ETH Zurich), Switzerland, from October 1992 to June 1996. <u>Assistant Professor</u> at University of Pavia, Department of Electrical Engineering from June 25 <sup>th</sup> 1996 to December 31 <sup>st</sup> 2001. <u>Associate Professor</u> of Electrical and Electronic Measurements at University of Pavia from January 1 <sup>st</sup> 2002 to September 30 <sup>th</sup> 2017.
<b>Identifiers</b>	<u>OrcID</u> : 0000-0001-6514-9672 <u>Scopus Author ID</u> : 7004158062 <u>ResearcherID</u> : S-2458-2016

# Bibliometric Indicators

- **Scopus** database as of 30/04/2019
  - Number of publications: 300 (of which 89 journal papers)
  - Number of publications (2008-2019): 153 (of which 50 journal papers)
  - Number of citations: 3218
  - Number of citations (2008-2019): 1200
  - **H-Index: 27**
  - **H-Index (2008-2019): 17**
- **Web of Science** database as of 30/04/2019
  - Number of publications: 237 (of which 86 journal papers)
  - Number of publications (2008-2019): 115 (of which 49 journal papers)
  - Number of citations: 1725
  - Number of citations (2008-2019): 569
  - **H-Index: 21**
  - **H-Index (2008-2019): 13**
- Best result between **Scopus** and **Web of Science** databases as of 30/04/2019
  - Number of publications: 305 (of which 89 journal papers)
  - Number of publications (2008-2019): 154 (of which 50 journal papers)
  - Number of citations: 3220
  - Number of citations (2008-2019): 1200
  - **H-Index: 27**
  - **H-Index (2008-2019): 17**
- **Google Scholar** database as of 30/04/2019
  - Number of publications: 330 (of which 89 journal papers)
  - Number of publications (2008-2019): 171 (of which 50 journal papers)
  - Number of citations: 5235
  - Number of citations (2008-2019): 1865
  - **H-Index: 35**
  - **H-Index (2008-2019): 22**

## Education

Piero Malcovati carried out the research activity for his Master Thesis at the Integrated Microsystem Laboratory of University of Pavia under the supervision of Prof. Franco Maloberti and of Prof. Guido Torelli, working on the design of switched-capacitor (SC) circuits and micro-power operational amplifiers [T.1].

After obtaining the Master degree in 1992, Piero Malcovati continued his education at Integrated Microsystem Laboratory of University of Pavia with a grant for six months from STMicroelectronics. In this period his research activity was focused on integrated circuits for non-volatile memories and switched-capacitor (SC) filters.

In 1992 Piero Malcovati started the Ph. D. course at the Physical Electronics Laboratory of the Swiss Federal Institute of Technology Zurich (ETH Zurich) under the supervision of Prof. Henry Baltes, working on the design of interface circuits for integrated microsensors for measuring electrical, physical, and chemical quantities, as well as on the fabrication process of the microsensors themselves using standard integrated circuit technologies (CMOS, BiCMOS and Bipolar). During the Ph. D. course, carried out in an interdisciplinary field such as integrated microsensors, therefore, Piero Malcovati deepened his education, not only in the field of measurements and electronics, but also in the field of physics, chemistry, microelectronic technologies, and electrical and electronic measurement techniques. Piero Malcovati received the Ph. D. degree from the Swiss Federal Institute of Technology Zurich in 1996 [T.2].

In 1996 Piero Malcovati won the public selection for an Assistant Professor position in the field ING-INF/07 – Electrical and Electronic Measurements at University of Pavia.

In 2000 Piero Malcovati won the public selection for an Associate Professor position in the field ING-INF/07 – Electrical and Electronic Measurements at University of Pavia.

In 2014 Piero Malcovati acquired the National Scientific Qualification as Full Professor both in the field 09/E4 – Measurements and in the field 09/E3 – Electronics.

In 2017 Piero Malcovati won the public selection for a Full Professor position in the field ING-INF/07 – Electrical and Electronic Measurements at University of Pavia.

## Teaching Activity

As Professor at the Department of Electrical Engineering and at the Department of Electrical, Computer, and Biomedical Engineering of University of Pavia, Piero Malcovati is regularly teaching the following courses:

- *Module of Electrical Measurements* (6 CFU) in the frame of the course of Industrial Measurements, Bachelor in Industrial Engineering since the academic year 2001/02.
- *Module of Mechanical and Thermal Measurements* (6 CFU) in the frame of the course of Industrial Measurements, Bachelor in Industrial Engineering since the academic year 2017/18.
- *Course of Industrial Electrical Measurements* (6 CFU), Master in Electrical Engineering since the academic year 2001/02.
- *Course of Microsensors, Integrated Microsystems, and MEMS* (2 CFU), Master in Electronic Engineering since the academic year 2004/05.

Moreover, Piero Malcovati occasionally taught the following courses:

- *Course of Mechanical and Thermal Measurements B* (6 CFU), Bachelor in Mechanical Engineering in the academic year 2010/11.
- *Course of Electronic Measurements* (6 CFU), Bachelor in Electronic and Telecommunication Engineering in the academic year 2012/13.
- *Course of Generation, Acquisition, and Processing of Analog Signals* (4 CFU), TFA in Electronics in the academic year 2014/15.
- *Course of Electrical Measurements* (12 CFU), Bachelor in Electrical Engineering in the academic year 2000/01.
- *Course of Microelectronics* (12 CFU), Master in Electronic Engineering in the academic year 2000/01.

For all the courses, besides holding the lectures, Piero Malcovati handled also the laboratory exercises.

From 1996 to 2000 Piero Malcovati regularly participated with laboratory exercises, seminars, and exams to the teaching activity of the courses of Electrical Measurements, Microelectronics, and Electronics II at the Faculty of Engineering of University of Pavia.

In addition, from 1992 to 1996 Piero Malcovati regularly participated to the teaching activity of the Physical Electronics Laboratory of the Swiss Federal Institute of Technology Zurich as Assistant of Prof. Henry Baltes. In particular he taught annually the part of the course “Microsensoren” (Microsensors) concerning the interface circuits and followed the diploma works of students from the Faculties of Physics and Electrical Engineering.

Since 1996 Piero Malcovati handles the organization and management of the Educational Laboratory of Electrical Measurements at the Department of Electrical, Computer, and Biomedical Engineering of University of Pavia.

Since 1996 Piero Malcovati followed, as tutor or cotutor, 87 Master Theses at the Integrated Microsystem Laboratory and the Sensor and Microsystem Laboratory of the Department of Electrical, Computer, and Biomedical Engineering of University of Pavia. Piero Malcovati has been or is presently tutor or co-tutor of 25 Ph. D. students in the frame of the Ph. D. Schools in Microelectronics and in Electronics, Computer Science, and in Electrical Engineering at University of Pavia:

- G. Bernardinis, “Time-Interleaved Pipeline Analog-to-Digital Converter Using Dynamic Stage Matching”, Ph. D. Thesis, Ph. D. School in Electronics, Computer Science, and Electrical Engineering, University of Pavia, XVII Cycle, Tutor: F. Maloberti, Co-Tutor: P. Malcovati.
- F. Borghetti, “Circuiti di Interfaccia per Sensori di Raggi Gamma ed X”, Ph. D. Thesis, Ph. D. School in Electronics, Computer Science, and Electrical Engineering, University of Pavia, XVI Cycle, Tutor: F. Maloberti, Co-Tutor: P. Malcovati.
- A. Fornasari, “Correction Techniques for Multi-Bit Sigma-Delta Converters”, Ph. D. Thesis, Ph. D. School in Electronics, Computer Science, and Electrical Engineering, University of Pavia, XVII Cycle, Tutor: F. Maloberti, Co-Tutor: P. Malcovati.
- N. Ghittori, “Analog Baseband Blocks for Multistandard Wireless Transmitters”, Ph. D. Thesis, Ph. D. School in Electronics, Computer Science, and Electrical Engineering, University of Pavia, XVIII Cycle, Tutor: P. Malcovati and G. Torelli, Co-Tutor: A. Baschiroto.

- A. Vigna, “Design of a D/A Converter for Reconfigurable Mobile Terminals”, Ph. D. Thesis, Ph. D. School in Electronics, Computer Science, and Electrical Engineering, University of Pavia, XVIII Cycle, Tutor: P. Malcovati, Co-Tutor: A. Baschirotto.
- V. Ferragina, “Design of Digital Blocks for CMOS Mixed-Signal Integrated Circuits”, Ph. D. Thesis, Ph. D. School in Electronics, Computer Science, and Electrical Engineering, University of Pavia, XIX Cycle, Tutor: P. Malcovati.
- M. Grassi, “Wide Dynamic Range CMOS Interface Circuits for Resistive Gas Sensors”, Ph. D. Thesis, Ph. D. School in Electronics, Computer Science, and Electrical Engineering, University of Pavia, XVIII Cycle, Tutor: P. Malcovati, Co-Tutor: A. Baschirotto.
- M. Marchesi, “Fluxgate Magnetic Sensor System for Electronic Compass”, Ph. D. Thesis, Ph. D. School in Electronics, Computer Science, and Electrical Engineering, University of Pavia, XVIII Cycle, Tutor: E. Dallago, Co-Tutor: P. Malcovati.
- A. Rossini, “Design of Mixed Analog/Digital Interface Circuits for Sensors and Microsystems”, Ph. D. Thesis, Ph. D. School in Electronics, Computer Science, and Electrical Engineering, University of Pavia, XIX Cycle, Tutor: P. Malcovati.
- I. Galdi, “Band-Pass Sigma-Delta with Noise Transfer Function Synthesis”, Ph. D. Thesis, Ph. D. School in Electronics, Computer Science, and Electrical Engineering, University of Pavia, XX Cycle, Tutor: F. Maloberti, Co-Tutor: P. Malcovati.
- A. Lombardi, “A Fully Integrated Wide Dynamic-Range Read-Out and Temperature Control Circuit for Microhotplate Thin Film Gas Sensors”, Ph. D. Thesis, Ph. D. School in Electronics, Computer Science, and Electrical Engineering, University of Pavia, XXI Cycle, Tutor: P. Malcovati.
- L. Picolli, “A/D Converters in Submicron CMOS Technology”, Ph. D. Thesis, Ph. D. School in Electronics, Computer Science, and Electrical Engineering, University of Pavia, XXI Cycle, Tutor: P. Malcovati, Co-Tutor: A. Baschirotto.
- M. Ferri, “Integrated Magnetic Sensor Interface Circuits and Photovoltaic Energy Harvester Systems”, Ph. D. Thesis, Ph. D. School in Microelectronics, University of Pavia, XXII Cycle, Tutor: P. Malcovati.
- G. Rescio, “Integrated Microsystems for Safety Applications”, Ph. D. Thesis, Ph. D. School in Microelectronics, University of Pavia, XXIII Cycle, Tutor: P. Malcovati.
- D. Cartasegna, “Study, Modeling and Realization of an Audio Class-D Power Amplifier in 0.18  $\mu\text{m}$  CMOS Technology”, Ph. D. Thesis, Ph. D. School in Microelectronics, University of Pavia, XXIV Cycle, Tutor: P. Malcovati, Co-Tutor: A. Baschirotto.
- F. Conso, “Very High Dynamic Range CMOS Interface Circuit for Gas Sensor Matrix Read-Out”, Ph. D. Thesis, Ph. D. School in Microelectronics, University of Pavia, XXV Cycle, Tutor: P. Malcovati, Co-Tutor: M. Grassi.
- A. Donida, “Analog-to-Digital Converters for Switching Power Systems”, Ph. D. Thesis, Ph. D. School in Microelectronics, University of Pavia, XXV Cycle, Tutor: P. Malcovati, Co-Tutor: A. Baschirotto.

- C. De Berti, “Continuous-Time  $\Sigma\Delta$  Modulator for MEMS Microphones”, Ph. D. Thesis, Ph. D. School in Microelectronics, University of Pavia, XXVIII Cycle, Tutor: P. Malcovati, Co-Tutor: A. Baschirotto.
- T. Vergine, “Mixed-Signals Integrated Circuits for Physical Experiments”, Ph. D. Thesis, Ph. D. School in Microelectronics, University of Pavia, XXVIII Cycle, Tutor: P. Malcovati and A. Baschirotto.
- D. Allegri, “CMOS-Based Impedance Analyzer for Biomedical Applications”, Ph. D. Thesis, Ph. D. School in Microelectronics, University of Pavia, XXIX Cycle, Tutor: P. Malcovati, Co-Tutor: D. Barrettino.
- M. Elkhayat, “Interface Circuits for Sensors and Actuators”, Ph. D. Thesis, Ph. D. School in Microelectronics, University of Pavia, XXX Cycle, Tutor: P. Malcovati.
- M. Croce, “Analog Voice Activity Detection”, Ph. D. Thesis, Ph. D. School in Microelectronics, University of Pavia, XXXI Cycle, Tutor: P. Malcovati, Co-Tutor: A. Baschirotto and L. Crespi.
- S. Mangiarotti, “A 110-nm Extended-Range Data Converter for Three-Axis Capacitive MEMS Accelerometer”, Ph. D. Thesis, Ph. D. School in Microelectronics, University of Pavia, XXXI Cycle, Tutor: P. Malcovati.
- A. Taralkar, Ph. D. Student, Ph. D. School in Microelectronics, University of Pavia, XXXIII Cycle, Tutor: P. Malcovati, Co-Tutor: A. Baschirotto.
- E. Moisello, Ph. D. Student, Ph. D. School in Microelectronics, University of Pavia, XXXIII Cycle, Tutor: P. Malcovati and E. Bonizzoni.

Moreover, Piero Malcovati acted as external examiner for the final discussion of several Master and Ph. D. theses and held several lectures and seminars at national and international level.

## Institutional Activity

At University of Pavia Piero Malcovati has been Deputy Director of the Department of Electrical Engineering from 2008 to 2012 and he is Deputy Coordinator of the Ph. D. School in Microelectronics since 2009.

Since 2003 Piero Malcovati is the representative of the Department of Electrical, Computer, and Biomedical Engineering in the Technical-Scientific Committee of the Large Instrumentation Center of University of Pavia.

Since 2001 Piero Malcovati is responsible of the Sensor and Microsystem Laboratory (<http://sms.unipv.it>) at the Department of Electrical, Computer, and Biomedical Engineering of University of Pavia.

In 2013 Piero Malcovati has been member of the Organizing Committee of the Faculty of Engineering of University of Pavia.

From 2014 to 2017 Piero Malcovati has been member of the Executive Committee of the Department of Electrical, Computer, and Biomedical Engineering of University of Pavia.

From 2018 to 2020 Piero Malcovati has been member of the Committee for National Scientific Qualification (ASN) of the Italian Ministry of Education, University, and Research (MIUR).

From 2019 Piero Malcovati is Coordinator of the Master in Electrical Engineering at University of Pavia.

## Scientific Activity

The scientific activity of Piero Malcovati is focused in the field of analog, digital, and mixed-signal integrated circuits and systems for measurement systems. The activity is documented by the following scientific publications:

- 1 Ph. D thesis (published with ISBN number)
- 31 Book chapters
- 90 Journal papers
- 281 Conference papers (with proceedings)
- 15 Accepted patents in Europe or in USA

## Research Activity

The research activity carried out by Piero Malcovati either at University of Pavia and at the Swiss Federal Institute of Technology Zurich is focused in the following fields:

- a) Microsensors and integrated microsystems
- b) Data converters
- c) Low-voltage, low-power analog and mixed-signal integrated circuits
- d) DC-DC converters and power management

### Microsensors and integrated microsystems

The implementation of microsensors for measuring chemical and physical quantities with standard integrated circuit processes in the last years allowed the introduction and the wide diffusion of these devices in most electronic apparatuses in several applications. The possibility of realizing the interface circuits on the same chip or in the same package as the sensors is one of the most important factors for the success of these devices. Indeed, integrated microsensors cannot be optimized because of the limitations due to the fabrication process. Therefore, the interface circuits have to compensate the non-idealities of the sensors, in order to achieve comparable or better performance than discrete devices, obviously with a lower cost. Moreover, additional functionalities can be easily introduced in the devices. The concept of “Internet of Things”, which is pretty popular nowadays, has been enabled by the widespread diffusion of integrated microsensors and microsystems. Piero Malcovati has been among the first in Europe to deal with Integrated Microsystems, including microsensors and interface circuits, completely realized with CMOS and BiCMOS technologies and he carried on with success over the years this research topic.

**Publications** [T.2, B.1, B.2, J.1, J.2, J.3, J.4, J.5, J.8, J.9, J.10, J.12, J.13, C.1, C.3, C.4, C.6, C.7, C.9, C.10, C.11, C.13, C.15, C.16, C.17, C.19, C.22, C.23, C.24, C.25, C.26, C.27, C.29, C.35, C.38, C.40, C.41, C.44, C.49, P.2, J.16, C.60, C.61, B.3, C.73, C.76, B.4, C.78, C.82, C.85, C.88, C.89, C.91, C.95, C.96, C.97, C.98, C.106, C.107, C.108, C.110, C.111, B.5, J.24, B.6, C.112, C.116, J.26, J.27, C.120, C.121, C.122, C.124, C.126, J.28, C.129, C.130, C.131, C.135, C.139, J.32, J.34, C.140, J.35, J.36, C.141, J.37, C.143, C.144, C.146, C.149, J.38, J.39, C.151, C.152, C.154, C.157, J.41, J.42, C.161, C.164, C.165, C.166, B.8, B.9, C.168, C.169, B.11, B.10, C.170, J.45, B.12, C.172, C.174, J.47, C.175, C.176, C.179, C.181, J.48, C.184, J.49, C.185, C.186, B.13, B.14, B.15, B.17, C.189, C.191, C.192, C.193, C.194, C.200, C.201, C.203, C.204, J.57, J.58, C.205, C.206, C.207, C.208, C.212, C.215, B.18, J.60, C.218, C.219, B.20, C.220, J.63, C.223, C.224, C.225, C.227, B.21, C.229, B.22, B.23, C.232, C.237, J.67, C.239, J.69, C.240, C.241, C.242, C.244, J.70, J.71, B.24, B.25, J.73, J.74, C.248, C.252, J.75, C.253, J.76, C.254, J.77, C.255, C.256, C.257, J.79, J.80, B.26, C.260, C.261, C.263, J.81, J.82, C.266, C.267, C.269, C.271, C.272, J.84, C.273, C.275, B.27, B.28, C.277, J.85, J.86, C.278, J.87, J.88, J.89, C.281, J.90, B.29, B.30, B.31]

### Data converters

The last generation electronic apparatuses require integrated data converters with more and more challenging specifications in terms of linearity, resolution, bandwidth, power consumption, and supply voltage. The required data converter performance is very difficult to achieve exploiting only the features of active and passive components available in modern integration technologies. It is, therefore, of capital importance the development of calibration algorithms that allow the data converter performance to be improved through suitable signal processing functions, preferably in the digital domain. In data converter design it is typically necessary to optimize a wide range of parameters, including the building block performances, in order to reach the desired signal-to-noise ratio (*SNR*). Because of the intrinsic non-linearity of data conversion, this optimization process has to be carried out with behavioral simulations, thus requiring a set of models which allows exhaustive simulations to be performed, accounting for as much non-idealities as possible.

**Publications** [J.6, C.2, C.5, C.12, C.28, C.31, C.32, C.33, C.39, C.43, C.48, C.51, C.55, C.56, J.15, C.57, C.58, J.18, C.63, C.65, C.66, C.68, C.69, C.70, C.71, J.20, C.72, C.74, C.75, C.77, C.64, J.21, C.80, P.5, C.81, C.84, C.86, J.22, J.23, C.90, C.92, C.93, C.99, C.100, C.102, C.104, C.105, C.114, C.117, C.125, C.128, J.29, C.132, C.133, C.134, C.136, C.137, C.138, J.33, C.145, C.147, C.148, C.150, C.153, C.156, C.159, J.40, J.44, C.162, C.163, C.167, J.46, C.171, C.177, C.180, J.51, J.52, J.53, C.187, C.188, J.54, C.196, J.59, C.230, C.238, C.243, J.72, C.246, C.247, C.249, C.250, C.251, J.78, C.258, C.259, C.262, C.264, C.268, C.270, J.83, C.279]

### Low-voltage, low-power analog and mixed-signal integrated circuits

The continuous improvement of fabrication processes, the shrinking of the transistor dimensions, and the consequent reduction of the oxide thickness lead to a constant drop of the power supply voltage of integrated circuits (from 5 V to 3.3 V to 2.5 V to 1.8 V to 1.2 V and presently to 1 V or less). Moreover, the widespread diffusion of battery-operated portable apparatuses pushes toward a continuous reduction of the dissipated power. These two trends are perfectly compatible in digital integrated circuits, where a reduction of the



power supply voltage leads inherently to a reduction of the power consumption. On the other hand, in analog integrated circuits low supply voltage does not always lead to low power consumption. Therefore, in modern mixed-signal integrated circuits there is a trend to reduce as much as possible the analog section, in order to exploit as much as possible the potential of digital signal processing. However, some analog blocks which cannot be eliminated (preamplifiers, data converters) must operate with power supply voltages typical of digital integrated circuits, while providing anyway high performance (in many cases higher performance than usual is required since the allowed analog processing is reduced).

**Publications** [T.1, J.7, J.11, C.8, C.14, C.18, C.21, C.30, C.34, C.36, C.37, C.42, C.45, C.46, C.47, C.52, C.53, C.54, C.50, J.17, C.59, J.19, C.62, C.67, C.79, P.4, C.83, C.87, C.94, C.101, C.103, C.109, C.113, C.115, J.25, C.118, C.119, C.123, C.127, B.7, J.30, J.31, C.155, C.158, J.43, C.197, C.209, C.213, C.228, C.233, C.234, C.235, C.236, J.65, C.265, C.276]

### DC-DC converters and power management

Power consumption minimization, especially in portable systems, requires the use of several power supply sources with different voltages and currents, which have to be realized with a DC-DC converter each, starting from the battery voltage. Power management, indeed, is becoming one of the most critical issues for cost and size of portable devices.

**Publications** [C.20, P.3, P.1, C.142, C.160, C.173, C.178, C.182, C.183, J.50, B.16, C.190, C.195, C.198, C.199, C.202, J.55, J.56, C.210, C.211, C.214, C.216, B.19, C.217, J.62, C.221, C.222, C.226, C.231, J.66, P.6, J.68, C.245, P.7, P.8, P.9, P.10, C.274, P.11, P.12, P.13, P.14, P.15, C.280]

### Selected Publications

The research activity carried out by Piero Malcovati led, among the others, to the following 20 most significant publications (bibliometric indicators as of 30/04/2019):

1. P. Malcovati, C. Azeredo Leme, P. O’Leary, F. Maloberti, and H. Baltes, “Smart Sensor Interface with A/D Conversion and Programmable Calibration”, *IEEE Journal of Solid-State Circuits*, vol. 29, no. 8, pp. 963–966, Aug. 1994. DOI: 10.1109/4.297704 [J.1]  
**Scopus Citations:** 39  
**Web of Science Citations:** 34  
**Google Scholar Citations:** 73
2. P. Malcovati, C. Azeredo Leme, R. Lenggenhager, F. Maloberti, and H. Baltes, “Low Noise Multirate SC Read-Out Circuitry for Thermoelectric Integrated Infrared Sensors”, *IEEE Transactions on Instrumentation and Measurement*, vol. 44, no. 3, pp. 795–798, Jun. 1995. DOI: 10.1109/19.387335 [J.2]  
**Scopus Citations:** 9  
**Web of Science Citations:** 8  
**Google Scholar Citations:** 13

3. A. Häberli, M. Schneider, P. Malcovati, R. Castagnetti, F. Maloberti, and H. Baltes, “2D Magnetic Microsensor with On-Chip Signal Processing for Contactless Angle Measurement”, *IEEE Journal of Solid-State Circuits*, vol. 31, no. 12, pp. 1902–1907, Dec. 1996. DOI: 10.1109/4.545811 [J.8]  
**Scopus Citations:** 46  
**Web of Science Citations:** 34  
**Google Scholar Citations:** 54
  
4. P. Malcovati and F. Maloberti, “An Integrated Microsystem for 3D Magnetic Field Measurements”, *IEEE Transactions on Instrumentation and Measurement*, vol. 49, no. 2, pp. 341–345, Apr. 2000. DOI: 10.1109/19.843075 [J.13]  
**Scopus Citations:** 28  
**Web of Science Citations:** 21  
**Google Scholar Citations:** 36
  
5. P. Malcovati, F. Maloberti, C. Fiocchi, and M. Pruzzi, “Curvature Compensated BiCMOS Bandgap with 1-V Supply Voltage”, *IEEE Journal of Solid-State Circuits*, vol. 36, no. 7, pp. 1076–1081, Jul. 2001. DOI: 10.1109/4.933463 [J.17]  
**Scopus Citations:** 236  
**Web of Science Citations:** 181  
**Google Scholar Citations:** 438
  
6. P. Malcovati, S. Brigati, F. Francesconi, F. Maloberti, P. Cusinato, and A. Baschirotto, “Behavioral Modeling of Switched-Capacitor Sigma-Delta Modulators”, *IEEE Transactions on Circuits and Systems—Part I: Fundamental Theory and Applications*, vol. 50, no. 3, pp. 352–364, Mar. 2003. DOI: 10.1109/TCSI.2003.808892 [J.20]  
**Scopus Citations:** 341  
**Web of Science Citations:** 232  
**Google Scholar Citations:** 550
  
7. S. Brigati, F. Francesconi, P. Malcovati, and F. Maloberti, “A Fourth-Order Single-Bit Switched-Capacitor  $\Sigma\Delta$  Modulator for Distributed Sensor Applications”, *IEEE Transactions on Instrumentation and Measurement*, vol. 53, no. 2, pp. 266–270, Apr. 2004. DOI: 10.1109/TIM.2003.822480 [J.21]  
**Scopus Citations:** 27  
**Web of Science Citations:** 19  
**Google Scholar Citations:** 47
  
8. C. Falconi, E. Martinelli, C. Di Natale, A. D’Amico, F. Maloberti, P. Malcovati, A. Baschirotto, V. Stornelli, and G. Ferri, “Electronic Interfaces”, *Sensors and Actuators B: Chemical*, vol. 121, no. 1, pp. 295–329, Jan. 2007. DOI: 10.1016/J.SNB.2006.09.022 [J.35]  
**Scopus Citations:** 74  
**Web of Science Citations:** 69  
**Google Scholar Citations:** 87
  
9. A. Baschirotto, E. Dallago, P. Malcovati, M. Marchesi, and G. Venchi, “A Fluxgate Magnetic Sensor: From PCB to Micro-Integrated Technology”, *IEEE Transactions on Instrumentation and Measurement*, vol. 56, no. 1, pp. 25–31, Feb. 2007. DOI:

- 10.1109/TIM.2006.887218 [J.36]  
**Scopus Citations:** 42  
**Web of Science Citations:** 33  
**Google Scholar Citations:** 60
10. M. Grassi, P. Malcovati, and A. Baschiroto, “A 160-dB Equivalent Dynamic Range Auto-Scaling Interface for Resistive Gas Sensors Arrays”, *IEEE Journal of Solid-State Circuits*, vol. 42, no. 3, pp. 518–528, Mar. 2007. DOI: 10.1109/JSSC.2006.891724 [J.37]  
**Scopus Citations:** 58  
**Web of Science Citations:** 44  
**Google Scholar Citations:** 71
11. M. Grassi, P. Malcovati, and A. Baschiroto, “A 141-dB Dynamic Range CMOS Gas-Sensor Interface Circuit without Calibration with 16-Bit Digital Output Word”, *IEEE Journal of Solid-State Circuits*, vol. 42, no. 7, pp. 1543–1554, Jul. 2007. DOI: 10.1109/JSSC.2007.899087 [J.38]  
**Scopus Citations:** 72  
**Web of Science Citations:** 58  
**Google Scholar Citations:** 87
12. A. Rossini, S. Caccia, G. Bertuccio, F. Borghetti, V. Ferragina, P. Malcovati, D. Martin, P. Bastia, I. Cappelluti, and N. Ratti, “A Complete Read-Out Channel with Embedded Wilkinson A/D Converter for X-Ray Spectrometry”, *IEEE Transactions on Nuclear Science*, vol. 54, no. 4, pp. 1216–1221, Aug. 2007. DOI: 10.1109/TNS.2007.903164 [J.39]  
**Scopus Citations:** 12  
**Web of Science Citations:** 9  
**Google Scholar Citations:** 16
13. A. Baschiroto, E. Dallago, P. Malcovati, M. Marchesi, E. Melissano, M. Morelli, P. Siciliano, and G. Venchi, “An Integrated Micro-Fluxgate Magnetic Sensor with Front-End Circuitry”, *IEEE Transactions on Instrumentation and Measurement*, vol. 58, no. 9, pp. 3269–3275, Sep. 2009. DOI: 10.1109/TIM.2009.2022375 [J.47]  
**Scopus Citations:** 17  
**Web of Science Citations:** 12  
**Google Scholar Citations:** 24
14. A. Baschiroto, E. Dallago, M. Ferri, P. Malcovati, A. Rossini, and G. Venchi, “A 2D Micro-Fluxgate Earth Magnetic Field Measurement Systems with Fully Automated Acquisition Setup”, *Measurement*, vol. 43, no. 1, pp. 46–53, Jan. 2010. DOI: 10.1016/J.MEASUREMENT.2009.06.007 [J.49]  
**Scopus Citations:** 8  
**Web of Science Citations:** 7  
**Google Scholar Citations:** 18
15. L. Picolli, M. Grassi, A. Fornasari, and P. Malcovati, “A 1.0-mW, 71-dB SNDR, Fourth-Order  $\Sigma\Delta$  Interface Circuit for MEMS Microphones”, *Analog Integrated Circuits and Signal Processing*, vol. 66, no. 2, pp. 223–233, Feb. 2011. DOI: 10.1007/S10470-010-9516-2 [J.54]

**Scopus Citations:** 4  
**Web of Science Citations:** 2  
**Google Scholar Citations:** 5

16. S. Cliquennois, A. Donida, P. Malcovati, A. Baschiroto, and A. Nagari, “A 65-nm, 1-A Buck Converter with Multi-Function SAR-ADC-Based CCM/PSK Digital Control Loop”, *IEEE Journal of Solid-State Circuits*, vol. 47, no. 7, pp. 1546–1556, Jul. 2012. DOI: 10.1109/JSSC.2012.2191214 [J.62]  
**Scopus Citations:** 12  
**Web of Science Citations:** 11  
**Google Scholar Citations:** 20
17. P. Malcovati, M. Grassi, and A. Baschiroto, “Towards High-Dynamic Range CMOS Integrated Interface Circuits for Gas Sensors”, *Sensors and Actuators B: Chemical*, vol. 179, no. 1, pp. 301–312, Mar. 2013. DOI: 10.1016/J.SNB.2012.10.019 [J.63]  
**Scopus Citations:** 9  
**Web of Science Citations:** 7  
**Google Scholar Citations:** 11
18. P. Malcovati, M. Belloni, F. Gozzini, C. Bazzani, and A. Baschiroto, “A 0.18- $\mu\text{m}$  CMOS, 91%-Efficiency, 2-A Scalable Buck-Boost DC-DC Converter for LED Drivers”, *IEEE Transactions on Power Electronics*, vol. 29, no. 10, pp. 5392–5398, Oct. 2014. DOI: 10.1109/TPEL.2013.2294189 [J.66]  
**Scopus Citations:** 23  
**Web of Science Citations:** 13  
**Google Scholar Citations:** 50
19. E. Dallago, A. Lazzarini Barnabei, A. Liberale, P. Malcovati, and G. Venchi, “An Interface Circuit for Low-Voltage Low-Current Energy Harvesting Systems”, *IEEE Transactions on Power Electronics*, vol. 30, no. 3, pp. 1411–1420, Mar. 2014. DOI: 10.1109/TPEL.2014.2322521 [J.68]  
**Scopus Citations:** 17  
**Web of Science Citations:** 14  
**Google Scholar Citations:** 23
20. C. De Berti, P. Malcovati, L. Crespi, and A. Baschiroto, “A 106-dB A-Weighted DR Low-Power Continuous-Time  $\Sigma\Delta$  Modulator for MEMS Microphones”, *IEEE Journal of Solid-State Circuits*, vol. 51, no. 7, pp. 1607–1618, Jul. 2016. DOI: 10.1109/JSSC.2016.2540811 [J.78]  
**Scopus Citations:** 14  
**Web of Science Citations:** 4  
**Google Scholar Citations:** 21

## Scientific Appointments and Awards

Piero Malcovati, either at the Swiss Federal Institute of Technology Zurich and at University of Pavia, carried out both technical and administrative coordination tasks for several national and international projects. In particular, he managed several european (MagIC, ABACUS, KEOPE, Anastasia, Anastasia+, IASY, BRA3SIC, GOSPEL, NETCARITY) and national (PRIN, FIRB, ASI, ESA) projects. Specifically, Piero Malcovati has been

Principal Investigator (PI) of FIRB project RBIP06AMPP — “Innovative Integrated Microelectronic Systems and Management Systems to Track Food Products” and of PRIN project 20085AJSEB — “New Methodology for Gas Detection Based on a Bidimensional Grid of Interconnected Microsensors”. Presently he is responsible of the integrated electronic interface circuits for X-ray detectors within ASI project PixDD.

Moreover, Piero Malcovati manages research collaborations with several national and international companies, among which: STMicroelectronics, Sensirion, Texas Instruments, Invensense, Conexant, and Austriamicrosystems.

Piero Malcovati is co-recipient of the Best Paper Award at the European Solid-State Circuit Conference (ESSCIRC) in 2007 [C.156] and of the Best Student Paper Award at the European Solid-State Circuit Conference (ESSCIRC) in 2015 [C.251].

### **International scientific appointments**

- Reviewer for the European Commission of the ESPRIT project Si-GYRO from 1998 to 2000.
- Special Session Chairman of the IEEE International Conference on Electronics, Circuits and Systems (ICECS), held in Malta in 2001.
- Member of the Steering Committee of the IEEE International Conference on Electronics, Circuits and Systems (ICECS) from 2001 to 2013.
- Reviewer for project selection of the Portuguese Science and Technology Foundation (FCT) from 2002 to 2005.
- Tutorial on “Design of Integrated Circuits for Audiometric Applications” at the IEEE International Symposium on Circuits and Systems (ISCAS) in 2001.
- Secretary of the Technical Program Committee of the IEEE European Solid-State Circuit Conference (ESSCIRC), held in Florence in 2002.
- Technical Program Chairman of the IEEE Ph. D. Research in Microelectronics and Electronics Conference (PRIME), held in Otranto in 2006.
- Tutorial Chairman of the IEEE Sensors (SENSORS), held in Lecce in 2008.
- Technical Program Chairman of the IEEE International Conference on Electronics, Circuits and Systems (ICECS), held in Hammamet (Tunisia) in 2009.
- Technical Program Chairman of the IEEE Ph. D. Research in Microelectronics and Electronics Conference (PRIME), held in Villach (Austria) in 2013.
- Organizing Committee Member of the Forum “VLSI Power-Management Techniques: Principles and Applications” at the IEEE International Solid-State Circuits Conference (ISSCC) in 2013.
- Organizing Committee Member of the Forum “Digitally-Assisted Analog and Analog-Assisted Digital in High-Performance Scaled CMOS Process” at the IEEE International Solid-State Circuits Conference (ISSCC) in 2014.
- Organizer of the Evening Event “Class of 2025 — Where Will Be the Best Jobs?” at the IEEE International Solid-State Circuits Conference (ISSCC) in 2015.

- Publication Chairman of the IEEE Ph. D. Research in Microelectronics and Electronics Conference (PRIME), held in Giardini Naxos-Taormina (Italy) in 2017.
- Publication Chairman of the IEEE International Conference on IC Design and Technology (ICICDT), held in Otranto (Italy) in 2018.
- Publication Chairman of the IEEE Ph. D. Research in Microelectronics and Electronics Conference (PRIME), held in Prague (Czech Republic) in 2018.
- Publication Chairman of the IEEE Ph. D. Research in Microelectronics and Electronics Conference (PRIME), which will be held in Lausanne (Switzerland) in 2019.
- Assistant Secretary of the IEC Technical Committee 38 (TC38) “Instrument Transformers” from 2003 to 2008.
- Secretary of the CENELEC Technical Committee 38X (TC38X) “Instrument Transformers” from 2003 to 2008.
- Member of CEI Technical Committee 38 (CT38) “Trasformatori di Misura” from 2003.

#### **Technical committee of international conferences**

- Member of the Technical Program Committee of the IEEE International Solid-State Circuit Conference (ISSCC) from 2012 to 2016.
- Member of the Technical Program Committee of the IEEE European Solid-State Circuit Conference (ESSCIRC) since 2002.
- Member of the Technical Program Committee of the IEEE Ph. D. Research in Microelectronics and Electronics (PRIME) Conference since 2004.
- Member of the Technical Program Committee of the IEEE International Conference on Electronics, Circuits and Systems (ICECS) since 2001.
- Member of the Technical Program Committee of the International Conference on Information and Communication Technologies for Ageing Well and e-Health (ICT4AgeingWell) since 2015.
- Member of the Technical Program Committee of the International Conference on Sensor Device Technologies and Applications (SENSORDEVICES) since 2016.
- Member of the Technical Program Committee of the Eurosensors Conference (EUROSENSORS) since 2016.
- Member of the Technical Program Committee of the International Conference on ASIC (ASICON) since 2017.
- Member of the Technical Program Committee of the Forum on Specification and Design Languages (FDL) from 2004 to 2009.
- Member of the Technical Program Committee of the IEEE Design, Automation, and Test in Europe (DATE) Conference from 2003 to 2010.

## Editorial committee of international journals

- Associate Editor of the IEEE Journal of Solid-State Circuits since 2017.
- Editor in Chief for Europe of the Springer Journal of Analog Integrated Circuits and Signal Processing since 2016.
- Regional Editor for Europe of the Journal of Circuits, Systems, and Computers since 2008.
- Associate Editor of the Springer Journal of Analog Integrated Circuits and Signal Processing from 2013 to 2016.
- Associate Editor of the Journal of Circuits, Systems, and Computers from 2004 to 2007.
- Associate Editor of the IEEE Transactions on Circuits and Systems II from 2008 to 2010.
- Guest Editor of the Springer Journal of Analog Integrated Circuits and Signal Processing for the Special Issue on the 1999 IEEE International Conference on Electronics, Circuits and Systems (ICECS) [J.14].
- Guest Editor of the Springer Journal of Analog Integrated Circuits and Signal Processing for the Special Issue on the 2009 IEEE International Conference on Electronics, Circuits and Systems (ICECS) [J.61].
- Guest Editor of the IEEE Journal of Solid-State Circuits for the Special Issue on the 2013 IEEE International Solid-State Circuit Conference (ISSCC) [J.64].

## Full Publication List

### Journal Papers

- [J.1] P. Malcovati, C. Azeredo Leme, P. O’Leary, F. Maloberti, and H. Baltes, “Smart Sensor Interface with A/D Conversion and Programmable Calibration”, *IEEE Journal of Solid-State Circuits*, vol. 29, no. 8, pp. 963–966, Aug. 1994. DOI: 10.1109/4.297704.
- [J.2] P. Malcovati, C. Azeredo Leme, R. Lenggenhager, F. Maloberti, and H. Baltes, “Low Noise Multirate SC Read-Out Circuitry for Thermoelectric Integrated Infrared Sensors”, *IEEE Transactions on Instrumentation and Measurement*, vol. 44, no. 3, pp. 795–798, Jun. 1995. DOI: 10.1109/19.387335.
- [J.3] C. Azeredo Leme, P. Malcovati, and H. Baltes, “Oversampled Interface for IC Sensors with Minimized Analog Content”, *IEEE Transactions on Instrumentation and Measurement*, vol. 44, no. 3, pp. 647–651, Jun. 1995. DOI: 10.1109/19.387300.
- [J.4] C. Cornila, R. Lenggenhager, P. Malcovati, H. Baltes, A. Hierlemann, G. Noetzel, U. Weimar, and W. Göpel, “Capacitive Sensors in CMOS Technology with Polymer Coating”, *Sensors and Actuators B: Chemical*, vol. 25, no. 3, pp. 357–361, Mar. 1995. DOI: 10.1016/0925-4005(95)85080-5.

- [J.5] P. Malcovati, R. Castagnetti, F. Maloberti, and H. Baltes, “A Magnetic Sensor with Current Controlled Sensitivity and Resolution”, *Sensors and Actuators A: Physical*, vol. 46, no. 1, pp. 284–288, Jan. 1995. DOI: 10.1016/0924-4247(94)00906-X.
- [J.6] F. Maloberti, F. Francesconi, P. Malcovati, and O. Nys, “Design Considerations on Low-Voltage, Low-Power Data Converters”, *IEEE Transactions on Circuits and Systems—Part I: Fundamental Theory and Applications*, vol. 42, no. 11, pp. 1–11, Nov. 1995. DOI: 10.1109/81.477196.
- [J.7] J. F. Duque-Carrillo, P. Malcovati, F. Maloberti, R. Perez-Aloe, A. H. Reyes, E. Sanchez-Sinencio, G. Torelli, and J. M. Valverde, “VERDI: An Acoustically Programmable and Adjustable CMOS Mixed-Mode Signal Processor for Hearing Aid Applications”, *IEEE Journal of Solid-State Circuits*, vol. 31, no. 5, pp. 634–645, May 1996. DOI: 10.1109/4.509846.
- [J.8] A. Häberli, M. Schneider, P. Malcovati, R. Castagnetti, F. Maloberti, and H. Baltes, “2D Magnetic Microsensor with On-Chip Signal Processing for Contactless Angle Measurement”, *IEEE Journal of Solid-State Circuits*, vol. 31, no. 12, pp. 1902–1907, Dec. 1996. DOI: 10.1109/4.545811.
- [J.9] M. Faccio, G. Ferri, G. Stochino, P. Malcovati, and F. Maloberti, “Elettronica di Interfaccia CMOS per Sensori: Verso la Bassa Tensione”, *Alta Frequenza*, vol. 9, no. 1, pp. 73–81, Jan. 1997.
- [J.10] F. Maloberti and P. Malcovati, “Microsystems and Smart Sensor Interfaces: A Review”, *Analog Integrated Circuits and Signal Processing*, vol. 15, no. 1, pp. 9–26, Jan. 1998. DOI: 10.1023/A:1008243412712.
- [J.11] S. Brigati, F. Francesconi, G. Grassi, D. Lissoni, P. Malcovati, F. Maloberti, A. Nobile, and M. Poletti, “An 0.8- $\mu\text{m}$  CMOS Mixed Analog-Digital Integrated Audiometric System”, *IEEE Journal of Solid-State Circuits*, vol. 34, no. 8, pp. 1160–1166, Aug. 1999. DOI: 10.1109/4.777114.
- [J.12] P. Malcovati and F. Maloberti, “An Integrated Microsystem for 3D Magnetic Field Measurements”, *IEEE Aerospace and Electronics Systems Magazine*, vol. 14, no. 9, pp. 43–46, Sep. 1999. DOI: 10.1109/62.793452.
- [J.13] P. Malcovati and F. Maloberti, “An Integrated Microsystem for 3D Magnetic Field Measurements”, *IEEE Transactions on Instrumentation and Measurement*, vol. 49, no. 2, pp. 341–345, Apr. 2000. DOI: 10.1109/19.843075.
- [J.14] P. Malcovati and O. Koufopavlou, “Introduction to the Special Issue on ICECS 1999 Guest Editorial”, *Analog Integrated Circuits and Signal Processing*, vol. 27, no. 2, pp. 5–6, Apr. 2001. DOI: 10.1023/A:1011288317987.
- [J.15] I. Grech, J. Micallef, C. J. Debono, P. Malcovati, and F. Maloberti, “A 1-V Second Order Sigma-Delta Modulator”, *Analog Integrated Circuits and Signal Processing*, vol. 27, no. 2, pp. 151–163, Apr. 2001. DOI: 10.1023/A:1011279528890.
- [J.16] S. Brigati, F. Francesconi, M. Poletti, D. Fumagalli, G. Grassi, and P. Malcovati, “A 147-dB Dynamic Range Electronic Attenuator for Audiometric Applications with On-Chip 1-W Power Amplifier”, *IEEE Journal of Solid-State Circuits*, vol. 36, no. 7, pp. 1087–1093, Jul. 2001. DOI: 10.1109/4.933465.



- [J.17] P. Malcovati, F. Maloberti, C. Fiocchi, and M. Pruzzi, “Curvature Compensated BiCMOS Bandgap with 1-V Supply Voltage”, *IEEE Journal of Solid-State Circuits*, vol. 36, no. 7, pp. 1076–1081, Jul. 2001. DOI: 10.1109/4.933463.
- [J.18] F. Maloberti, P. Estrada, P. Malcovati, and A. Valero, “Validation of Data Converter Specifications with Behavioral Modeling Simulations”, *Measurement*, vol. 31, no. 4, pp. 231–245, Jun. 2002. DOI: 10.1016/S0263-2241(01)00045-8.
- [J.19] S. Brigati, P. Colombara, L. D’Ascoli, U. Gatti, T. Kerekes, and P. Malcovati, “A SiGe BiCMOS Burst-Mode 155-Mb/s Receiver for PON”, *IEEE Journal of Solid-State Circuits*, vol. 37, no. 7, pp. 887–894, Jul. 2002. DOI: 10.1109/JSSC.2002.1015687.
- [J.20] P. Malcovati, S. Brigati, F. Francesconi, F. Maloberti, P. Cusinato, and A. Baschiroto, “Behavioral Modeling of Switched-Capacitor Sigma-Delta Modulators”, *IEEE Transactions on Circuits and Systems—Part I: Fundamental Theory and Applications*, vol. 50, no. 3, pp. 352–364, Mar. 2003. DOI: 10.1109/TCSI.2003.808892.
- [J.21] S. Brigati, F. Francesconi, P. Malcovati, and F. Maloberti, “A Fourth-Order Single-Bit Switched-Capacitor  $\Sigma\Delta$  Modulator for Distributed Sensor Applications”, *IEEE Transactions on Instrumentation and Measurement*, vol. 53, no. 2, pp. 266–270, Apr. 2004. DOI: 10.1109/TIM.2003.822480.
- [J.22] V. Ferragina, A. Fornasari, U. Gatti, P. Malcovati, and F. Maloberti, “Gain and Offset Mismatch Calibration in Time-Interleaved Multipath A/D Sigma-Delta Modulators”, *IEEE Transactions on Circuits and Systems—Part I: Regular Papers*, vol. 51, no. 12, pp. 2365–2373, Dec. 2004. DOI: 10.1109/TCSI.2004.838154.
- [J.23] S. Marabelli, A. Fornasari, P. Malcovati, and F. Maloberti, “An 80-MHz, 14-Bit Bandpass MASH Sigma-Delta/Pipeline A/D Converter with 5-MHz Bandwidth for Third Generation Mobile Communication Systems”, *Measurement*, vol. 37, no. 4, pp. 320–327, Jun. 2005. DOI: 10.1016/J.MEASUREMENT.2005.03.004.
- [J.24] M. Grassi, P. Malcovati, and A. Baschiroto, “A High-Precision Wide-Range Front-End for Resistive Gas Sensors Arrays”, *Sensors and Actuators B: Chemical*, vol. 111-112, no. 1, pp. 281–285, Nov. 2005. DOI: 10.1016/J.SNB.2005.03.103.
- [J.25] A. Baschiroto, F. Campi, R. Castello, G. Cesura, R. Guerrieri, L. Lavagno, A. Lodi, P. Malcovati, and M. Toma, “Baseband Analog Front-End and Digital Back-End for Reconfigurable Multi-Standard Terminals”, *IEEE Circuits and Systems Magazine*, vol. 6, no. 1, pp. 8–28, Apr. 2006. DOI: 10.1109/MCAS.2006.1607635.
- [J.26] A. Baschiroto, A. Cabrini, E. Dallago, P. Malcovati, M. Marchesi, and G. Venchi, “Development and Analysis of a PCB Vector-2D Magnetic Field Sensor System for Electronic Compasses”, *IEEE Sensors Journal*, vol. 6, no. 2, pp. 365–371, Apr. 2006. DOI: 10.1109/JSEN.2005.859778.

- [J.27] P. Bastia, G. Bertuccio, F. Borghetti, S. Caccia, V. Ferragina, F. Ferrari, D. Maiocchi, P. Malcovati, D. Martin, A. Pullia, and N. Ratti, “An Integrated Reset/Pulse Pile-Up Rejection Circuit for Pixel Readout ASICs”, *IEEE Transactions on Nuclear Science*, vol. 53, no. 1, pp. 414–417, Feb. 2006. DOI: 10.1109/TNS.2006.869852.
- [J.28] A. Baschirotto, E. Dallago, P. Malcovati, M. Marchesi, and G. Venchi, “Development and Comparative Analysis of Fluxgate Magnetic Sensor Structures in PCB Technology”, *IEEE Transactions on Magnetics*, vol. 42, no. 6, pp. 1670–1680, Jun. 2006. DOI: 10.1109/TMAG.2006.873306.
- [J.29] G. Bernardinis, F. Borghetti, V. Ferragina, A. Fornasari, U. Gatti, P. Malcovati, and F. Maloberti, “A Wide-Band 280-MHz Four-Path Time-Interleaved Band-pass Sigma-Delta Modulator”, *IEEE Transactions on Circuits and Systems—Part I: Regular Papers*, vol. 53, no. 7, pp. 1423–1432, Jul. 2006. DOI: 10.1109/TCSI.2006.875191.
- [J.30] N. Ghittori, A. Vigna, P. Malcovati, S. D’Amico, and A. Baschirotto, “1.2-V Low-Power Multi-Mode DAC+Filter Blocks for Reconfigurable (WLAN/UMTS, WLAN/Bluetooth) Transmitters”, *IEEE Journal of Solid-State Circuits*, vol. 41, no. 9, pp. 1970–1982, Sep. 2006. DOI: 10.1109/JSSC.2006.880602.
- [J.31] N. Ghittori, A. Vigna, P. Malcovati, S. D’Amico, and A. Baschirotto, “A 1.2-V 30.4-dBm OIP3 Reconfigurable Analog Baseband Channel for UMTS/WLAN Transmitters”, *IEEE Transactions on Circuits and Systems—Part I: Regular Papers*, vol. 53, no. 10, pp. 2125–2131, Oct. 2006. DOI: 10.1109/TCSI.2006.883174.
- [J.32] A. Baschirotto, F. Borghetti, E. Dallago, P. Malcovati, M. Marchesi, E. Melissano, P. Siciliano, and G. Venchi, “Fluxgate Magnetic Sensor and Front-End Circuitry in an Integrated Microsystem”, *Sensors and Actuators A: Physical*, vol. 132, no. 1, pp. 90–97, Nov. 2006. DOI: 10.1016/J.SNA.2006.04.043.
- [J.33] E. Dallago, P. Malcovati, D. Miatton, T. Ungaretti, and G. Venchi, “Analysis of Sigma-Delta Converters for MEMS Sensors Using Power Supply Voltage as Reference”, *IEE Proceedings—Circuits, Devices and Systems*, vol. 153, no. 5, pp. 473–479, Oct. 2006. DOI: 10.1049/IP-CDS:20060079.
- [J.34] D. Barrettino, P. Malcovati, M. Graf, S. Hafizovic, and A. Hierlemann, “CMOS-Based Monolithic Controllers for Smart Sensors Comprising Micromembranes and Microcantilevers”, *IEEE Transactions on Circuits and Systems—Part I: Regular Papers*, vol. 54, no. 1, pp. 141–152, Jan. 2007. DOI: 10.1109/TCSI.2006.887457.
- [J.35] C. Falconi, E. Martinelli, C. Di Natale, A. D’Amico, F. Maloberti, P. Malcovati, A. Baschirotto, V. Stornelli, and G. Ferri, “Electronic Interfaces”, *Sensors and Actuators B: Chemical*, vol. 121, no. 1, pp. 295–329, Jan. 2007. DOI: 10.1016/J.SNB.2006.09.022.
- [J.36] A. Baschirotto, E. Dallago, P. Malcovati, M. Marchesi, and G. Venchi, “A Fluxgate Magnetic Sensor: From PCB to Micro-Integrated Technology”, *IEEE Transactions on Instrumentation and Measurement*, vol. 56, no. 1, pp. 25–31, Feb. 2007. DOI: 10.1109/TIM.2006.887218.

- [J.37] M. Grassi, P. Malcovati, and A. Baschirotto, “A 160-dB Equivalent Dynamic Range Auto-Scaling Interface for Resistive Gas Sensors Arrays”, *IEEE Journal of Solid-State Circuits*, vol. 42, no. 3, pp. 518–528, Mar. 2007. DOI: 10.1109/JSSC.2006.891724.
- [J.38] M. Grassi, P. Malcovati, and A. Baschirotto, “A 141-dB Dynamic Range CMOS Gas-Sensor Interface Circuit without Calibration with 16-Bit Digital Output Word”, *IEEE Journal of Solid-State Circuits*, vol. 42, no. 7, pp. 1543–1554, Jul. 2007. DOI: 10.1109/JSSC.2007.899087.
- [J.39] A. Rossini, S. Caccia, G. Bertuccio, F. Borghetti, V. Ferragina, P. Malcovati, D. Martin, P. Bastia, I. Cappelluti, and N. Ratti, “A Complete Read-Out Channel with Embedded Wilkinson A/D Converter for X-Ray Spectrometry”, *IEEE Transactions on Nuclear Science*, vol. 54, no. 4, pp. 1216–1221, Aug. 2007. DOI: 10.1109/TNS.2007.903164.
- [J.40] L. Picolli, A. Rossini, P. Malcovati, F. Maloberti, F. Borghetti, and A. Baschirotto, “A Clock-Less 10-bit Pipeline-Like A/D Converter for Self-Triggered Sensors”, *IEEE Journal of Solid-State Circuits*, vol. 43, no. 2, pp. 312–320, Feb. 2008. DOI: 10.1109/JSSC.2007.914249.
- [J.41] A. Baschirotto, S. Capone, A. D’Amico, C. Di Natale, V. Ferragina, G. Ferri, L. Francioso, M. Grassi, N. Guerrini, P. Malcovati, E. Martinelli, and P. Siciliano, “A Portable Integrated Wide-Range Gas Sensing System with Smart A/D Front-End”, *Sensors and Actuators B: Chemical*, vol. 130, no. 1, pp. 164–174, Mar. 2008. DOI: 10.1016/J.SNB.2007.07.144.
- [J.42] M. Grassi, P. Malcovati, L. Francioso, P. Siciliano, and A. Baschirotto, “Integrated Interface Circuit with Multiplexed Input and Digital Output for a  $5 \times 5$  SnO<sub>2</sub> Thick Film Gas-Sensor Matrix”, *Sensors and Actuators B: Chemical*, vol. 132, no. 2, pp. 568–575, Jun. 2008. DOI: 10.1016/J.SNB.2007.11.045.
- [J.43] S. D’Amico, A. Baschirotto, M. De Matteis, N. Ghittori, A. Vigna, and P. Malcovati, “A CMOS 5-nV/ $\sqrt{\text{Hz}}$  74-dB Gain Range 82-dB DR Multistandard Baseband Chain for Bluetooth, UMTS, and WLAN”, *IEEE Journal of Solid-State Circuits*, vol. 43, no. 7, pp. 1534–1541, Jul. 2008. DOI: 10.1109/JSSC.2008.922378.
- [J.44] I. Galdi, E. Bonizzoni, P. Malcovati, G. Manganaro, and F. Maloberti, “40-MHz IF 1-MHz Bandwidth Two-Path Bandpass  $\Sigma\Delta$  Modulator with 72-dB DR Consuming 16 mW”, *IEEE Journal of Solid-State Circuits*, vol. 43, no. 7, pp. 1648–1656, Jul. 2008. DOI: 10.1109/JSSC.2008.923728.
- [J.45] S. Caccia, G. Bertuccio, D. Maiocchi, P. Malcovati, N. Ratti, and D. Martin, “A Mixed-Signal Spectroscopic-Grade and High-Functionality CMOS Readout Cell for Semiconductor X- $\gamma$  Ray Pixel Detectors”, *IEEE Transactions on Nuclear Science*, vol. 55, no. 5, pp. 2721–2726, Oct. 2008. DOI: 10.1109/TNS.2008.2003981.
- [J.46] N. Ghittori, A. Vigna, P. Malcovati, S. D’Amico, and A. Baschirotto, “An IEEE 802.11 and 802.16 WLAN Wireless Transmitter Baseband Architecture with a 1.2-V, 600-MS/s, 2.4-mW DAC”, *Analog Integrated Circuits and Signal Processing*, vol. 59, no. 3, pp. 231–242, Jun. 2009. DOI: 10.1007/S10470-008-9262-X.

- [J.47] A. Baschiroto, E. Dallago, P. Malcovati, M. Marchesi, E. Melissano, M. Morelli, P. Siciliano, and G. Venchi, “An Integrated Micro-Fluxgate Magnetic Sensor with Front-End Circuitry”, *IEEE Transactions on Instrumentation and Measurement*, vol. 58, no. 9, pp. 3269–3275, Sep. 2009. DOI: 10.1109/TIM.2009.2022375.
- [J.48] A. Lombardi, M. Grassi, P. Malcovati, S. Capone, L. Francioso, P. Siciliano, and A. Baschiroto, “A CMOS Integrated Interface Circuit for Metal-Oxide Gas Sensors”, *Sensors and Actuators B: Chemical*, vol. 142, no. 1, pp. 82–89, Oct. 2009. DOI: 10.1016/J.SNB.2009.07.030.
- [J.49] A. Baschiroto, E. Dallago, M. Ferri, P. Malcovati, A. Rossini, and G. Venchi, “A 2D Micro-Fluxgate Earth Magnetic Field Measurement Systems with Fully Automated Acquisition Setup”, *Measurement*, vol. 43, no. 1, pp. 46–53, Jan. 2010. DOI: 10.1016/J.MEASUREMENT.2009.06.007.
- [J.50] E. Bonizzoni, F. Borghetti, P. Malcovati, and F. Maloberti, “A 200-mA, 93% Peak Power Efficiency, Single-Inductor, Dual-Output DC-DC Buck Converter”, *Analog Integrated Circuits and Signal Processing*, vol. 62, no. 2, pp. 121–129, Feb. 2010. DOI: 10.1007/S10470-009-9330-X.
- [J.51] A. Fornasari, F. Borghetti, P. Malcovati, and F. Maloberti, “A Second-Order Multi-Bit  $\Sigma\Delta$  Modulator with On-Line Calibration and Digital Correction of the Digital-to-Analog Converter Mismatches”, *Analog Integrated Circuits and Signal Processing*, vol. 62, no. 2, pp. 193–204, Feb. 2010. DOI: 10.1007/S10470-009-9338-2.
- [J.52] P. Malcovati, L. Picolli, L. Crespi, F. Chaahoub, and A. Baschiroto, “A 90-nm CMOS, 8-Bit Pipeline ADC with 60-MHz Bandwidth and 125-MS/s or 250-MS/s Sampling Frequency”, *Analog Integrated Circuits and Signal Processing*, vol. 64, no. 2, pp. 159–172, Aug. 2010. DOI: 10.1007/S10470-009-9445-0.
- [J.53] A. Agnes, E. Bonizzoni, P. Malcovati, and F. Maloberti, “An Ultra-Low Power Successive Approximation A/D Converter with Time-Domain Comparator”, *Analog Integrated Circuits and Signal Processing*, vol. 64, no. 2, pp. 183–190, Aug. 2010. DOI: 10.1007/S10470-010-9466-8.
- [J.54] L. Picolli, M. Grassi, A. Fornasari, and P. Malcovati, “A 1.0-mW, 71-dB SNDR, Fourth-Order  $\Sigma\Delta$  Interface Circuit for MEMS Microphones”, *Analog Integrated Circuits and Signal Processing*, vol. 66, no. 2, pp. 223–233, Feb. 2011. DOI: 10.1007/S10470-010-9516-2.
- [J.55] M. Ferri, D. Pinna, E. Dallago, and P. Malcovati, “Photovoltaic Energy Harvester with Power Management System”, *Hindawi Journal of Sensors*, vol. 2010, pp. 349389/1–6, Dec. 2010. DOI: 10.1155/2010/349389.
- [J.56] M. Belloni, E. Bonizzoni, P. Malcovati, and F. Maloberti, “A High Efficiency 4-Output Single Inductor DC-DC Buck Converter with Self-Boosted Snubber”, *Analog Integrated Circuits and Signal Processing*, vol. 67, no. 2, pp. 169–177, May 2011. DOI: 10.1007/S10470-010-9570-9.

- [J.57] G. Zampa, R. Campana, M. Feroci, A. Vacchi, V. Bonvicini, E. Del Monte, Y. Evangelista, F. Fuschino, C. Labanti, M. Marisaldi, F. Muleri, L. Pacciani, M. Rapisarda, A. Rashevsky, A. Rubini, P. Soffitta, N. Zampa, G. Baldazzi, E. Costa, I. Donnarumma, M. Grassi, F. Lazzarotto, P. Malcovati, M. Mastropietro, E. Morelli, and L. Picolli, “Room-Temperature Spectroscopic Performance of a Very-Large Area Silicon Drift Detector”, *Nuclear Instruments and Methods in Physics Research—Section A*, vol. 633, no. 1, pp. 15–21, Mar. 2011. DOI: 10.1016/J.NIMA.2010.12.129.
- [J.58] R. Campana, G. Zampa, M. Feroci, A. Vacchi, V. Bonvicini, E. Del Monte, Y. Evangelista, F. Fuschino, C. Labanti, M. Marisaldi, F. Muleri, L. Pacciani, M. Rapisarda, A. Rashevsky, A. Rubini, P. Soffitta, N. Zampa, G. Baldazzi, E. Costa, I. Donnarumma, M. Grassi, F. Lazzarotto, P. Malcovati, M. Mastropietro, E. Morelli, and L. Picolli, “Imaging Performance of a Large-Area Silicon Drift Detector for X-Ray Astronomy”, *Nuclear Instruments and Methods in Physics Research—Section A*, vol. 633, no. 1, pp. 22–30, Mar. 2011. DOI: 10.1016/J.NIMA.2010.12.237.
- [J.59] H. Caracciolo, E. Bonizzoni, P. Malcovati, and F. Maloberti, “70-MHz IF 10-MHz Bandwidth Bandpass  $\Sigma\Delta$  Modulator for WCDMA Applications”, *Analog Integrated Circuits and Signal Processing*, vol. 71, no. 3, pp. 411–419, Jun. 2012. DOI: 10.1007/S10470-011-9795-2.
- [J.60] M. Feroci et al., “The Large Observatory for X-Ray Timing (LOFT)”, *Experimental Astronomy*, vol. 34, no. 2, pp. 415–444, Oct. 2012. DOI: 10.1007/S10686-011-9237-2.
- [J.61] A. A. Hamoui, P. Malcovati, and M. Loulou, “Introduction to the Special Issue on ICECS 2009”, *Analog Integrated Circuits and Signal Processing*, vol. 73, no. 1, pp. 99–100, Oct. 2012. DOI: 10.1007/S10470-012-9908-6.
- [J.62] S. Cliquennois, A. Donida, P. Malcovati, A. Baschirotto, and A. Nagari, “A 65-nm, 1-A Buck Converter with Multi-Function SAR-ADC-Based CCM/PSK Digital Control Loop”, *IEEE Journal of Solid-State Circuits*, vol. 47, no. 7, pp. 1546–1556, Jul. 2012. DOI: 10.1109/JSSC.2012.2191214.
- [J.63] P. Malcovati, M. Grassi, and A. Baschirotto, “Towards High-Dynamic Range CMOS Integrated Interface Circuits for Gas Sensors”, *Sensors and Actuators B: Chemical*, vol. 179, no. 1, pp. 301–312, Mar. 2013. DOI: 10.1016/J.SNB.2012.10.019.
- [J.64] P. Malcovati, B. Brandt, H. Darabi, H. Hashemi, and A. Emami, “Introduction to the Special Issue on the 2013 IEEE International Solid-State Circuits Conference”, *IEEE Journal of Solid-State Circuits*, vol. 48, no. 12, pp. 2947–2951, Dec. 2013. DOI: 10.1109/JSSC.2013.2278454.
- [J.65] D. Cartasegna, P. Malcovati, L. Crespi, K. Lee, and A. Baschirotto, “A Design Methodology for High-Order Class-D Audio Amplifiers”, *Analog Integrated Circuits and Signal Processing*, vol. 78, no. 3, pp. 785–798, Mar. 2014. DOI: 10.1007/S10470-013-0203-Y.
- [J.66] P. Malcovati, M. Belloni, F. Gozzini, C. Bazzani, and A. Baschirotto, “A 0.18- $\mu\text{m}$  CMOS, 91%-Efficiency, 2-A Scalable Buck-Boost DC-DC Converter for LED Drivers”, *IEEE Transactions on Power Electronics*, vol. 29, no. 10, pp. 5392–5398, Oct. 2014. DOI: 10.1109/TPEL.2013.2294189.

- [J.67] M. Ahangarianabhari, G. Bertuccio, D. Macera, P. Malcovati, M. Grassi, A. Rashevsky, I. Rashevskaya, A. Vacchi, G. Zampa, N. Zampa, F. Fuschino, Y. Evangelista, R. Campana, C. Labanti, and M. Feroci, “A Low-Power CMOS ASIC for X-ray Silicon Drift Detectors Low-Noise Pulse Processing”, *Journal of Instrumentation*, vol. 9, no. 3, p. C03036, Mar. 2014. DOI: 10.1088/1748-0221/9/03/C03036.
- [J.68] E. Dallago, A. Lazzarini Barnabei, A. Liberale, P. Malcovati, and G. Venchi, “An Interface Circuit for Low-Voltage Low-Current Energy Harvesting Systems”, *IEEE Transactions on Power Electronics*, vol. 30, no. 3, pp. 1411–1420, Mar. 2014. DOI: 10.1109/TPEL.2014.2322521.
- [J.69] R. Campana, Y. Evangelista, F. Fuschino, M. Ahangarianabhari, D. Macera, G. Bertuccio, M. Grassi, C. Labanti, M. Marisaldi, P. Malcovati, A. Rashevsky, G. Zampa, N. Zampa, L. Andreani, G. Baldazzi, E. Del Monte, Y. Favre, M. Feroci, F. Muleri, I. Rashevskaya, A. Vacchi, F. Ficorella, G. Giacomini, A. Picciotto, and M. Zuffa, “Characterization of the VEGA ASIC Coupled to Large Area Position-Sensitive Silicon Drift Detectors”, *Journal of Instrumentation*, vol. 9, no. 8, P08008, Aug. 2014. DOI: 10.1088/1748-0221/9/08/P08008.
- [J.70] M. Ahangarianabhari, D. Macera, G. Bertuccio, P. Malcovati, and M. Grassi, “VEGA — A Low-Power Front-End ASIC for Large Area Multi-Linear X-Ray Silicon Drift Detectors: Design and Experimental Characterization”, *Nuclear Instruments and Methods in Physics Research—Section A*, vol. 770, no. 1, pp. 155–163, Jan. 2015. DOI: 10.1016/J.NIMA.2014.10.009.
- [J.71] J. Bufon, M. Ahangarianabhari, P. Bellutti, G. Bertuccio, S. Carrato, G. Cautero, S. Fabiani, G. Giacomini, A. Gianoncelli, D. Giuressi, M. Grassi, P. Malcovati, R. H. Menk, A. Picciotto, C. Piemonte, I. Rashevskaya, A. Rashevsky, A. Stolfà, A. Vacchi, G. Zampa, and N. Zampa, “A Novel Multi-Cell Silicon Drift Detector for Low Energy X-Ray Fluorescence (LEXRF) Spectroscopy”, *Journal of Instrumentation*, vol. 9, no. 12, p. C12017, Dec. 2014. DOI: 10.1088/1748-0221/9/12/C12017.
- [J.72] A. Donida, R. Cellier, A. Nagari, P. Malcovati, and A. Baschirotto, “A 40-nm CMOS, 1.1-V, 101-dB Dynamic-Range, 1.7-mW Continuous-Time  $\Sigma\Delta$  ADC for a Digital Closed-Loop Class-D Amplifier”, *IEEE Transactions on Circuits and Systems—Part I: Regular Papers*, vol. 62, no. 3, pp. 645–653, Mar. 2015. DOI: 10.1109/TCSI.2014.2373971.
- [J.73] G. Rizzo, D. Comotti, L. Fabris, M. Grassi, L. Lodola, P. Malcovati, M. Manghisoni, L. Ratti, V. Re, G. Traversi, C. Vacchi, G. Batignani, S. Bettarini, G. Casarosa, F. Forti, F. Morsani, A. Paladino, E. Paoloni, G. F. Dalla Betta, L. Pancheri, G. Verzellesi, H. Xu, R. Mendicino, and M. A. Benkechkeche, “The PixFEL Project: Development of Advanced X-Ray Pixel Detectors for Application at Future FEL Facilities”, *Journal of Instrumentation*, vol. 10, no. 2, p. C02024, Feb. 2015. DOI: 10.1088/1748-0221/10/02/C02024.
- [J.74] L. Ratti, D. Comotti, L. Fabris, M. Grassi, L. Lodola, P. Malcovati, M. Manghisoni, V. Re, G. Traversi, C. Vacchi, S. Bettarini, G. Casarosa, F. Forti, F. Morsani, A. Paladino, E. Paoloni, G. Rizzo, M. A. Benkechkeche, G. F. Dalla Betta, R. Mendicino, L. Pancheri, G. Verzellesi, and H. Xu, “PixFEL: Developing a Fine Pitch, Fast 2D X-Ray Imager for the Next Generation X-FELs”, *Nuclear Instru-*

- ments and Methods in Physics Research—Section A*, vol. 796, no. 10, pp. 2–7, Oct. 2015. DOI: 10.1016/J.NIMA.2015.03.022.
- [J.75] G. F. Dalla Betta, G. Batignani, M. A. Benkechkache, S. Bettarini, G. Casarosa, D. Comotti, L. Fabris, F. Forti, M. Grassi, S. Latreche, L. Lodola, P. Malcovati, M. Manghisoni, R. Mendicino, F. Morsani, A. Paladino, L. Pancheri, E. Paoloni, L. Ratti, V. Re, G. Rizzo, G. Traversi, C. Vacchi, G. Verzellesi, and H. Xu, “Design and TCAD Simulation of Planar  $p$ -on- $n$  Active-Edge Pixel Sensors for the Next Generation of FELs”, *Nuclear Instruments and Methods in Physics Research—Section A*, vol. 824, no. 7, pp. 384–385, Jul. 2016. DOI: 10.1016/J.NIMA.2015.08.027.
- [J.76] L. Lodola, G. Batignani, M. A. Benkechkache, S. Bettarini, G. Casarosa, D. Comotti, G. F. Dalla Betta, L. Fabris, F. Forti, M. Grassi, S. Latreche, P. Malcovati, M. Manghisoni, R. Mendicino, F. Morsani, A. Paladino, L. Pancheri, E. Paoloni, L. Ratti, V. Re, G. Rizzo, G. Traversi, C. Vacchi, G. Verzellesi, and H. Xu, “In-Pixel Conversion with a 10-Bit SAR ADC for Next Generation X-Ray FELs”, *Nuclear Instruments and Methods in Physics Research—Section A*, vol. 824, no. 7, pp. 313–315, Jul. 2016. DOI: 10.1016/J.NIMA.2015.10.042.
- [J.77] G. Rizzo, G. Batignani, M. A. Benkechkache, S. Bettarini, G. Casarosa, D. Comotti, G. F. Dalla Betta, L. Fabris, F. Forti, M. Grassi, L. Lodola, P. Malcovati, M. Manghisoni, R. Mendicino, F. Morsani, A. Paladino, L. Pancheri, E. Paoloni, L. Ratti, V. Re, G. Traversi, C. Vacchi, G. Verzellesi, and H. Xu, “The PixFEL Project: Progress towards a Fine Pitch X-Ray Imaging Camera for Next Generation FEL Facilities”, *Nuclear Instruments and Methods in Physics Research—Section A*, vol. 824, no. 7, pp. 131–134, Jul. 2016. DOI: 10.1016/J.NIMA.2016.01.027.
- [J.78] C. De Berti, P. Malcovati, L. Crespi, and A. Baschiroto, “A 106-dB A-Weighted DR Low-Power Continuous-Time  $\Sigma\Delta$  Modulator for MEMS Microphones”, *IEEE Journal of Solid-State Circuits*, vol. 51, no. 7, pp. 1607–1618, Jul. 2016. DOI: 10.1109/JSSC.2016.2540811.
- [J.79] S. Mangiarotti, M. Elkhayat, M. Grassi, P. Malcovati, and A. Fornasari, “Misura di Capacità e Controllo di Temperatura per un Microsensore di Umidità”, *Tutto\_Misure*, vol. 18, no. 2, pp. 99–102, Jun. 2016.
- [J.80] L. Ratti, D. Comotti, L. Fabris, M. Grassi, L. Lodola, P. Malcovati, M. Manghisoni, V. Re, G. Traversi, C. Vacchi, G. Rizzo, G. Batignani, S. Bettarini, G. Casarosa, F. Forti, M. Giorgi, F. Morsani, A. Paladino, E. Paoloni, L. Pancheri, G. F. Dalla Betta, R. Mendicino, G. Verzellesi, H. Xu, and M. A. Benkechkache, “A 2D Imager for X-Ray FELs with a 65-nm CMOS Readout Based on Per-Pixel Signal Compression and 10-Bit A/D Conversion”, *Nuclear Instruments and Methods in Physics Research—Section A*, vol. 831, no. 9, pp. 301–308, Sep. 2016. DOI: 10.1016/J.NIMA.2016.05.055.
- [J.81] M. Manghisoni, L. Fabris, V. Re, G. Traversi, L. Ratti, M. Grassi, L. Lodola, P. Malcovati, C. Vacchi, L. Pancheri, M. A. Benkechkache, G. F. Dalla Betta, H. Xu, G. Verzellesi, S. Ronchin, M. Boscardin, G. Batignani, S. Bettarini, G. Casarosa, F. Forti, M. Giorgi, A. Paladino, E. Paoloni, G. Rizzo, and F. Morsani, “PFM2: A  $32 \times 32$  Processor for X-Ray Diffraction Imaging at FELs”, *Journal*

- of Instrumentation*, vol. 11, no. 11, p. C11033, Nov. 2016. DOI: 10.1088/1748-0221/11/11/C11033.
- [J.82] L. Pancheri, M. A. Benkechke, G. F. Dalla Betta, H. Xu, G. Verzellesi, S. Ronchin, M. Boscardin, L. Ratti, M. Grassi, L. Lodola, P. Malcovati, C. Vacchi, M. Manghisoni, V. Re, G. Traversi, G. Batignani, S. Bettarini, G. Casarosa, M. Giorgi, F. Forti, A. Paladino, E. Paoloni, G. Rizzo, F. Morsani, and L. Fabris, “First Experimental Results on Active and Slim-Edge Silicon Sensors for XFEL”, *Journal of Instrumentation*, vol. 11, no. 12, p. C12018, Dec. 2016. DOI: 10.1088/1748-0221/11/12/C12018.
- [J.83] L. Zou, G. Rocca, M. De Blasi, M. Grassi, P. Malcovati, and A. Baschirotto, “Sigma-Delta ADC Based Adaptive Readout ASIC for Digital Audio Sensor”, *Analog Integrated Circuits and Signal Processing*, vol. 92, no. 3, pp. 383–392, Sep. 2017. DOI: 10.1007/S10470-017-1002-7.
- [J.84] M. De Matteis, A. Pezzotta, M. Sabatini, M. Grassi, M. Croce, P. Malcovati, and A. Baschirotto, “A 90- $\mu$ W Continuous-Time Front-End with 10-Bit SAR-ADC for Capacitive MEMS Accelerometers”, *Analog Integrated Circuits and Signal Processing*, vol. 92, no. 3, pp. 453–465, Sep. 2017. DOI: 10.1007/S10470-017-1009-0.
- [J.85] L. Amati et al., “The THESEUS Space Mission Concept: Science Case, Design and Expected Performances”, *Advances in Space Research*, vol. 62, no. 1, pp. 191–244, Jul. 2018. DOI: 10.1016/J.ASR.2018.03.010.
- [J.86] P. Malcovati and A. Baschirotto, “The Evolution of Integrated Interfaces for MEMS Microphones”, *Micromachines*, vol. 9, no. 7, p. 323, Jul. 2018. DOI: 10.3390/mi9070323.
- [J.87] D. Allegri, A. Donida, P. Malcovati, and D. Barrettino, “CMOS-Based Multifrequency Impedance Analyzer for Biomedical Applications”, *IEEE Transactions on Biomedical Circuits and Systems*, vol. 12, no. 6, pp. 1301–1312, Dec. 2018. DOI: 10.1109/TBCAS.2018.2867172.
- [J.88] Y. Evangelista, F. Ambrosino, M. Feroci, P. Bellutti, G. Bertuccio, G. Borghi, R. Campana, M. Caselle, D. Cirrincione, F. Ficorella, M. Fiorini, F. Fuschino, M. Gandola, M. Grassi, C. Labanti, P. Malcovati, F. Mele, A. Morbidini, A. Picciotto, A. Rachevski, I. Rashevskaya, M. Sammartini, G. Zampa, N. Zampa, N. Zorzic, and A. Vacchi, “Characterization of a Novel Pixelated Silicon Drift Detector (PixDD) for High-Throughput X-Ray Astrophysics”, *Journal of Instrumentation*, vol. 13, no. 9, P09011, Sep. 2018. DOI: 10.1088/1748-0221/13/09/P09011.
- [J.89] F. Fuschino, R. Campana, C. Labanti, Y. Evangelista, M. Feroci, L. Burderi, F. Fiore, F. Ambrosino, G. Baldazzi, P. Bellutti, R. Bertacin, G. Bertuccio, G. Borghi, D. Cirrincione, D. Cauz, F. Ficorella, M. Fiorini, M. Gandola, M. Grassi, A. Guzman, G. La Rosa, M. Lavagna, P. Lunghi, P. Malcovati, G. Morgante, B. Negri, G. Pauletta, R. Piazzolla, A. Picciotto, S. Pirrotta, S. Pliego-Caballero, S. Puccetti, A. Rachevski, I. Rashevskaya, L. Rignanese, M. Salatti, A. Santangelo, S. Silvestrini, G. Sottile, C. Tenzer, A. Vacchi, G. Zampa, N. Zampa, and N. Zorzi, “HERMES: An Ultra-Wide Band X and Gamma-Ray Transient Monitor on Board a Nano-Satellite Constellation”, *Nuclear Instruments and Methods in Physics Research—Section A*, in press. DOI: 10.1016/J.NIMA.2018.11.072.



- [J.90] S. N. Zhang et al., “The Enhanced X-Ray Timing and Polarimetry Mission – eXTP”, *Science China Physics, Mechanics, and Astronomy*, vol. 62, no. 2, pp. 29502/1–25, Feb. 2019. DOI: 10.1007/S11433-018-9309-2.

## Book Chapters

- [B.1] F. Maloberti, P. Malcovati, and H. Baltes, “Sensor Interfaces”, in *Sensors for Domestic Applications*, A. D’Amico and G. Sberveglieri, Eds., Singapore: World Scientific, 1995, pp. 201–216.
- [B.2] P. Malcovati, F. Maloberti, and H. Baltes, “Progress in Microsensor Interfaces”, in *Sensors Update*, H. Baltes, W. Goepel, and J. Hesse, Eds., vol. 1, Weinheim, Germany: Wiley-VCH, 1996, pp. 143–171. DOI: 10.1002/1616-8984(199607)1:1<143::AID-SEUP143>3.0.CO;2-F.
- [B.3] P. Malcovati, “Interface Circuits for Integrated Microsensors”, in *Sensors and Microsystems*, C. Di Natale, A. D’Amico, L. Dori, G. C. Cardinali, and S. Nicoletti, Eds., Singapore: World Scientific, 2002, pp. 8–12. DOI: 10.1142/9789812776457\_0002.
- [B.4] A. Baschiroto and P. Malcovati, “Technology-Driven Alternatives for Smart Sensor Interfaces”, in *Sensors Update*, H. Baltes, G. Fedder, and J. Korvink, Eds., vol. 13, Weinheim, Germany: Wiley-VCH, 2003, pp. 45–81. DOI: 10.1002/SEUP.200390013.
- [B.5] A. Baschiroto, E. Dallago, P. Malcovati, M. Marchesi, and G. Venchi, “Design and Characterization of a Family of Fluxgate Magnetic Sensors in PCB Technology”, in *Sensors and Microsystems*, C. Di Natale, A. D’Amico, G. Martinelli, M. C. Carotta, and V. Guidi, Eds., Singapore: World Scientific, 2005, pp. 262–266. DOI: 10.1142/9789812701770\_0045.
- [B.6] P. Malcovati and F. Maloberti, “Interface Circuitry and Microsystems”, in *MEMS: A Practical Guide to Design, Analysis and Applications*, J. Korvink and O. Paul, Eds., Dordrecht, The Netherlands: Springer, 2005, pp. 901–942. DOI: 10.1016/B978-081551497-8.50019-6.
- [B.7] A. Baschiroto, S. D’Amico, and P. Malcovati, “Low-Voltage, Low-Power Basic Circuits”, in *Analog Circuit Design*, M. Steyaert, A. van Roermund, and J. Huijsing, Eds., Dordrecht, The Netherlands: Springer, 2006, pp. 295–327. DOI: 10.1007/1-4020-3885-2\_14.
- [B.8] M. Grassi, P. Malcovati, G. De Iaco, and A. Baschiroto, “An Integrated Wide-Range Resistance-to-Time Converter with Decoupled Oscillator”, in *Sensors and Microsystems*, A. G. Mignani, R. Falciai, C. Di Natale, and A. D’Amico, Eds., Singapore: World Scientific, 2008, pp. 637–642. DOI: 10.1142/9789812833532\_0104.
- [B.9] A. Baschiroto, E. Dallago, P. Malcovati, M. Marchesi, and G. Venchi, “Micro-Integrated Double Axis Planar Fluxgate”, in *Sensors and Microsystems*, A. G. Mignani, R. Falciai, C. Di Natale, and A. D’Amico, Eds., Singapore: World Scientific, 2008, pp. 483–487. DOI: 10.1142/9789812833532\_0077.

- [B.10] A. Baschirotto, E. Melissano, P. Siciliano, E. Dallago, P. Malcovati, M. Marchesi, and G. Venchi, “A 2D Planar Micro-Fluxgate with Sputtered Core”, in *Sensors and Microsystems*, P. Siciliano, S. Capone, C. Di Natale, and A. D’Amico, Eds., Singapore: World Scientific, 2008, pp. 127–131. DOI: 10.1142/9789812793393\_0026.
- [B.11] M. Grassi, P. Malcovati, S. Capone, L. Francioso, P. Siciliano, and A. Baschirotto, “Gas Sensing System Consisting in MOX-Based Microsensors Interfaced to a Novel Integrated 5-Decade Dynamic Range Front-End”, in *Sensors and Microsystems*, P. Siciliano, S. Capone, C. Di Natale, and A. D’Amico, Eds., Singapore: World Scientific, 2008, pp. 272–277. DOI: 10.1142/9789812793393\_0054.
- [B.12] A. Lombardi, M. Grassi, L. Bruno, P. Malcovati, and A. Baschirotto, “An Integrated Gas-Sensing Interface Circuit with Embedded Temperature Control Loop for SnO<sub>2</sub> Sensors”, in *Sensors and Microsystems*, C. Di Natale, A. D’Amico, E. Martinelli, and R. Paolesse, Eds., Singapore: World Scientific, 2009, pp. 498–505. DOI: 10.1142/9789812835987\_0082.
- [B.13] M. Grassi, P. Malcovati, and A. Baschirotto, “Fundamental Limitations in Resistive Wide Range Gas-Sensor Interface Circuits Design”, in *Sensors and Microsystems*, P. Malcovati, A. Baschirotto, A. D’Amico, and C. Di Natale, Eds., Dordrecht, The Netherlands: Springer, 2010, pp. 25–40. DOI: 10.1007/978-90-481-3606-3\_3.
- [B.14] M. Grassi, A. Lombardi, G. Rescio, P. Malcovati, A. Leone, G. Diraco, C. Distanto, P. Siciliano, M. Malfatti, L. Gonzo, V. Libal, J. Huang, and G. Potamianos, “A Multisensor System for High Reliability People Fall Detection in Home Environment”, in *Sensors and Microsystems*, P. Malcovati, A. Baschirotto, A. D’Amico, and C. Di Natale, Eds., Dordrecht, The Netherlands: Springer, 2010, pp. 391–394. DOI: 10.1007/978-90-481-3606-3\_79.
- [B.15] D. Cartasegna, A. Cito, F. Conso, A. Donida, M. Grassi, L. Malvasi, G. Rescio, and P. Malcovati, “Smart RFID-Label for Monitoring the Preservation Conditions of Food”, in *Sensors and Microsystems*, P. Malcovati, A. Baschirotto, A. D’Amico, and C. Di Natale, Eds., Dordrecht, The Netherlands: Springer, 2010, pp. 381–385. DOI: 10.1007/978-90-481-3606-3\_77.
- [B.16] E. Dallago, M. Ferri, P. Malcovati, and D. Pinna, “Active Area Density Optimization Technique for Harvester Photodiodes Efficiency Maximization”, in *Sensors and Microsystems*, P. Malcovati, A. Baschirotto, A. D’Amico, and C. Di Natale, Eds., Dordrecht, The Netherlands: Springer, 2010, pp. 117–120. DOI: 10.1007/978-90-481-3606-3\_20.
- [B.17] M. Grassi, V. Ferragina, P. Malcovati, S. Caccia, G. Bertuccio, D. Martin, P. Bastia, I. Cappelluti, and N. Ratti, “A 32 × 32-Channels Chip for X-Ray Pixel Detector Read-Out”, in *Sensors and Microsystems*, P. Malcovati, A. Baschirotto, A. D’Amico, and C. Di Natale, Eds., Dordrecht, The Netherlands: Springer, 2010, pp. 307–310. DOI: 10.1007/978-90-481-3606-3\_60.
- [B.18] L. Picolli, M. Grassi, M. Ferri, and P. Malcovati, “A Low Noise 32-Channel CMOS Read-Out Circuit for X-Ray Silicon Drift Chamber Detectors”, in *Sensors and Microsystems*, G. Neri, N. Donato, A. D’Amico, and C. Di Natale, Eds., Dordrecht, The Netherlands: Springer, 2011, pp. 259–263. DOI: 10.1007/978-94-007-1324-6\_40.

- [B.19] M. Ferri, D. Pinna, M. Grassi, E. Dallago, and P. Malcovati, “Power Management Systems for Photovoltaic Energy Harvesters”, in *Sensors and Microsystems*, G. Neri, N. Donato, A. D’Amico, and C. Di Natale, Eds., Dordrecht, The Netherlands: Springer, 2011, pp. 253–257. DOI: 10.1007/978-94-007-1324-6\_39.
- [B.20] F. Conso, M. Grassi, P. Malcovati, and A. Baschirotto, “A Very Large Dynamic Range Integrated Interface Circuit for Heterogeneous Resistive Gas Sensors Matrix Read-Out”, in *Sensors and Microsystems*, A. D’Amico, C. Di Natale, L. Mosiello, and G. Zappa, Eds., Dordrecht, The Netherlands: Springer, 2011, pp. 271–277. DOI: 10.1007/978-1-4614-0935-9\_46.
- [B.21] P. Malcovati, M. Grassi, and A. Baschirotto, “Interface Circuits for MEMS Microphones”, in *Nyquist A/D Converters, Sensor Interfaces, and Robustness*, A. van Roermund, A. Baschirotto, and M. Steyaert, Eds., New York, NY, USA: Springer, 2012, pp. 149–174. DOI: 10.1007/978-1-4614-4587-6\_9.
- [B.22] F. Conso, M. Grassi, L. Picolli, D. Cartasegna, A. Donida, G. Rescio, G. F. Regnicoli, G. Perretti, and P. Malcovati, “A Fully-Integrated Multi-Sensor System for Food Tracing and Quality Certification Providing Temperature, Light Intensity, and Humidity Exposure History of Samples”, in *Sensors*, F. Baldini, A. D’Amico, C. Di Natale, P. Siciliano, R. Seeber, L. De Stefano, R. Bizzarri, and B. Andò, Eds., New York, NY, USA: Springer, 2014, pp. 509–514. DOI: 10.1007/978-1-4614-3860-1\_91.
- [B.23] F. Conso, M. Grassi, A. Lombardi, P. Malcovati, and A. Baschirotto, “A Multiplexed 20-Channel 6-Decade Range Resistance-to-Digital Converter for 2D Heterogeneous Metal-Oxide Gas-Sensor Arrays”, in *Sensors*, F. Baldini, A. D’Amico, C. Di Natale, P. Siciliano, R. Seeber, L. De Stefano, R. Bizzarri, and B. Andò, Eds., New York, NY, USA: Springer, 2014, pp. 559–564. DOI: 10.1007/978-1-4614-3860-1\_99.
- [B.24] F. Conso, M. Grassi, C. De Berti, P. Malcovati, and A. Baschirotto, “Above 160-dB Dynamic-Range Gas-Sensor-Grid Front-End Integrated Circuit with 500 °C, 1.5 °C-Pitch Temperature Gradient Synthesis, 20-Channel MUX, and I<sup>2</sup>C Interface”, in *Sensors*, D. Compagnone, F. Baldini, C. Di Natale, G. Betta, and P. Siciliano, Eds., Cham, Switzerland: Springer, 2015, pp. 297–301. DOI: 10.1007/978-3-319-09617-9\_52.
- [B.25] M. Grassi, P. Malcovati, G. F. Regnicoli, and G. Perretti, “Application of an Integrated Multi-Sensor Circuit for Tracing Quality and Safety Storage Parameters of Sliced Cheese”, in *Sensors*, D. Compagnone, F. Baldini, C. Di Natale, G. Betta, and P. Siciliano, Eds., Cham, Switzerland: Springer, 2015, pp. 277–284. DOI: 10.1007/978-3-319-09617-9\_49.
- [B.26] P. Malcovati, M. De Matteis, A. Pezzotta, M. Grassi, M. Croce, M. Sabatini, and A. Baschirotto, “A Low-Power Continuous-Time Accelerometer Front-End”, in *Wideband Continuous-Time  $\Sigma\Delta$  ADCs, Automotive Electronics, and Power Management*, A. Baschirotto, P. Harpe, and K. A. A. Makinwa, Eds., Cham, Switzerland: Springer, 2016, pp. 215–235. DOI: 10.1007/978-3-319-41670-0\_12.

- [B.27] M. Elkhayat, S. Mangiarotti, M. Grassi, P. Malcovati, and A. Fornasari, “Capacitance Humidity Micro-Sensor with Temperature Controller and Heater Integrated in CMOS Technology”, in *Sensors*, B. Andò, F. Baldini, C. Di Natale, G. Marrazza, and P. Siciliano, Eds., Cham, Switzerland: Springer, 2017, pp. 383–387. DOI: 10.1007/978-3-319-55077-0\_48.
- [B.28] M. Grassi, F. Conso, G. Rocca, P. Malcovati, and A. Baschirotto, “Re-Configurable Switched Capacitor Sigma-Delta Modulator for MEMS Microphones in Mobiles”, in *Sensors and Microsystems*, A. Leone, A. Forleo, L. Francioso, S. Capone, P. Siciliano, and C. Di Natale, Eds., Cham, Switzerland: Springer, 2017, pp. 9–13. DOI: 10.1007/978-3-319-66802-4\_2.
- [B.29] L. Crespi, C. De Berti, B. Friend, P. Malcovati, and A. Baschirotto, “Low Power Microphone Front-Ends”, in *Low-Power Analog Techniques, Sensors for Mobile Devices, and Energy Efficient Amplifiers*, K. A. A. Makinwa, A. Baschirotto, and P. Harpe, Eds., Cham, Switzerland: Springer, 2019, pp. 353–380. DOI: 10.1007/978-3-319-97870-3\_17.
- [B.30] R. Di Lorenzo, M. Grassi, S. Assini, M. Granata, M. Barcella, and P. Malcovati, “Electrical Energy Harvesting from Pot Plants”, in *Sensors*, B. Andò, F. Baldini, C. D. Natale, V. Ferrari, V. Marletta, G. Marrazza, V. Militello, G. Miolo, M. Rossi, L. Scalise, and P. Siciliano, Eds., Cham, Switzerland: Springer, 2019, pp. 545–550. DOI: 10.1007/978-3-030-04324-7\_65.
- [B.31] M. Elkhayat, S. Mangiarotti, M. Grassi, and P. Malcovati, “Closed-Loop Temperature Control CMOS Integrated Circuit for Diagnostics and Self-calibration of Capacitive Humidity Sensors”, in *Sensors*, B. Andò, F. Baldini, C. D. Natale, V. Ferrari, V. Marletta, G. Marrazza, V. Militello, G. Miolo, M. Rossi, L. Scalise, and P. Siciliano, Eds., Cham, Switzerland: Springer, 2019, pp. 489–495. DOI: 10.1007/978-3-030-04324-7\_59.

## Conference Papers with Proceedings

- [C.1] C. Azeredo Leme, P. Malcovati, and H. Baltes, “Oversampled Interfaces for Microsensor Systems”, in *Proceedings of Mideuropean Custom Circuits Conference (CCC)*, Budapest, Hungary, May 1993, pp. 31–38.
- [C.2] P. Malcovati, C. Azeredo Leme, P. O’Leary, F. Maloberti, and H. Baltes, “Data Conversion and Programmable Calibration for Smart Sensors”, in *Proceedings of European Solid-State Circuit Conference (ESSCIRC)*, Sevilla, Spain, Sep. 1993, pp. 25–28.
- [C.3] P. Malcovati, C. Azeredo Leme, R. Lenggenhager, F. Maloberti, and H. Baltes, “Low Noise Multirate SC Read-Out Circuitry for Thermoelectric Integrated Infrared Sensors”, in *Proceedings of IEEE Instrumentation and Measurement Technology Conference (IMTC)*, Hamamatsu, Japan, May 1994, pp. 664–667. DOI: 10.1109/IMTC.1994.352011.
- [C.4] C. Azeredo Leme, P. Malcovati, and H. Baltes, “Oversampled Interface for IC Sensors”, in *Proceedings of IEEE Instrumentation and Measurement Technology Conference (IMTC)*, Hamamatsu, Japan, May 1994, pp. 652–655. DOI: 10.1109/IMTC.1994.352014.

- [C.5] C. Azeredo Leme, P. Malcovati, and H. Baltes, “An Oversampled Modulator for A/D Conversion with Minimized Analog Content”, in *Proceedings of IEEE International Symposium on Circuits and Systems (ISCAS)*, London, England, UK, May 1994, pp. 381–384. DOI: 10.1109/ISCAS.1994.409387.
- [C.6] P. Malcovati, C. Azeredo Leme, R. Castagnetti, F. Maloberti, and H. Baltes, “Switched Capacitor Dual-Collector Magnetotransistors”, in *Proceedings of IEEE International Symposium on Circuits and Systems (ISCAS)*, London, England, UK, May 1994, pp. 595–598. DOI: 10.1109/ISCAS.1994.409446.
- [C.7] C. Cornila, R. Lenggenhager, P. Malcovati, H. Baltes, A. Hierlemann, G. Noetzel, U. Weimar, and W. Göpel, “Capacitive Sensors in CMOS Technology with Polymer Coating”, in *Proceedings of International Meeting on Chemical Sensors (IMCS)*, Rome, Italy, May 1994, pp. 450–453.
- [C.8] P. Malcovati, U. Gatti, F. Maloberti, and H. Baltes, “Design of Analog Blocks for Low-Voltage Switched Systems”, in *Proceedings of IEEE Midwest Symposium on Circuits and Systems (MWSCAS)*, La Fayette, LA, USA, Aug. 1994, pp. 93–96. DOI: 10.1109/MWSCAS.1994.519198.
- [C.9] P. Malcovati, R. Castagnetti, F. Maloberti, and H. Baltes, “A Magnetic Sensor with Current Controlled Sensitivity and Resolution”, in *Euroensors Digest of Technical Papers*, Toulouse, France, Sep. 1994, pp. 284–288.
- [C.10] R. Lenggenhager, D. Jäggi, P. Malcovati, H. Duran, H. Baltes, and E. Doering, “CMOS Membrane Infrared Sensor and Improved TMAHW Etchant”, in *IEEE International Electron Device Meeting Technical Digest (IEDM)*, San Francisco, CA, USA, Dec. 1994, pp. 531–534. DOI: 10.1109/IEDM.1994.383352.
- [C.11] O. Paul, A. Häberli, P. Malcovati, and H. Baltes, “Novel Integrated Thermal Pressure Gauge and Read-Out Circuit by CMOS IC Technology”, in *IEEE International Electron Device Meeting Technical Digest (IEDM)*, San Francisco, CA, USA, Dec. 1994, pp. 131–134. DOI: 10.1109/IEDM.1994.383447.
- [C.12] A. Häberli, P. Malcovati, F. Maloberti, and H. Baltes, “An Incremental A/D Converter for Accurate Vector Probe Measurements”, in *Proceedings of IEEE International Symposium on Circuits and Systems (ISCAS)*, Seattle, WA, USA, May 1995, pp. 541–544. DOI: 10.1109/ISCAS.1995.521570.
- [C.13] A. Häberli, P. Malcovati, D. Jäggi, F. Maloberti, and H. Baltes, “High Dynamic Range Interface System for a Micromachined Integrated AC-Power Sensor”, in *Proceedings of IEEE International Symposium on Circuits and Systems (ISCAS)*, Seattle, WA, USA, May 1995, pp. 2241–2244. DOI: 10.1109/ISCAS.1995.523874.
- [C.14] G. Caiulo, P. Malcovati, C. Bona, and F. Maloberti, “Novel Circuit Solutions for Rail-to-Rail CMOS Buffer”, in *Proceedings of IEEE International Symposium on Circuits and Systems (ISCAS)*, Seattle, WA, USA, May 1995, pp. 1980–1983. DOI: 10.1109/ISCAS.1995.523809.
- [C.15] P. Malcovati, A. Häberli, F. Mayer, O. Paul, F. Maloberti, and H. Baltes, “Combined Air Humidity and Flow CMOS Microsensor with On-Chip 15-Bit Sigma-Delta A/D Interface”, in *IEEE VLSI Circuit Symposium Digest of Technical Papers (VLSI)*, Kyoto, Japan, Jun. 1995, pp. 45–46. DOI: 10.1109/VLSIC.1995.520681.

- [C.16] P. Malcovati, A. Häberli, D. Jäggi, F. Maloberti, and H. Baltes, “Oversampled A/D Interface Circuit for Integrated AC-Power Sensor”, in *IEEE Transducers Digest of Technical Papers*, Stockholm, Sweden, vol. 1, Jun. 1995, pp. 119–122. DOI: 10.1109/SENSOR.1995.717107.
- [C.17] A. Häberli, P. Malcovati, M. Schneider, R. Castagnetti, and H. Baltes, “Contactless Angle Measurement by CMOS Magnetic Sensor with On-Chip Read-Out Circuit”, in *IEEE Transducers Digest of Technical Papers*, Stockholm, Sweden, vol. 1, Jun. 1995, pp. 134–137. DOI: 10.1109/SENSOR.1995.717111.
- [C.18] J. F. Duque-Carrillo, P. Malcovati, F. Maloberti, R. Perez-Aloe, A. H. Reyes, E. Sanchez-Sinencio, G. Torelli, and J. M. Valverde, “Digitally-Programmable and Personalizable CMOS Hearing Aid Circuit”, in *Proceedings of European Solid-State Circuit Conference (ESSCIRC)*, Lille, France, Sep. 1995, pp. 154–157.
- [C.19] J. Korvink, A. Häberli, R. Castagnetti, P. Malcovati, and H. Baltes, “Optimization of a Novel Split Current Hall Device by Numeric Modeling”, in *Proceedings of European Solid-State Device Conference (ESSDERC)*, The Hague, The Netherlands, Sep. 1995, pp. 67–70.
- [C.20] C. Calligaro, R. Gastaldi, P. Malcovati, and G. Torelli, “Positive and Negative CMOS Voltage Multiplier for 5-V-Only Flash Memories”, in *Proceedings of IEEE Midwest Symposium on Circuits and Systems (MWSCAS)*, Rio de Janeiro, Brazil, Aug. 1995, pp. 294–297. DOI: 10.1109/MWSCAS.1995.504435.
- [C.21] C. Calligaro, P. Malcovati, and G. Torelli, “Voltage Multiplier with Output Stabilization”, in *Proceedings of IEEE Midwest Symposium on Circuits and Systems (MWSCAS)*, Rio de Janeiro, Brazil, Aug. 1995, pp. 905–908. DOI: 10.1109/MWSCAS.1995.510236.
- [C.22] D. Bolliger, P. Malcovati, A. Häberli, P. Sarro, F. Maloberti, and H. Baltes, “Integrated Ultraviolet Sensor System with On-Chip 1-G $\Omega$  Transimpedance Amplifier”, in *IEEE International Solid-State Circuit Conference Digest of Technical Papers (ISSCC)*, San Francisco, CA, USA, Feb. 1996, pp. 328–329. DOI: 10.1109/ISSCC.1996.488639.
- [C.23] A. Häberli, M. Schneider, P. Malcovati, R. Castagnetti, F. Maloberti, and H. Baltes, “2D Magnetic Microsensor with On-Chip Signal Processing for Contactless Angle Measurement”, in *IEEE International Solid-State Circuit Conference Digest of Technical Papers (ISSCC)*, San Francisco, CA, USA, Feb. 1996, pp. 332–333. DOI: 10.1109/ISSCC.1996.488641.
- [C.24] A. Häberli, O. Paul, P. Malcovati, M. Faccio, F. Maloberti, and H. Baltes, “CMOS Integration of a Thermal Pressure Sensor System”, in *Proceedings of IEEE International Symposium on Circuits and Systems (ISCAS)*, Atlanta, GA, USA, vol. 1, May 1996, pp. 377–380. DOI: 10.1109/ISCAS.1996.539908.
- [C.25] H. Baltes, A. Häberli, P. Malcovati, and F. Maloberti, “Smart Sensor Interfaces”, in *Proceedings of IEEE International Symposium on Circuits and Systems (ISCAS)*, Atlanta, GA, USA, vol. 4, May 1996, pp. 380–383. DOI: 10.1109/ISCAS.1996.541981.

- [C.26] M. Schneider, A. Häberli, M. Metz, P. Malcovati, and H. Baltes, “Temperature Calibration of CMOS Magnetic Vector Probe for Contactless Angle Measurement System”, in *IEEE International Electron Device Meeting Technical Digest (IEDM)*, San Francisco, CA, USA, Dec. 1996, pp. 533–536. DOI: 10.1109/IEDM.1996.554037.
- [C.27] H. Baltes, O. Paul, J. Korvink, M. Schneider, J. Bühler, N. Schneeberger, D. Jäggi, P. Malcovati, M. Hornung, A. Häberli, M. von Arx, and J. Funk, “IC MEMS Microtransducers”, in *IEEE International Electron Device Meeting Technical Digest (IEDM)*, San Francisco, CA, USA, Dec. 1996, pp. 521–524. DOI: 10.1109/IEDM.1996.553858.
- [C.28] V. Liberali, P. Malcovati, and F. Maloberti, “Sigma-Delta Modulation and Bit-Stream Processing for Sensor Interfaces”, in *Proceedings of Italian Conference on Sensors and Microsystems*, Rome, Italy, Feb. 1996, pp. 369–373.
- [C.29] P. Malcovati, F. Maloberti, A. Pesucci, and M. Poletti, “A 12-Bit A/D Interface for 3D Magnetic Sensor”, in *Proceedings of IEEE International Symposium on Circuits and Systems (ISCAS)*, Hong Kong, Jun. 1997, pp. 1–4. DOI: 10.1109/ISCAS.1997.608487.
- [C.30] S. Brigati, F. Francesconi, P. Malcovati, M. Poletti, and F. Maloberti, “Digital Synthesis of Analog Signals for Audiometric Applications”, in *Proceedings of IEEE International Symposium on Circuits and Systems (ISCAS)*, Hong Kong, Jun. 1997, pp. 2625–2628. DOI: 10.1109/ISCAS.1997.612863.
- [C.31] S. Brigati, F. Francesconi, V. Liberali, P. Malcovati, F. Maloberti, and M. Poletti, “Design Considerations on Very High Resolution Sigma-Delta Modulators”, in *Proceedings of IEEE Midwest Symposium on Circuits and Systems (MWSCAS)*, Sacramento, CA, USA, Aug. 1997, pp. 281–284. DOI: 10.1109/MWSCAS.1997.666089.
- [C.32] F. Maloberti, F. Francesconi, and P. Malcovati, “Progettazione di Convertitori A/D e D/A Sovracampionati a Bassa Tensione e Bassa Potenza”, in *Rendiconti Riunione Annuale AEI*, Baveno, Italy, Sep. 1997, pp. 143–149.
- [C.33] P. Bendiscioli, S. Brigati, F. Francesconi, P. Malcovati, F. Maloberti, and M. Poletti, “Design of a 20-Bit, 25-mW, Fourth-Order, Single-Loop Sigma-Delta Modulator”, in *Proceedings of IEEE International Conference on Electronics Circuits and Systems (ICECS)*, Cairo, Egypt, Dec. 1997, pp. 1454–1457.
- [C.34] S. Brigati, F. Francesconi, G. Grassi, D. Lissoni, P. Malcovati, A. Nobile, M. Poletti, and F. Maloberti, “An 0.8- $\mu$ m CMOS Mixed Analog-Digital Integrated Audiometric System”, in *IEEE International Solid-State Circuit Conference Digest of Technical Papers (ISSCC)*, San Francisco, CA, USA, Feb. 1998, pp. 116–117. DOI: 10.1109/ISSCC.1998.672397.
- [C.35] P. Bendiscioli, F. Francesconi, P. Malcovati, F. Maloberti, M. Poletti, and R. Valacca, “A CMOS Integrated Infrared Radiation Detector for Flame Monitoring”, in *Proceedings of IEEE International Symposium on Circuits and Systems (ISCAS)*, Monterey, CA, USA, May 1998, pp. 625–628. DOI: 10.1109/ISCAS.1998.705352.

- [C.36] S. Brigati, F. Francesconi, G. Grassi, P. Malcovati, M. Poletti, and F. Maloberti, “Generation of Analog Signals for Audiometric Tests”, in *Proceedings of World Multiconference on Systemics, Cybernetics and Informatics (SCI)*, Orlando, FL, USA, Jul. 1998, pp. 231–236.
- [C.37] P. Malcovati, F. Maloberti, and M. Terzani, “An High-Swing, 1.8-V, Push-Pull OPAMP for Sigma-Delta Modulators”, in *Proceedings of IEEE International Conference on Electronics Circuits and Systems (ICECS)*, Lisbon, Portugal, Sep. 1998, pp. 33–36. DOI: 10.1109/ICECS.1998.813265.
- [C.38] P. Malcovati, A. Pesucci, and F. Maloberti, “Magnetodosimetro Tridimensionale Integrato in Tecnologia CMOS”, in *Atti della Riunione Annuale GMEE*, Napoli, Italy, Sep. 1998, pp. 241–244.
- [C.39] F. Maloberti, S. Brigati, P. Malcovati, and P. Tronconi, “Sigma-Delta Architectures for Low-Voltage, Low-Power Applications”, in *Proceedings of International Workshop on Design of Mixed-Mode Integrated Circuits and Applications*, Guanajuato, Mexico, Jul. 1998, pp. 13–16.
- [C.40] F. Maloberti, V. Liberali, and P. Malcovati, “Signal Processing for Smart Sensors”, in *Proceedings of Brazilian Symposium on Integrated Circuit Design (SBCCI)*, Buzios, Brazil, Sep. 1998, pp. 141–148. DOI: 10.1109/SBCCI.1998.715428.
- [C.41] P. Malcovati and F. Maloberti, “A Fully Integrated CMOS Magnetic Current Monitor”, in *Proceedings of IEEE International Symposium on Circuits and Systems (ISCAS)*, Orlando, FL, USA, vol. 5, May 1999, pp. 128–131. DOI: 10.1109/ISCAS.1999.777527.
- [C.42] R. Boi, S. Brigati, F. Francesconi, C. Ghidini, P. Malcovati, F. Maloberti, and M. Poletti, “Switched-Capacitor Litton-Code Matched Filter for Satellite ODBH Bus”, in *Proceedings of IEEE International Symposium on Circuits and Systems (ISCAS)*, Orlando, FL, USA, vol. 2, May 1999, pp. 69–72. DOI: 10.1109/ISCAS.1999.780621.
- [C.43] S. Brigati, F. Francesconi, P. Malcovati, D. Tonietto, A. Baschiroto, and F. Maloberti, “Modeling Sigma-Delta Modulator Non-Idealities in SIMULINK”, in *Proceedings of IEEE International Symposium on Circuits and Systems (ISCAS)*, Orlando, FL, USA, vol. 2, May 1999, pp. 384–387. DOI: 10.1109/ISCAS.1999.780739.
- [C.44] P. Malcovati and F. Maloberti, “An Integrated Microsystem for 3D Magnetic Field Measurements”, in *Proceedings of IEEE Instrumentation and Measurement Technology Conference (IMTC)*, Venezia, Italy, May 1999, pp. 71–74. DOI: 10.1109/IMTC.1999.776722.
- [C.45] A. Daglio, P. Malcovati, and F. Maloberti, “A Multiplier-Free Digital RMS Calculation Unit for Integrated Microsystems”, in *Proceedings of International Workshop on Design of Mixed-Mode Integrated Circuits and Applications*, Puerto Vallarta, Mexico, Jul. 1999, pp. 183–186. DOI: 10.1109/MMICA.1999.833630.
- [C.46] S. Brigati, F. Francesconi, P. Malcovati, F. Maloberti, and M. Poletti, “A Fully Integrated BiCMOS AM/FM Car Active Antenna with On-Board Battery Voltage Regulator”, in *Proceedings of European Conference on Circuit Theory and Design (ECCTD)*, Stresa, Italy, Aug. 1999, pp. 17–20.



- [C.47] S. Brigati, F. Francesconi, P. Malcovati, and M. Poletti, “A CMOS Audio Power Amplifier Driving 8 V<sub>pp</sub> into a 7-Ω Resistive Load”, in *Proceedings of European Conference on Circuit Theory and Design (ECCTD)*, Stresa, Italy, Aug. 1999, pp. 169–172.
- [C.48] I. Grech, J. Micallef, C. J. Debono, P. Malcovati, and F. Maloberti, “A 1-V Second Order Sigma-Delta Modulator”, in *Proceedings of IEEE International Conference on Electronics Circuits and Systems (ICECS)*, Paphos, Cyprus, Sep. 1999, pp. 1511–1514. DOI: 10.1109/ICECS.1999.814457.
- [C.49] P. Malcovati and F. Maloberti, “Amperometro Integrato in Tecnologia CMOS Basato su Misura di Campo Magnetico”, in *Atti della Riunione Annuale GMEE*, Catania, Italy, Sep. 1999, pp. 149–150.
- [C.50] L. Foglia, C. Ghidini, N. Ratti, F. Maloberti, and P. Malcovati, “Mixed-Signal ASIC Design Methodology for Space Applications”, in *Proceedings of Data Systems in Aerospace Conference (DASIA)*, Lisbon, Portugal, May 1999, pp. 31–39.
- [C.51] D. Domanin, U. Gatti, P. Malcovati, and F. Maloberti, “A Multipath Polyphase Digital-to-Analog Converter for Software Radio Transmission Systems”, in *Proceedings of IEEE International Symposium on Circuits and Systems (ISCAS)*, Geneva, Switzerland, vol. 2, May 2000, pp. 361–364. DOI: 10.1109/ISCAS.2000.856336.
- [C.52] P. Malcovati, F. Maloberti, M. Pruzzi, and C. Fiocchi, “Curvature Compensated BiCMOS Bandgap with 1-V Supply Voltage”, in *Proceedings of European Solid-State Circuit Conference (ESSCIRC)*, Stockholm, Sweden, Sep. 2000, pp. 52–55.
- [C.53] S. Brigati, F. Francesconi, D. Fumagalli, G. Grassi, P. Malcovati, and M. Poletti, “A 147-dB Dynamic Range Electronic Attenuator for Audiometric Applications with On-Chip 1-W Power Amplifier”, in *Proceedings of European Solid-State Circuit Conference (ESSCIRC)*, Stockholm, Sweden, Sep. 2000, pp. 160–163.
- [C.54] R. Boi, S. Brigati, F. Francesconi, C. Ghidini, P. Malcovati, F. Maloberti, and M. Poletti, “A 0.8-μm SOI CMOS On-Board Data Handling Bus Modem for Satellite Applications”, in *Proceedings of European Solid-State Circuit Conference (ESSCIRC)*, Stockholm, Sweden, Sep. 2000, pp. 216–219.
- [C.55] S. Brigati, F. Francesconi, P. Malcovati, and F. Maloberti, “Modeling Band-Pass Sigma-Delta Modulators in Simulink”, in *Proceedings of International Workshop on ADC Modeling and Testing (IWADC)*, Vienna, Austria, Sep. 2000, pp. 73–78.
- [C.56] F. Maloberti, P. Estrada, P. Malcovati, and A. Valero, “Behavioral Modeling and Simulations of Data Converters”, in *Proceedings of International Workshop on ADC Modeling and Testing (IWADC)*, Vienna, Austria, Sep. 2000, pp. 229–236.
- [C.57] S. Brigati, F. Francesconi, P. Malcovati, and F. Maloberti, “Modellizzazione delle Non-Idealità dei Modulatori Sigma-Delta con SIMULINK”, in *Atti della Riunione Annuale GMEE*, Perugia, Italy, Sep. 2000, pp. 37–38.
- [C.58] P. Malcovati and F. Maloberti, “Optimization of the Integrator Output Swing in Low-Voltage Sigma-Delta Modulators”, in *Proceedings of IEEE International Symposium on Circuits and Systems (ISCAS)*, Sydney, NSW, Australia, vol. 1, May 2001, pp. 607–610. DOI: 10.1109/ISCAS.2001.921929.

- [C.59] S. Brigati, P. Colombara, L. D’Ascoli, U. Gatti, T. Kerekes, P. Malcovati, and A. Profumo, “A SiGe BiCMOS Burst-Mode 155-Mb/s Receiver for PON”, in *Proceedings of European Solid-State Circuit Conference (ESSCIRC)*, Villach, Austria, Sep. 2001, pp. 204–207.
- [C.60] F. Borghetti, P. Malcovati, and F. Maloberti, “A Current-Mode  $64 \times 1$  Programmable Gabor Filter for Early Vision Systems”, in *Proceedings of European Solid-State Circuit Conference (ESSCIRC)*, Villach, Austria, Sep. 2001, pp. 220–223.
- [C.61] F. Borghetti, P. Malcovati, and F. Maloberti, “Array di Sensori Ottici Integrati con Motore Percettivo Programmabile per Sistemi di Visione Artificiale”, in *Atti della Riunione Annuale GMEE*, Siena, Italy, Sep. 2001, pp. 168–169.
- [C.62] R. Sommer, I. Rugen-Herzig, E. Hennig, U. Gatti, P. Malcovati, F. Maloberti, K. Einwich, C. Clauss, P. Schwarz, and G. Noessing, “From System Specification to Layout: Seamless Top-Down Design Methods for Analog and Mixed-Signal Applications”, in *Proceedings of Design Automation and Test in Europe (DATE)*, Paris, France, Mar. 2002, pp. 884–891. DOI: 10.1109/DATE.2002.998405.
- [C.63] S. Brigati, F. Francesconi, P. Malcovati, and F. Maloberti, “A Fourth-Order Single-Bit Switched-Capacitor Sigma-Delta Modulator for Distributed Sensor Applications”, in *Proceedings of IEEE Instrumentation and Measurement Technology Conference (IMTC)*, Anchorage, AK, USA, vol. 1, May 2002, pp. 253–256. DOI: 10.1109/IMTC.2002.1006848.
- [C.64] A. Centuori, U. Gatti, P. Malcovati, and F. Maloberti, “A 320-MHz Four-Paths Bandpass Sigma-Delta Modulator”, in *Proceedings of IEEE Instrumentation and Measurement Technology Conference (IMTC)*, Anchorage, AK, USA, May 2002, pp. 497–500. DOI: 10.1109/IMTC.2002.1006892.
- [C.65] G. Bernardinis, P. Malcovati, F. Maloberti, and E. Soenen, “Dynamic Stage Matching for Parallel Pipeline A/D Converters”, in *Proceedings of IEEE International Symposium on Circuits and Systems (ISCAS)*, Phoenix, AZ, USA, vol. 1, May 2002, pp. 905–908. DOI: 10.1109/ISCAS.2002.1009988.
- [C.66] A. Fornasari, P. Malcovati, F. Maloberti, and F. Tsay, “A Technique for Offset and Gain Mismatch Cancellation in Quadrature A/D Converters”, in *Proceedings of IEEE International Symposium on Circuits and Systems (ISCAS)*, Phoenix, AZ, USA, vol. 2, May 2002, pp. 388–391. DOI: 10.1109/ISCAS.2002.1011006.
- [C.67] F. Borghetti, A. Esposito, U. Gatti, P. Malcovati, and F. Maloberti, “BiCMOS Switched Buffers Resonator for a 320 MHz 2-Path Sigma-Delta Modulator”, in *Proceedings of IEEE International Symposium on Circuits and Systems (ISCAS)*, Phoenix, AZ, USA, vol. 3, May 2002, pp. 297–300. DOI: 10.1109/ISCAS.2002.1010219.
- [C.68] G. Bernardinis, A. Centuori, U. Gatti, P. Malcovati, and F. Maloberti, “Band-Pass Sigma-Delta Modulator with 5-MHz Bandwidth and 80-MHz IF”, in *Proceedings of Advanced A/D and D/A Conversion Techniques and Their Application (ADDA)*, Prague, Czech Republic, Jun. 2002, pp. 15–18.
- [C.69] G. Bernardinis, P. Malcovati, and F. Maloberti, “Tecnica per la Riduzione Dinamica dei Mismatch in Convertitori A/D Pipeline Time-Interleaved”, in *Atti della Riunione Annuale GMEE*, Parma, Italy, Sep. 2002, pp. 278–286.

- [C.70] A. Fornasari, P. Malcovati, and F. Maloberti, “Tecnica per la Cancellazione dei Mismatch nei Convertitori A/D Pipeline per Segnali in Quadratura”, in *Atti della Riunione Annuale GMEE*, Parma, Italy, Sep. 2002, pp. 89–90.
- [C.71] S. Brigati, F. Francesconi, P. Malcovati, and F. Maloberti, “Modulatore Sigma-Delta del Quarto Ordine a Capacità Commutate per Sistemi di Sensori Distribuiti”, in *Atti della Riunione Annuale GMEE*, Parma, Italy, Sep. 2002, pp. 157–158.
- [C.72] V. Ferragina, A. Fornasari, U. Gatti, P. Malcovati, and F. Maloberti, “Gain and Offset Mismatch Calibration in Multi-Path Sigma-Delta Modulators”, in *Proceedings of IEEE International Symposium on Circuits and Systems (ISCAS)*, Bangkok, Thailand, vol. 1, May 2003, pp. 953–956. DOI: 10.1109/ISCAS.2003.1205723.
- [C.73] F. Borghetti, M. Gobbi, A. Fornasari, P. Malcovati, F. Maloberti, and M. Pagano, “A Particle Detector Fully-Programmable Interface Circuit for Satellite Applications”, in *Proceedings of IEEE International Symposium on Circuits and Systems (ISCAS)*, Bangkok, Thailand, vol. 3, May 2003, pp. 526–529. DOI: 10.1109/ISCAS.2003.1205072.
- [C.74] A. Fornasari, P. Malcovati, and F. Maloberti, “On-Line Calibration and Digital Correction of Multi-Bit Sigma-Delta Modulators”, in *Proceedings of International Workshop on ADC Modeling and Testing (IWADC)*, Perugia, Italy, Sep. 2003, pp. 49–52.
- [C.75] S. Marabelli, A. Fornasari, P. Malcovati, and F. Maloberti, “A 14-Bit Bandpass MASH Sigma-Delta Pipeline A/D Converter”, in *Proceedings of International Workshop on ADC Modeling and Testing (IWADC)*, Perugia, Italy, Sep. 2003, pp. 89–92.
- [C.76] F. Borghetti, A. Fornasari, P. Malcovati, and F. Maloberti, “Circuito di Interfaccia Programmabile per Rivelatori di Raggi  $\gamma$  Utilizzabile in Applicazioni Satellitari”, in *Atti della Riunione Annuale GMEE*, Cagliari, Italy, Sep. 2003, pp. 69–70.
- [C.77] V. Ferragina, A. Fornasari, P. Malcovati, and F. Maloberti, “Calibrazione delle Differenze di Offset e di Guadagno tra i Cammini di un Modulatore Sigma-Delta Parallelo”, in *Atti della Riunione Annuale GMEE*, Cagliari, Italy, Sep. 2003, pp. 139–140.
- [C.78] A. Baschiroto, E. Dallago, P. Malcovati, M. Marchesi, and G. Venchi, “Fluxgate Magnetic Sensor in PCB Technology”, in *Proceedings of IEEE Instrumentation and Measurement Technology Conference (IMTC)*, Como, Italy, May 2004, pp. 808–812. DOI: 10.1109/IMTC.2004.1351185.
- [C.79] F. Borghetti, L. Farina, P. Malcovati, and F. Maloberti, “A High Speed and Low Power CMOS Current Comparator for Photon Counting Systems”, in *Proceedings of IEEE International Symposium on Circuits and Systems (ISCAS)*, Vancouver, BC, Canada, vol. 1, May 2004, pp. 453–456. DOI: 10.1109/ISCAS.2004.1328229.

- [C.80] V. Ferragina, A. Fornasari, U. Gatti, P. Malcovati, F. Maloberti, and L. Monfasani, “Use of Dynamic Element Matching in a Multi-Path Sigma-Delta Modulator”, in *Proceedings of IEEE International Symposium on Circuits and Systems (ISCAS)*, Vancouver, BC, Canada, vol. 1, May 2004, pp. 649–652. DOI: 10.1109/ISCAS.2004.1328278.
- [C.81] A. Baschiroto, N. Ghittori, P. Malcovati, and A. Vigna, “Design Trade-Offs for a 10-Bit, 80-MHz Current Steering Digital-to-Analog Converter”, in *Proceedings of IEEE Northeast Workshop on Circuits and Systems (NEWCAS)*, Montreal, QC, Canada, Jun. 2004, pp. 249–252. DOI: 10.1109/NEWCAS.2004.1359078.
- [C.82] M. Grassi, P. Malcovati, and A. Baschiroto, “Front-End di Precisione ad Ampio Range Dinamico Ottimizzato per Sensori di Gas di Tipo Resistivo”, in *Atti della Riunione Annuale GMEE*, Crema, Italy, Sep. 2004, pp. 79–80.
- [C.83] F. Borghetti, L. Farina, P. Malcovati, and F. Maloberti, “Comparatore di Corrente CMOS ad Elevata Velocità per Sistemi di Conteggio di Fotoni”, in *Atti della Riunione Annuale GMEE*, Crema, Italy, Sep. 2004, pp. 69–70.
- [C.84] V. Ferragina, A. Fornasari, P. Malcovati, and F. Maloberti, “Uso del Dynamic Element Matching in un Modulatore Sigma-Delta Multi-Path”, in *Atti della Riunione Annuale GMEE*, Crema, Italy, Sep. 2004, pp. 121–122.
- [C.85] A. Baschiroto, E. Dallago, P. Malcovati, M. Marchesi, and G. Venchi, “Sensore Magnetico Fluxgate ad Alta Sensibilità per la Rilevazione del Campo Magnetico Terrestre”, in *Atti della Riunione Annuale GMEE*, Crema, Italy, Sep. 2004, pp. 302–309.
- [C.86] G. Bertuccio, F. Borghetti, F. Ferrari, P. Malcovati, N. Ratti, and A. Rossini, “Convertitore A/D di Tipo Wilkinson per Spettrometria a Raggi X in Applicazioni Spaziali”, in *Atti della Riunione Annuale GMEE*, Crema, Italy, Sep. 2004, pp. 67–68.
- [C.87] S. D’Amico, A. Baschiroto, A. Vigna, N. Ghittori, and P. Malcovati, “Low-Power Reconfigurable Baseband Block for UMTS/WLAN Transmitters”, in *Proceedings of IEEE Norchip Conference (NORCHIP)*, Oslo, Norway, Nov. 2004, pp. 103–106. DOI: 10.1109/NORCHIP.2004.1423833.
- [C.88] M. Grassi, P. Malcovati, and A. Baschiroto, “A High-Precision Wide-Range Front-End for Resistive Gas Sensor Arrays”, in *Euroensors Digest of Technical Papers*, Rome, Italy, Sep. 2004, pp. 409–410.
- [C.89] A. Baschiroto, E. Dallago, P. Malcovati, M. Marchesi, and G. Venchi, “Precise Vector-2D Magnetic Field Sensor System for Electronic Compass”, in *Proceedings of IEEE International Conference on Sensors*, Vienna, Austria, Oct. 2004, pp. 1028–1031. DOI: 10.1109/ICSENS.2004.1426349.
- [C.90] A. Fornasari, P. Malcovati, and F. Maloberti, “Improved Modeling of Sigma-Delta Modulator Non Idealities in SIMULINK”, in *Proceedings of IEEE International Symposium on Circuits and Systems (ISCAS)*, Kobe, Japan, May 2005, pp. 5982–5985. DOI: 10.1109/ISCAS.2005.1466002.
- [C.91] M. Grassi, P. Malcovati, and A. Baschiroto, “Flexible High-Accuracy Wide-Range Gas Sensor Interface for Portable Environmental Nosing Purpose”, in *Proceedings of IEEE International Symposium on Circuits and Systems (ISCAS)*, Kobe, Japan, May 2005, pp. 5385–5388. DOI: 10.1109/ISCAS.2005.1465853.

- [C.92] N. Ghittori, A. Vigna, P. Malcovati, S. D’Amico, and A. Baschirotto, “A Low-Distortion 1.2-V DAC+Filter for Transmitters in Wireless Applications”, in *Proceedings of IEEE International Symposium on Circuits and Systems (ISCAS)*, Kobe, Japan, May 2005, pp. 776–779. DOI: 10.1109/ISCAS.2005.1464703.
- [C.93] J. Hammel Nielsen, P. Andreani, P. Malcovati, and A. Baschirotto, “Technology Scaling Impact on Embedded ADC Design for Telecom Receivers”, in *Proceedings of IEEE International Symposium on Circuits and Systems (ISCAS)*, Kobe, Japan, May 2005, pp. 4614–4617. DOI: 10.1109/ISCAS.2005.1465660.
- [C.94] N. Ghittori, A. Vigna, P. Malcovati, S. D’Amico, and A. Baschirotto, “Behavioral Analysis and Dimensioning of UMTS Transmitters Baseband Blocks”, in *Proceedings of IEEE International Symposium on Circuits and Systems (ISCAS)*, Kobe, Japan, May 2005, pp. 388–391. DOI: 10.1109/ISCAS.2005.1464606.
- [C.95] V. Ferragina, P. Malcovati, F. Borghetti, A. Rossini, F. Ferrari, N. Ratti, and G. Bertuccio, “Implementation of a Novel Read-Out Strategy Based on a Wilkinson ADC for a  $16 \times 16$ -Pixel X-Ray Detector Array”, in *Proceedings of IEEE International Symposium on Circuits and Systems (ISCAS)*, Kobe, Japan, May 2005, pp. 5569–5572. DOI: 10.1109/ISCAS.2005.1465899.
- [C.96] A. Baschirotto, E. Dallago, P. Malcovati, M. Marchesi, and G. Venchi, “From a PCB Fluxgate to an Integrated Micro Fluxgate Magnetic Sensor”, in *Proceedings of IEEE Instrumentation and Measurement Technology Conference (IMTC)*, Ottawa, ON, Canada, vol. 3, May 2005, pp. 1756–1760. DOI: 10.1109/IMTC.2005.1604472.
- [C.97] P. Bastia, G. Bertuccio, F. Borghetti, S. Caccia, V. Ferragina, F. Ferrari, D. Maiocchi, P. Malcovati, D. Martin, A. Pullia, and N. Ratti, “An Integrated Reset/Pulse Pile-up Rejection Circuit for Pixel Read-Out ASIC’s”, in *IEEE Nuclear Science Symposium Conference Records (NSS)*, Rome, Italy, vol. 3, Oct. 2004, pp. 1415–1417. DOI: 10.1109/NSSMIC.2004.1462505.
- [C.98] C. Labanti, P. Malcovati, F. Borghetti, A. Fornasari, M. Marisaldi, A. Mauri, F. Perotti, and E. Rossi, “RUA: Read-Out Unit ASIC for  $\gamma$ -Ray Detector Read-Out”, in *IEEE Nuclear Science Symposium Conference Records (NSS)*, Rome, Italy, vol. 3, Oct. 2004, pp. 1360–1363. DOI: 10.1109/NSSMIC.2004.1462494.
- [C.99] A. Fornasari, F. Borghetti, P. Malcovati, and F. Maloberti, “On-Line Calibration and Digital Correction of Multi-Bit Sigma-Delta Modulators”, in *IEEE VLSI Circuit Symposium Digest of Technical Papers (VLSI)*, Kyoto, Japan, Jun. 2005, pp. 184–187. DOI: 10.1109/VLSIC.2005.1469363.
- [C.100] N. Ghittori, A. Vigna, P. Malcovati, S. D’Amico, and A. Baschirotto, “A Low-Power, Low-Voltage (11-mW/8.4-mW, 1.2-V) DAC+Filter for Multistandard (WLAN/UMTS) Transmitters”, in *IEEE VLSI Circuit Symposium Digest of Technical Papers (VLSI)*, Kyoto, Japan, Jun. 2005, pp. 334–337. DOI: 10.1109/VLSIC.2005.1469399.
- [C.101] V. Ferragina, A. Frassone, N. Ghittori, P. Malcovati, and A. Vigna, “Behavioral Study and Design of a Digital Interpolator Filter for Wireless Reconfigurable Transmitters”, in *Proceedings of SPIE VLSI Circuits and Systems II*, Sevilla, Spain, vol. 5837, Jun. 2005, pp. 270–277. DOI: 10.1117/12.608352.

- [C.102] F. Borghetti, C. Della Fiore, P. Malcovati, and F. Maloberti, “Synthesys of the Noise Transfer Function in N-Path Sigma Delta Modulators”, in *Proceedings of Advanced A/D and D/A Conversion Techniques and Their Application (ADDA)*, Limerick, Ireland, Jul. 2005, pp. 171–176. DOI: 10.1049/CP:20050152.
- [C.103] N. Ghittori, A. Vigna, P. Malcovati, S. D’Amico, and A. Baschirotto, “A Low-Voltage, Low-Distortion (1.2-V, 29.5-dBm OIP3) Reconfigurable Baseband Block for Mobile Applications”, in *Proceedings of IEEE Ph. D. Research in Microelectronics and Electronics (PRIME)*, Lausanne, Switzerland, vol. 1, Jul. 2005, pp. 25–28. DOI: 10.1109/RME.2005.1543000.
- [C.104] A. Fornasari, F. Borghetti, P. Malcovati, and F. Maloberti, “Calibrazione On-Line e Correzione Digitale di Modulatori Sigma-Delta Multi-Bit”, in *Atti della Riunione Annuale GMEE*, Palermo, Italy, Sep. 2005, pp. 167–168.
- [C.105] F. Borghetti, C. Della Fiore, P. Malcovati, and F. Maloberti, “Sintesi di Noise Transfer Function Arbitrarie in Modulatori Sigma-Delta Multicammino”, in *Atti della Riunione Annuale GMEE*, Palermo, Italy, Sep. 2005, pp. 149–150.
- [C.106] M. Grassi, P. Malcovati, and A. Baschirotto, “Circuito di Interfaccia Integrato per Schiere di Sensori di Gas Resistivi con 5.3 Decadi di Range Dinamico, 0.1% di Accuratezza e Uscita Digitale 13 + 4 Bit”, in *Atti della Riunione Annuale GMEE*, Palermo, Italy, Sep. 2005, pp. 115–116.
- [C.107] A. Rossini, I. Galdi, F. Borghetti, F. Fiabane, P. Malcovati, and F. Maloberti, “Modello Comportamentale di Sensori Magnetici per Simulazioni CAD”, in *Atti della Riunione Annuale GMEE*, Palermo, Italy, Sep. 2005, pp. 121–122.
- [C.108] V. Ferragina, F. Borghetti, and P. Malcovati, “Circuito di Interfaccia Analogico/Digitale per una Matrice  $16 \times 16$  di Rivelatori di Raggi X per Applicazioni Spaziali”, in *Atti della Riunione Annuale GMEE*, Palermo, Italy, Sep. 2005, pp. 109–110.
- [C.109] A. Cabrini, G. De Sandre, L. Gobbi, P. Malcovati, M. Pasotti, M. Poles, F. Rigoni, and G. Torelli, “A 1-V, 26- $\mu$ W Extended Temperature Range Bandgap Reference in 130-nm CMOS Technology”, in *Proceedings of European Solid-State Circuit Conference (ESSCIRC)*, Grenoble, France, Sep. 2005, pp. 503–506. DOI: 10.1109/ESSCIR.2005.1541670.
- [C.110] M. Grassi, P. Malcovati, and A. Baschirotto, “A 0.1% Accuracy  $100\text{-}\Omega \div 20\text{-M}\Omega$  Dynamic Range Integrated Gas Sensor Interface Circuit with 13 + 4-Bit Digital Output”, in *Proceedings of European Solid-State Circuit Conference (ESSCIRC)*, Grenoble, France, Sep. 2005, pp. 351–354. DOI: 10.1109/ESSCIR.2005.1541632.
- [C.111] A. Baschirotto, F. Borghetti, E. Dallago, P. Malcovati, M. Marchesi, E. Melissano, G. Venchi, and P. Siciliano, “Fluxgate Magnetic Sensor and Front-End Circuitry in a Micro-Integrated System”, in *Euroensors Digest of Technical Papers*, Barcelona, Spain, Sep. 2005, WPb44/1–4.
- [C.112] A. Rossini, F. Borghetti, P. Malcovati, and F. Maloberti, “Behavioral Model of Magnetic Sensors for SPICE Simulations”, in *Proceedings of IEEE International Conference on Electronics Circuits and Systems (ICECS)*, Gammarth, Tunisia, Dec. 2005, pp. 41–44. DOI: 10.1109/ICECS.2005.4633482.

- [C.113] F. Borghetti, A. Rossini, R. Magni, and P. Malcovati, “A Double Polarity CMOS Peak-and-Hold Circuit for Satellite Radiation Detection Systems”, in *Proceedings of IEEE International Conference on Electronics Circuits and Systems (ICECS)*, Gammarth, Tunisia, Dec. 2005, pp. 305–308. DOI: 10.1109/ICECS.2005.4633451.
- [C.114] N. Ghittori, A. Vigna, and P. Malcovati, “Analysis of the Ideal SFDR Limit for an N-bit Digital-to-Analog Converter”, in *Proceedings of IEEE International Conference on Electronics Circuits and Systems (ICECS)*, Gammarth, Tunisia, Dec. 2005, pp. 87–90. DOI: 10.1109/ICECS.2005.4633448.
- [C.115] N. Ghittori, A. Vigna, P. Malcovati, S. D’Amico, and A. Baschirotto, “Design of a Low-Power Variable Gain Amplifier for Reconfigurable Wireless Receivers”, in *Proceedings of IEEE International Conference on Electronics Circuits and Systems (ICECS)*, Gammarth, Tunisia, Dec. 2005, pp. 394–397. DOI: 10.1109/ICECS.2005.4633461.
- [C.116] P. Malcovati, M. Grassi, F. Borghetti, V. Ferragina, and A. Baschirotto, “Design and Characterization of a 5-Decade Range Integrated Resistive Gas Sensor Interface with 13-Bit A/D Converter”, in *Proceedings of IEEE International Conference on Sensors*, Irvine, CA, USA, Oct. 2005, pp. 472–475. DOI: 10.1109/ICSENS.2005.1597738.
- [C.117] N. Ghittori, A. Vigna, V. Ferragina, P. Malcovati, S. D’Amico, and A. Baschirotto, “Design of a Low-Power DAC System for WLAN 802.11 Wireless Transmitters”, in *Proceedings of International Symposium on Communications, Control and Signal Processing (ISCCSP)*, Marrakech, Morocco, Mar. 2006, COM8/1–4.
- [C.118] A. Vigna, N. Ghittori, P. Malcovati, S. D’Amico, and A. Baschirotto, “Low-Voltage Baseband Architectures for Multi-Standard Wireless Transmitters”, in *Proceedings of Wireless Reconfigurable Terminals and Platforms (WIRTEP)*, Rome, Italy, Apr. 2006, pp. 108–112.
- [C.119] N. Ghittori, A. Vigna, P. Malcovati, S. D’Amico, and A. Baschirotto, “Analog Baseband Channel for Reconfigurable Multistandard (GSM/UMTS/WLAN/Bluetooth) Receivers”, in *Proceedings of Wireless Reconfigurable Terminals and Platforms (WIRTEP)*, Rome, Italy, Apr. 2006, pp. 88–92.
- [C.120] V. Ferragina, P. Malcovati, N. Ratti, I. Cappelluti, and G. Bertuccio, “Implementation of the Digital Logic for Reading-Out a  $16 \times 16$ -Pixel X-Ray Detector Array”, in *Proceedings of IEEE Instrumentation and Measurement Technology Conference (IMTC)*, Sorrento, Italy, Apr. 2006, pp. 1263–1267. DOI: 10.1109/IMTC.2006.328491.
- [C.121] A. Baschirotto, E. Dallago, P. Malcovati, M. Marchesi, E. Melissano, P. Siciliano, and G. Venchi, “An Integrated Micro-Fluxgate Magnetic Sensor with Sputtered Ferromagnetic Core”, in *Proceedings of IEEE Instrumentation and Measurement Technology Conference (IMTC)*, Sorrento, Italy, Apr. 2006, pp. 2045–2049. DOI: 10.1109/IMTC.2006.328426.

- [C.122] M. Grassi, P. Malcovati, and A. Baschiroto, “Wide-Range Integrated Gas Sensor Interface Based on a Resistance-to-Number Converter Technique with the Oscillator Decoupled from the Input Device”, in *Proceedings of IEEE International Symposium on Circuits and Systems (ISCAS)*, Kos, Greece, May 2006, pp. 4395–4398. DOI: 10.1109/ISCAS.2006.1693603.
- [C.123] N. Ghittori, A. Vigna, P. Malcovati, S. D’Amico, and A. Baschiroto, “Analog Baseband Channel for GSM/UMTS/WLAN/Bluetooth Reconfigurable Multi-standard Terminals”, in *Proceedings of IEEE International Symposium on Circuits and Systems (ISCAS)*, Kos, Greece, May 2006, pp. 4301–4304. DOI: 10.1109/ISCAS.2006.1693580.
- [C.124] A. Baschiroto, F. Borghetti, E. Dallago, P. Malcovati, M. Marchesi, and G. Venchi, “A CMOS Front-End Circuit for Integrated Fluxgate Magnetic Sensors”, in *Proceedings of IEEE International Symposium on Circuits and Systems (ISCAS)*, Kos, Greece, May 2006, pp. 4403–4406. DOI: 10.1109/ISCAS.2006.1693605.
- [C.125] L. Picolli, F. Maloberti, A. Rossini, F. Borghetti, P. Malcovati, and A. Baschiroto, “A 10-Bit Pipeline A/D Converter without Timing Signals”, in *Proceedings of IEEE International Symposium on Circuits and Systems (ISCAS)*, Kos, Greece, May 2006, pp. 5355–5358. DOI: 10.1109/ISCAS.2006.1693843.
- [C.126] A. Rossini, A. Baschiroto, E. Dallago, P. Malcovati, M. Marchesi, and G. Venchi, “Multilayer PCB Planar Fluxgate Magnetic Sensor”, in *Proceedings of IEEE Ph. D. Research in Microelectronics and Electronics (PRIME)*, Otranto, Italy, Jun. 2006, pp. 413–416. DOI: 10.1109/RME.2006.1689982.
- [C.127] V. Giannini, J. Craninckx, B. Come, P. Malcovati, and A. Baschiroto, “1.5-GHz Fully Differential Latched Current Comparator with 20-nA of Sensitivity”, in *Proceedings of IEEE Ph. D. Research in Microelectronics and Electronics (PRIME)*, Otranto, Italy, Jun. 2006, pp. 181–184. DOI: 10.1109/RME.2006.1689926.
- [C.128] C. Della Fiore, F. Maloberti, and P. Malcovati, “Low-Power, Third-Order  $\Sigma\Delta$  Modulator with Cross-Coupled Paths for WCDMA Applications”, in *Proceedings of IEEE Ph. D. Research in Microelectronics and Electronics (PRIME)*, Otranto, Italy, Jun. 2006, pp. 133–136. DOI: 10.1109/RME.2006.1689914.
- [C.129] A. Baschiroto, S. Capone, A. De Marcellis, C. Di Natale, V. Ferragina, G. Ferri, L. Francioso, M. Grassi, P. Malcovati, E. Martinelli, P. Siciliano, V. Stornelli, and N. Guerrini, “A Portable Integrated Wide-Range Gas Sensing System with Smart A/D Front-End”, in *Proceedings of International Meeting on Chemical Sensors (IMCS)*, Brescia, Italy, Jul. 2006, WO2.4.4/1–2.
- [C.130] M. Grassi, A. Lombardi, P. Malcovati, and A. Baschiroto, “Circuito Integrato di Interfaccia a Basso Costo ed Ampio Range Dinamico per Sensori di Gas Resistivi con Uscita Digitale a 16 Bit”, in *Atti della Riunione Annuale GMEE*, L’Aquila, Italy, Sep. 2006, pp. 105–106.
- [C.131] A. Baschiroto, E. Dallago, P. Malcovati, A. Rossini, G. Venchi, M. Marchesi, E. Melissano, M. Morelli, and P. Siciliano, “Circuito Integrato di Interfaccia per la Eccitazione e la Lettura di Sensori Magnetici Micro-Fluxgate Bidimensionali”, in *Atti della Riunione Annuale GMEE*, L’Aquila, Italy, Sep. 2006, pp. 107–108.



- [C.132] L. Picolli, A. Rossini, P. Malcovati, F. Maloberti, and A. Baschirotto, “Convertitore A/D Pipeline senza Clock con 10 Bit di Risoluzione per Sensori Self-Triggered”, in *Atti della Riunione Annuale GMEE*, L’Aquila, Italy, Sep. 2006, pp. 161–162.
- [C.133] F. Borghetti, V. Ferragina, P. Malcovati, J. Hammel Nielsen, P. Andreani, and A. Baschirotto, “Convertitore A/D ad Approssimazioni Successive con 10 Bit di Risoluzione e Frequenza di Campionamento fino a 5.5 MS/s”, in *Atti della Riunione Annuale GMEE*, L’Aquila, Italy, Sep. 2006, pp. 159–160.
- [C.134] N. Ghittori, A. Vigna, P. Malcovati, S. D’Amico, and A. Baschirotto, “A 1.2-V, 600-MS/s, 2.4-mW DAC for WLAN 802.11 and 802.16 Wireless Transmitters”, in *Proceedings of European Solid-State Circuit Conference (ESSCIRC)*, Montreux, Switzerland, Sep. 2006, pp. 404–407. DOI: 10.1109/ESSCIR.2006.307616.
- [C.135] M. Grassi, P. Malcovati, and A. Baschirotto, “An Uncalibrated 141-dB Dynamic-Range CMOS Gas-Sensor Interface with 16-Bit Digital Output”, in *Proceedings of European Solid-State Circuit Conference (ESSCIRC)*, Montreux, Switzerland, Sep. 2006, pp. 235–238. DOI: 10.1109/ESSCIR.2006.307574.
- [C.136] L. Picolli, A. Rossini, P. Malcovati, F. Maloberti, and A. Baschirotto, “A Clock-Less 10-Bit Pipeline A/D Converter for Self-Triggered Sensors”, in *Proceedings of European Solid-State Circuit Conference (ESSCIRC)*, Montreux, Switzerland, Sep. 2006, pp. 384–387. DOI: 10.1109/ESSCIR.2006.307611.
- [C.137] F. Borghetti, V. Ferragina, P. Malcovati, J. Hammel Nielsen, P. Andreani, and A. Baschirotto, “A Programmable 10-b up-to-6-MS/s SAR-ADC Featuring Constant FoM with On-Chip Reference Voltage Buffers”, in *Proceedings of European Solid-State Circuit Conference (ESSCIRC)*, Montreux, Switzerland, Sep. 2006, pp. 500–503. DOI: 10.1109/ESSCIR.2006.307499.
- [C.138] A. Rossini, F. Borghetti, P. Malcovati, G. Bertuccio, N. Ratti, and I. Cappelletti, “Wilkinson A/D Converter for X-Ray Detectors for Space Applications”, in *Eurosenors Digest of Technical Papers*, Göteborg, Sweden, Sep. 2006, T1C–P12/12–.
- [C.139] A. Baschirotto, E. Dallago, P. Malcovati, A. Rossini, G. Venchi, M. Marchesi, E. Melissano, M. Morelli, and P. Siciliano, “Complete Excitation and Readout CMOS Integrated Circuit for 2D Micro-Fluxgate Magnetic Sensors”, in *Eurosenors Digest of Technical Papers*, Göteborg, Sweden, Sep. 2006, T3C–O4/14–.
- [C.140] P. Bastia, G. Bertuccio, F. Borghetti, S. Caccia, I. Cappelletti, P. Malcovati, and N. Ratti, “A Complete Read-Out ASIC for Use with Large Pixel X-Ray Detector Array”, in *Proceedings of Data Systems in Aerospace Conference (DASIA)*, Berlin, Germany, May 2006, ESA SP–630/15–.
- [C.141] A. Baschirotto, E. Dallago, V. Ferragina, M. Ferri, M. Grassi, P. Malcovati, M. Marchesi, E. Melissano, M. Morelli, A. Rossini, S. Ruzza, P. Siciliano, and G. Venchi, “A CMOS 2D Micro-Fluxgate Earth Magnetic Field Sensor with Digital Output”, in *IEEE International Solid-State Circuit Conference Digest of Technical Papers (ISSCC)*, San Francisco, CA, USA, Feb. 2007, pp. 390–391. DOI: 10.1109/ISSCC.2007.373458.

- [C.142] E. Bonizzoni, F. Borghetti, P. Malcovati, F. Maloberti, and B. Niessen, “A 200-mA 93% Peak Efficiency Single-Inductor Dual-Output DC-DC Buck Converter”, in *IEEE International Solid-State Circuit Conference Digest of Technical Papers (ISSCC)*, San Francisco, CA, USA, Feb. 2007, pp. 526–527. DOI: 10.1109/ISSCC.2007.373526.
- [C.143] A. Rossini, S. Caccia, G. Bertuccio, F. Borghetti, V. Ferragina, P. Malcovati, D. Martin, P. Bastia, I. Cappelluti, and N. Ratti, “A Complete Read-Out Chain for X-Ray Spectrometry”, in *IEEE Nuclear Science Symposium Conference Records (NSS)*, San Diego, CA, USA, Oct. 2006, pp. 1420–1424. DOI: 10.1109/NSSMIC.2006.354167.
- [C.144] S. Caccia, G. Bertuccio, D. Maiocchi, P. Malcovati, D. Martin, and N. Ratti, “A Mixed-Signal High Functionality CMOS Front-End for X-Ray Detectors”, in *IEEE Nuclear Science Symposium Book of Abstracts (NSS)*, San Diego, CA, USA, Oct. 2006, N17–2/12–.
- [C.145] F. Maloberti, M. Belloni, and P. Malcovati, “Incremental Sigma-Delta Modulators for 3D-Imaging: System Architecture and Signal Processing”, in *Proceedings of IEEE International Conference on Sensors*, Daegu, Korea, Oct. 2006, pp. 868–871. DOI: 10.1109/ICSENS.2007.355605.
- [C.146] M. Grassi, A. Lombardi, V. Ferragina, P. Malcovati, S. Capone, L. Francioso, P. Siciliano, and A. Baschiroto, “Gas-Sensor Interface Circuit Based on Calibration Free Novel Frequency Measurement Approach with 16-Bit Digital Output”, in *Proceedings of IEEE International Conference on Sensors*, Daegu, Korea, Oct. 2006, pp. 220–223. DOI: 10.1109/ICSENS.2007.355761.
- [C.147] V. Ferragina, M. Ferri, M. Grassi, A. Rossini, P. Malcovati, and A. Baschiroto, “A 12.4 ENOB Incremental A/D Converter for High-Linearity Sensors Read-Out Applications”, in *Proceedings of IEEE International Symposium on Circuits and Systems (ISCAS)*, New Orleans, LA, USA, May 2007, pp. 3582–3585. DOI: 10.1109/ISCAS.2007.378527.
- [C.148] A. Lombardi, E. Bonizzoni, P. Malcovati, and F. Maloberti, “A Low Power Sinc<sup>3</sup> Filter for  $\Sigma\Delta$  Modulators”, in *Proceedings of IEEE International Symposium on Circuits and Systems (ISCAS)*, New Orleans, LA, USA, May 2007, pp. 4008–4011. DOI: 10.1109/ISCAS.2007.378797.
- [C.149] M. Grassi, P. Malcovati, L. Francioso, P. Siciliano, and A. Baschiroto, “Integrated Interface Circuit with Multiplexed Input and Digital Output for a  $5 \times 5$  SnO<sub>2</sub> Gas-Sensor Matrix”, in *IEEE Transducers Digest of Technical Papers*, Lyon, France, vol. 2, Jun. 2007, pp. 2023–2026. DOI: 10.1109/SENSOR.2007.4300560.
- [C.150] A. Lombardi, P. Malcovati, A. Basto, E. Bonizzoni, and F. Maloberti, “An Optimized Two Stages Low Power Sinc<sup>3</sup> Filter for  $\Sigma\Delta$  Modulators”, in *Proceedings of IEEE Ph. D. Research in Microelectronics and Electronics (PRIME)*, Bordeaux, France, Jul. 2007, pp. 81–84. DOI: 10.1109/RME.2007.4401816.
- [C.151] A. Baschiroto, E. Dallago, M. Ferri, P. Malcovati, M. Marchesi, A. Rossini, and G. Venchi, “Sistema per la Misura del Campo Magnetico Terrestre Bastato su un Sensore Micro-Fluxgate CMOS con Uscita Digitale RS-232”, in *Atti della Riunione Annuale GMEE*, Torino, Italy, Sep. 2007, pp. 111–112.

- [C.152] M. Grassi, P. Malcovati, L. Francioso, P. Siciliano, and A. Baschirotto, “Caratterizzazione di una Matrice  $5 \times 5$  di Sensori di Gas  $\text{SnO}_2$  per Mezzo di un ASIC Dedicato con Moltiplicatore di Canale di Acquisizione”, in *Atti della Riunione Annuale GMEE*, Torino, Italy, Sep. 2007, pp. 117–118.
- [C.153] N. Ghittori, A. Vigna, P. Malcovati, S. D’Amico, and A. Baschirotto, “DAC per Trasmittitori WLAN IEEE 802.11 e IEEE 802.16 Funzionante a 600 MS/s con un Consumo di Potenza di 2.4 mW”, in *Atti della Riunione Annuale GMEE*, Torino, Italy, Sep. 2007, pp. 333–342.
- [C.154] A. Rossini, S. Caccia, G. Bertuccio, F. Borghetti, V. Ferragina, P. Malcovati, D. Martin, and N. Ratti, “Catena di Acquisizione Integrata CMOS per Spettrometria a Raggi X”, in *Atti della Riunione Annuale GMEE*, Torino, Italy, Sep. 2007, pp. 109–110.
- [C.155] S. D’Amico, M. De Matteis, A. Baschirotto, N. Ghittori, A. Vigna, and P. Malcovati, “A  $5\text{-nV}/\sqrt{\text{Hz}}$ -IRN, 78-dB Gain-Range, 78-dB DR Multi-Standard Baseband Chain for Bluetooth, UMTS and WLAN”, in *Proceedings of European Solid-State Circuit Conference (ESSCIRC)*, Munich, Germany, Sep. 2007, pp. 440–443. DOI: 10.1109/ESSCIRC.2007.4430337.
- [C.156] I. Galdi, E. Bonizzoni, F. Maloberti, G. Mangano, and P. Malcovati, “Two-Path Band-Pass  $\Sigma\Delta$  Modulator with 40-MHz IF 72-dB DR at 1-MHz Bandwidth Consuming 16 mW”, in *Proceedings of European Solid-State Circuit Conference (ESSCIRC)*, Munich, Germany, Sep. 2007, pp. 248–251. DOI: 10.1109/ESSCIRC.2007.4430290.
- [C.157] E. Dallago, M. Ferri, P. Malcovati, A. Rossini, G. Venchi, and A. Baschirotto, “A CMOS 2D Micro-Fluxgate Earth Magnetic Field Detecting System with RS-232 Digital Output”, in *Proceedings of IEEE International Conference on Sensors*, Atlanta, GA, USA, Oct. 2007, pp. 240–243. DOI: 10.1109/ICSENS.2007.4388381.
- [C.158] F. Gallazzi, G. Torelli, P. Malcovati, and V. Ferragina, “A Digital Multistandard Reconfigurable FIR Filter for Wireless Applications”, in *Proceedings of IEEE International Conference on Electronics Circuits and Systems (ICECS)*, Marrakech, Morocco, Dec. 2007, pp. 808–811. DOI: 10.1109/ICECS.2007.4511114.
- [C.159] A. Agnes, E. Bonizzoni, P. Malcovati, and F. Maloberti, “A 9.4-ENOB 1-V 3.8- $\mu\text{W}$  100-kS/s SAR ADC with Time-Domain Comparator”, in *IEEE International Solid-State Circuit Conference Digest of Technical Papers (ISSCC)*, San Francisco, CA, USA, Feb. 2008, pp. 246–347. DOI: 10.1109/ISSCC.2008.4523149.
- [C.160] M. Belloni, E. Bonizzoni, E. Kiseliovas, P. Malcovati, F. Maloberti, T. Peltola, and T. Teppo, “A 4-Output Single-Inductor DC-DC Buck Converter with Self-Boosted Switch Drivers and 1.2-A Total Output Current”, in *IEEE International Solid-State Circuit Conference Digest of Technical Papers (ISSCC)*, San Francisco, CA, USA, Feb. 2008, pp. 444–445. DOI: 10.1109/ISSCC.2008.4523248.
- [C.161] A. Lombardi, M. Grassi, L. Bruno, P. Malcovati, and A. Baschirotto, “An Interface Circuit for Temperature Control and Read-Out of Metal Oxide Gas Sensors”, in *Proceedings of IEEE Ph. D. Research in Microelectronics and Electronics (PRIME)*, Istanbul, Turkey, Jun. 2008, pp. 197–200. DOI: 10.1109/RME.2008.4595759.

- [C.162] M. Casubolo, M. Grassi, A. Lombardi, F. Maloberti, and P. Malcovati, “A Two-Bit-per-Cycle Successive-Approximation ADC with Background Offset Calibration”, in *Proceedings of IEEE International Conference on Electronics Circuits and Systems (ICECS)*, St. Julians, Malta, Sep. 2008, pp. 650–653. DOI: 10.1109/ICECS.2008.4674937.
- [C.163] L. Picolli, P. Malcovati, L. Crespi, F. Chaahoub, and A. Baschiroto, “Convertitore A/D Pipeline a 8 Bit con Frequenza di Campionamento di 120 MS/s o 250 MS/s in Tecnologia CMOS da 90 nm”, in *Atti della Riunione Annuale GMEE*, Roma, Italy, Sep. 2008, pp. 385–392.
- [C.164] M. Grassi, P. Malcovati, G. Rescio, C. Distante, A. Leone, G. Diraco, P. Siciliano, M. Malfatti, L. Gonzo, G. Potamianos, J. Huang, and V. Libal, “Sistema Hardware-Software per il Rilevamento Affidabile di Cadute di Persone Anziane in Ambiente Domestico”, in *Atti della Riunione Annuale GMEE*, Roma, Italy, Sep. 2008, pp. 87–88.
- [C.165] A. Lombardi, M. Grassi, L. Bruno, P. Malcovati, and A. Baschiroto, “Sistema Integrato per il Controllo di Temperatura e la Lettura di Sensori di Gas a Ossido Metallico”, in *Atti della Riunione Annuale GMEE*, Roma, Italy, Sep. 2008, pp. 89–90.
- [C.166] A. Lombardi, M. Grassi, L. Bruno, P. Malcovati, and A. Baschiroto, “A Fully Integrated Interface Circuit for 1.5 °C Accuracy Temperature Control and 130-dB Dynamic-Range Read-Out of MOX Gas Sensors”, in *Proceedings of European Solid-State Circuit Conference (ESSCIRC)*, Edinburgh, Scotland, UK, Sep. 2008, pp. 78–81. DOI: 10.1109/ESSCIRC.2008.4681796.
- [C.167] L. Picolli, P. Malcovati, L. Crespi, F. Chaahoub, and A. Baschiroto, “A 90-nm 8-b 120-MS/s ÷ 250-MS/s Pipeline ADC”, in *Proceedings of European Solid-State Circuit Conference (ESSCIRC)*, Edinburgh, Scotland, UK, Sep. 2008, pp. 266–269. DOI: 10.1109/ESSCIRC.2008.4681843.
- [C.168] A. Lombardi, L. Bruno, M. Grassi, P. Malcovati, S. Capone, L. Francioso, P. Siciliano, and A. Baschiroto, “Integrated Read-Out and Temperature Control Interface with Digital I/O for a Gas-Sensing System Based on a SnO<sub>2</sub> Microhotplate Thin Film Gas Sensor”, in *Proceedings of IEEE International Conference on Sensors*, Lecce, Italy, Oct. 2008, pp. 596–599. DOI: 10.1109/ICSENS.2008.4716510.
- [C.169] M. Grassi, A. Lombardi, G. Rescio, P. Malcovati, M. Malfatti, L. Gonzo, A. Leone, G. Diraco, C. Distante, P. Siciliano, V. Libal, J. Huang, and G. Potamianos, “A Hardware-Software Framework for High-Reliability People Fall Detection”, in *Proceedings of IEEE International Conference on Sensors*, Lecce, Italy, Oct. 2008, pp. 1328–1331. DOI: 10.1109/ICSENS.2008.4716690.
- [C.170] A. Leone, G. Diraco, C. Distante, P. Siciliano, M. Malfatti, L. Gonzo, M. Grassi, A. Lombardi, G. Rescio, P. Malcovati, V. Libal, J. Huang, and G. Potamianos, “A Multi-Sensor Approach for People Fall Detection in Home Environment”, in *Proceedings of Workshop on Multi-Camera and Multi-Modal Sensor Fusion Algorithms and Applications, European Conference on Computer Vision (M2SFA2-ECCV)*, Marseille, France, Oct. 2008, pp. 1–12.

- [C.171] L. Picolli, M. Grassi, L. Rosson, A. Fornasari, and P. Malcovati, “A Fourth-Order, Audio-Bandwidth, 87.5-dB SNDR  $\Sigma\Delta$  Modulator for MEMS Microphones”, in *Proceedings of IEEE International Symposium on Circuits and Systems (ISCAS)*, Taipei, Taiwan, May 2009, pp. 1325–1328. DOI: 10.1109/ISCAS.2009.5118008.
- [C.172] D. Cartasegna, A. Cito, F. Conso, A. Donida, M. Grassi, L. Malvasi, G. Rescio, and P. Malcovati, “Smart RFID Label for Monitoring the Preservation Conditions of Food”, in *Proceedings of IEEE International Symposium on Circuits and Systems (ISCAS)*, Taipei, Taiwan, May 2009, pp. 1161–1164. DOI: 10.1109/ISCAS.2009.5117967.
- [C.173] M. Ferri, D. Pinna, E. Dallago, and P. Malcovati, “A 0.35- $\mu\text{m}$  CMOS Solar Energy Scavenger with Power Storage Management System”, in *Proceedings of IEEE Ph. D. Research in Microelectronics and Electronics (PRIME)*, Cork, Ireland, Jul. 2009, pp. 88–91. DOI: 10.1109/RME.2009.5201369.
- [C.174] G. F. Regnicoli, G. Perretti, and P. Malcovati, “Innovative Systems for the Improvement of Food Quality and Safety”, in *Proceedings of International Multi-conference on Engineering and Technological Innovation (IMETI)*, Orlando, FL, USA, vol. 2, Jul. 2009, pp. 300–305.
- [C.175] P. Siciliano, A. Leone, G. Diraco, C. Distante, M. Malfatti, L. Gonzo, M. Grassi, A. Lombardi, G. Rescio, and P. Malcovati, “A Networked Multisensor System for Ambient Assisted Living Application”, in *Proceedings of IEEE International Workshop on Advances in Sensors and Interfaces (IWASI)*, Trani, Italy, Jun. 2009, pp. 139–143. DOI: 10.1109/IWASI.2009.5184784.
- [C.176] U. Weimar, R. Simpson, N. Barsan, T. Heine, W. Simmendinger, M. Malfatti, B. Margesin, L. Gonzo, M. Grassi, A. Lombardi, P. Malcovati, A. Leone, G. Diraco, P. Siciliano, O. von Sicard, R. Pohle, M. Fleischer, A. Redaelli, A. Giacosi, and C. Bonassi, “Microsystem Technology for Ambient Assisted Living (AAL)”, in *Euroensors Digest of Technical Papers*, Lausanne, Switzerland, vol. 1, Sep. 2009, pp. 710–713. DOI: 10.1016/J.PROCHE.2009.07.177.
- [C.177] L. Picolli, M. Grassi, L. Rosson, P. Malcovati, and A. Fornasari, “A 1.0-mW, 71-dB SNDR,  $-1.8\text{-dB}_{\text{FS}}$  Input Swing, Fourth-Order  $\Sigma\Delta$  Interface Circuit for MEMS Microphones”, in *Proceedings of European Solid-State Circuit Conference (ESSCIRC)*, Athens, Greece, Sep. 2009, pp. 324–327. DOI: 10.1109/ESSCIRC.2009.5325950.
- [C.178] M. Ferri, D. Pinna, E. Dallago, and P. Malcovati, “Microsistemi Integrati di Energy Scavenging Fotovoltaico”, in *Atti della Riunione Annuale GMEE*, Salerno, Italy, Sep. 2009, pp. 69–70.
- [C.179] D. Cartasegna, A. Cito, F. Conso, A. Donida, M. Grassi, L. Malvasi, G. Rescio, and P. Malcovati, “Etichetta RFID Intelligente Multi-Sensore per il Monitoraggio di Prodotti Alimentari”, in *Atti della Riunione Annuale GMEE*, Salerno, Italy, Sep. 2009, pp. 71–72.
- [C.180] L. Picolli, M. Grassi, L. Rosson, P. Malcovati, and A. Fornasari, “Circuito Integrato di Interfaccia per Microfoni MEMS Basato su un Modulatore Sigma-Delta del Quarto Ordine”, in *Atti della Riunione Annuale GMEE*, Salerno, Italy, Sep. 2009, pp. 151–152.

- [C.181] A. Lombardi, G. Rescio, M. Grassi, and P. Malcovati, “A Wearable Wireless Device for Fall Detection Based on a MEMS Accelerometer for Multi-Sensor Ambient Assisted Living Applications”, in *Proceedings of Forum Italiano Ambient Assisted Living Book of Abstracts (ForItAAL)*, Lecce, Italy, Sep. 2009, pp. 91–92.
- [C.182] M. Ferri, D. Pinna, P. Malcovati, E. Dallago, and G. Ricotti, “Integrated Stabilized Photovoltaic Energy Harvester”, in *Proceedings of IEEE International Conference on Electronics Circuits and Systems (ICECS)*, Hammamet, Tunisia, Dec. 2009, pp. 229–302. DOI: 10.1109/ICECS.2009.5410999.
- [C.183] M. Ferri, D. Pinna, E. Dallago, and P. Malcovati, “Integrated Micro-Solar Cell Structures for Harvesting Supplied Microsystems in 0.35- $\mu$ m CMOS Technology”, in *Proceedings of IEEE International Conference on Sensors*, Christchurch, New Zealand, Oct. 2009, pp. 542–545. DOI: 10.1109/ICSENS.2009.5398298.
- [C.184] M. Ferri, A. Surano, A. Rossini, P. Malcovati, E. Dallago, and A. Baschirotto, “Low-Voltage Fluxgate Magnetic Current Sensor Interface Circuit with Digital Output for Portable Applications”, in *Proceedings of IEEE International Conference on Sensors*, Christchurch, New Zealand, Oct. 2009, pp. 79–82. DOI: 10.1109/ICSENS.2009.5398520.
- [C.185] A. Lombardi, M. Ferri, G. Rescio, M. Grassi, and P. Malcovati, “Wearable Wireless Accelerometer with Embedded Fall-Detection Logic for Multi-Sensor Ambient Assisted Living Applications”, in *Proceedings of IEEE International Conference on Sensors*, Christchurch, New Zealand, Oct. 2009, pp. 1967–1970. DOI: 10.1109/ICSENS.2009.5398327.
- [C.186] M. Grassi, V. Ferragina, P. Malcovati, S. Caccia, G. Bertuccio, D. Martin, P. Bastia, I. Cappelluti, and N. Ratti, “A  $32 \times 32$ -Channels, 3-cm<sup>2</sup>, 555-mW Chip for X-Ray Pixel Detector Read-Out”, in *Proceedings of IEEE International Conference on Electronics Circuits and Systems (ICECS)*, Hammamet, Tunisia, Dec. 2009, pp. 227–230. DOI: 10.1109/ICECS.2009.5410981.
- [C.187] L. Picolli, L. Crespi, F. Chaahoub, P. Malcovati, and A. Baschirotto, “A 1.6-GHz, 54-dB Signal-to-Noise and Distortion Ratio Pipeline A/D Converter”, in *Proceedings of IEEE International Symposium on Circuits and Systems (ISCAS)*, Paris, France, May 2010, pp. 1735–1738. DOI: 10.1109/ISCAS.2010.5537541.
- [C.188] H. Caracciolo, E. Bonizzoni, P. Malcovati, and F. Maloberti, “Design of a 70-MHz IF 10-MHz Bandwidth Bandpass  $\Sigma\Delta$  Modulator for WCDMA Applications”, in *Proceedings of IEEE International Symposium on Circuits and Systems (ISCAS)*, Paris, France, May 2010, pp. 2406–2409. DOI: 10.1109/ISCAS.2010.5537169.
- [C.189] M. Grassi, A. Lombardi, G. Rescio, P. Malcovati, G. Diraco, A. Leone, P. Siciliano, M. Malfatti, and L. Gonzo, “A Wearable Wireless MEMS Accelerometer as Validating Device for 3D Camera Based People Fall Detector within Ambient Assisted Living Application Context”, in *Proceedings of MEMS in Italy Workshop (MEMSIT)*, Otranto, Italy, Jun. 2010, S10–1/12–.
- [C.190] M. Ferri, D. Pinna, E. Dallago, and P. Malcovati, “Photovoltaic Energy Harvester with Power Management System”, in *Proceedings of MEMS in Italy Workshop (MEMSIT)*, Otranto, Italy, Jun. 2010, S10–7/12–.

- [C.191] R. Campana, M. Feroci, A. Vacchi, C. Labanti, G. Zampa, E. Del Monte, Y. Evangelista, F. Muleri, L. Pacciani, A. Rubini, P. Soffitta, E. Costa, I. Donnarumma, F. Lazzarotto, M. Mastropietro, E. Morelli, M. Rapisarda, F. Fuschino, M. Marisaldi, V. Bonvicini, A. Rashevsky, N. Zampa, F. Perotti, L. Amati, F. Frontera, L. A. Antonelli, F. Fiore, G. L. Israel, F. Nicastro, M. Orlandini, G. Baldazzi, L. Picolli, M. Grassi, and P. Malcovati, “Concept for an Innovative Wide-Field Camera for X-Ray Astronomy”, in *Proceedings of SPIE Space Telescopes and Instrumentation*, San Diego, CA, USA, vol. 7732, Jul. 2010, pp. 77324L/1–8. DOI: 10.1117/12.857254.
- [C.192] G. Zampa, A. Vacchi, M. Feroci, C. Labanti, V. Bonvicini, A. Rashevsky, N. Zampa, R. Campana, E. Del Monte, Y. Evangelista, F. Muleri, L. Pacciani, A. Rubini, P. Soffitta, E. Costa, I. Donnarumma, F. Lazzarotto, M. Mastropietro, E. Morelli, M. Rapisarda, F. Fuschino, M. Marisaldi, G. Baldazzi, L. Picolli, M. Grassi, and P. Malcovati, “X-Ray Imaging and Spectroscopy Performance of a Large Area Silicon Drift Chamber for Wide-Field X-Ray Astronomy Applications”, in *Proceedings of SPIE Space Telescopes and Instrumentation*, San Diego, CA, USA, vol. 7732, Jul. 2010, pp. 77324M/1–8. DOI: 10.1117/12.857292.
- [C.193] M. Feroci, L. Stella, A. Vacchi, C. Labanti, M. Rapisarda, P. Attinà, T. Belloni, R. Campana, S. Campana, E. Costa, E. Del Monte, I. Donnarumma, Y. Evangelista, G. L. Israel, F. Muleri, P. Porta, A. Rashevsky, G. Zampa, N. Zampa, G. Baldazzi, G. Bertuccio, V. Bonvicini, E. Bozzo, L. Burderi, A. Corongiu, S. Covino, S. Dall’Osso, D. De Martino, S. Di Cosimo, G. Di Persio, T. Di Salvo, F. Fuschino, M. Grassi, F. Lazzarotto, P. Malcovati, M. Marisaldi, M. Mastropietro, S. Mereghetti, E. Morelli, M. Orio, A. Pellizzoni, L. Pacciani, A. Papitto, L. Picolli, A. Possenti, A. Rubini, P. Soffitta, R. Turolla, and L. Zampieri, “LOFT: A Large Observatory for X-Ray Timing”, in *Proceedings of SPIE Space Telescopes and Instrumentation*, San Diego, CA, USA, vol. 7732, Jul. 2010, pp. 77321V/1–14. DOI: 10.1117/12.857337.
- [C.194] L. Picolli, M. Grassi, and P. Malcovati, “Circuito Integrato di Read-Out a Basso Rumore con 32 Canali per Rivelatori di Raggi X a Deriva”, in *Atti della Riunione Annuale GMEE*, Gaeta, Italy, Sep. 2010, pp. 56–57.
- [C.195] M. Ferri, D. Pinna, M. Grassi, E. Dallago, and P. Malcovati, “Sistemi di Power Management per Energy Haversters Fotovoltaici”, in *Atti della Riunione Annuale GMEE*, Gaeta, Italy, Sep. 2010, pp. 58–59.
- [C.196] L. Picolli, L. Crespi, F. Chaahoub, P. Malcovati, and A. Baschiroto, “Convertitore A/D Pipeline con Frequenza di Campionamento di 1.6 GHz e Rapporto Segnale-Rumore e Distorsione di 54 dB”, in *Atti della Riunione Annuale GMEE*, Gaeta, Italy, Sep. 2010, pp. 138–139.
- [C.197] D. Cartasegna, P. Malcovati, L. Crespi, and A. Baschiroto, “Audio Class-D Amplifier Structures: A Design Methodology”, in *Proceedings of IEEEJ International Analog VLSI Workshop*, Pavia, Italy, Sep. 2010, pp. 53–58.
- [C.198] M. Ferri, D. Pinna, E. Dallago, and P. Malcovati, “A Stabilized Photovoltaic Energy Harvester for Discrete-Time-Regime Applications”, in *Proceedings of IEEEJ International Analog VLSI Workshop*, Pavia, Italy, Sep. 2010, pp. 173–176.

- [C.199] M. Ferri, D. Pinna, E. Dallago, P. Malcovati, and G. Ricotti, “Autonomous Temperature Sensor Based on a Photovoltaic Energy Harvesting System”, in *Proceedings of IEEJ International Analog VLSI Workshop*, Pavia, Italy, Sep. 2010, pp. 275–278.
- [C.200] M. Grassi, A. Lombardi, G. Rescio, P. Malcovati, A. Leone, G. Diraco, P. Siciliano, M. Malfatti, and L. Gonzo, “An Indoor 3D ToF Based People Fall-Detector Validated by a Wearable Wireless Accelerometer”, in *Proceedings of Forum Italiano Ambient Assisted Living Book of Abstracts (ForItAAL)*, Trento, Italy, Oct. 2010, pp. 98–99.
- [C.201] M. Grassi, A. Lombardi, G. Rescio, M. Ferri, P. Malcovati, A. Leone, G. Diraco, P. Siciliano, M. Malfatti, and L. Gonzo, “An Integrated System for People Fall-Detection with Data Fusion Capabilities Based on 3D ToF Camera and Wireless Accelerometer”, in *Proceedings of IEEE International Conference on Sensors*, Waikoloa, HI, USA, Oct. 2010, pp. 1016–1019. DOI: 10.1109/ICSENS.2010.5690746.
- [C.202] M. Ferri, D. Pinna, M. Grassi, E. Dallago, and P. Malcovati, “Model of Integrated Micro Photovoltaic Cell Structures for Harvesting Supplied Microsystems in 0.35- $\mu$ m CMOS Technology”, in *Proceedings of IEEE International Conference on Sensors*, Waikoloa, HI, USA, Oct. 2010, pp. 232–235. DOI: 10.1109/ICSENS.2010.5690466.
- [C.203] L. Picolli, S. Caccia, M. Grassi, P. Malcovati, and G. Bertuccio, “A 32-Channel ASIC for X-Ray Detectors”, in *Proceedings of IEEE International Conference on Electronics Circuits and Systems (ICECS)*, Athens, Greece, Dec. 2010, pp. 809–812. DOI: 10.1109/ICECS.2010.5724635.
- [C.204] P. Bastia, G. Bertuccio, S. Caccia, I. Cappelluti, M. Grassi, P. Malcovati, D. Martin, and N. Ratti, “STARX32: A Complete On-Chip X-Ray Spectroscopy Readout System with Imaging Capability”, in *Proceedings of International Workshop on Analogue and Mixed-Signal Integrated Circuits for Space Applications (AMICSA)*, Noordwijk, The Netherlands, Sep. 2010, pp. 44–51.
- [C.205] I. Donnarumma, R. Campana, L. Stella, G. L. Israel, M. Feroci, T. Belloni, S. Campana, E. Costa, E. Del Monte, Y. Evangelista, C. Labanti, F. Muleri, M. Rapisarda, A. Rashevsky, A. Vacchi, G. Zampa, N. Zampa, P. Attinà, G. Baldazzi, G. Bertuccio, V. Bonvicini, E. Bozzo, L. Burderi, A. Corongiu, S. Covino, S. Dall’Osso, D. De Martino, T. Di Salvo, F. Fuschino, M. Grassi, F. Lazzarotto, P. Malcovati, M. Marisaldi, S. Mereghetti, M. Orio, A. Pellizzoni, L. Pacciani, A. Papitto, L. Picolli, P. Porta, A. Possenti, P. Soffitta, R. Turolla, and L. Zampieri, “High Resolution X-ray Timing from a LOFT”, in *Proceedings of High Time Resolution Astrophysics (HTRA)*, Agios Nikolaos, Greece, May 2010, pp. 043/1–9. DOI: 10.22323/1.108.0043.
- [C.206] L. Amati, M. Feroci, F. Frontera, C. Labanti, A. Vacchi, A. Argan, R. Campana, E. Costa, R. Ruffini, I. Bombaci, E. Del Monte, I. Donnarumma, A. Drago, Y. Evangelista, R. Farinelli, G. Ghirlanda, G. Ghisellini, C. Guidorzi, F. Fuschino, F. Lazzarotto, D. Lazzati, P. Malcovati, M. Marisaldi, E. Morelli, F. Muleri, M. Orlandini, L. Pacciani, E. Pian, M. Rapisarda, A. Rubini, R. Salvaterra, P. Soffitta, L. Titarchuk, A. Traci, A. Rashevsky, G. Zampa, N. Zampa, N. Auricchio, A. Basili, E. Caroli, E. Maiorano, N. Masetti, L. Nicastro, E. Palazzi,



- S. Silvestri, J. B. Stephen, and J. Braga, “A Proposed Italian Contribution to the MIRAX Scientific Payload”, in *Proceedings of Workshop on Science with the New Generation of High Energy Gamma-Ray Experiments (SCINEGHE)*, Trieste, Italy, vol. 34, May 2011, pp. 49–55. DOI: 10.1393/NCC/I2011-10867-0.
- [C.207] F. Conso, M. Grassi, P. Malcovati, and A. Baschiroto, “A Very High Dynamic Range Interface Circuit for Resistive Gas Sensor Matrix Read-Out”, in *Proceedings of IEEE International Symposium on Circuits and Systems (ISCAS)*, Rio de Janeiro, Brazil, May 2011, pp. 2209–2212. DOI: 10.1109/ISCAS.2011.5938039.
- [C.208] G. Perretti, G. F. Regnicoli, M. Grassi, and P. Malcovati, “Study of an RFID Smart Label for Food Quality and Safety”, in *Proceedings of International Multi-conference on Engineering and Technological Innovation (IMETI)*, Orlando, FL, USA, Jul. 2011, pp. 1–5.
- [C.209] D. Cartasegna, P. Malcovati, L. Crespi, K. Lee, L. Murukutla, and A. Baschiroto, “An Audio 91-dB THD Third-Order Fully-Differential Class-D Amplifier”, in *Proceedings of European Solid-State Circuit Conference (ESSCIRC)*, Helsinki, Finland, Sep. 2011, pp. 91–94. DOI: 10.1109/ESSCIRC.2011.6044922.
- [C.210] S. Cliquennois, A. Donida, P. Malcovati, A. Baschiroto, and A. Nagari, “A 65-nm, 1-A Buck Converter with Multi-Function SAR-ADC-Based CCM/PSK Digital Control Loop”, in *Proceedings of European Solid-State Circuit Conference (ESSCIRC)*, Helsinki, Finland, Sep. 2011, pp. 427–430. DOI: 10.1109/ESSCIRC.2011.6044998.
- [C.211] F. Conso, E. Dallago, A. Danioni, M. Grassi, P. Malcovati, M. Marchesi, V. Nucita, and G. Venchi, “Circuito Integrato di Interfaccia CMOS a Cicli Multipli per Sistemi di Energy Harvesting Elettromagnetici”, in *Atti della Riunione Annuale GMEE*, Genova, Italy, Sep. 2011, pp. 105–106.
- [C.212] F. Conso, M. Grassi, P. Malcovati, and A. Baschiroto, “Circuito di Interfaccia Integrato ad Ampia Dinamica per la Lettura di Matrici Eterogenee di Sensori di Gas Resistivi”, in *Atti della Riunione Annuale GMEE*, Genova, Italy, Sep. 2011, pp. 107–108.
- [C.213] D. Cartasegna, P. Malcovati, L. Crespi, K. Lee, L. Murukutla, and A. Baschiroto, “Amplificatore Audio in Classe-D del Terzo Ordine Differenziale con  $-91$  dB di Distorsione Armonica”, in *Atti della Riunione Annuale GMEE*, Genova, Italy, Sep. 2011, pp. 163–164.
- [C.214] A. Lazzarini Barnabei, M. Grassi, D. Pinna, E. Dallago, P. Malcovati, and G. Ricotti, “Integrated Self-Supplied System for Environmental Temperature Sensing”, in *Proceedings of IEEE International Conference on Sensors*, Limerick, Ireland, Oct. 2011, pp. 1249–1252. DOI: 10.1109/ICSENS.2011.6127308.
- [C.215] D. Cartasegna, F. Conso, A. Donida, M. Grassi, L. Picolli, G. Rescio, P. Malcovati, G. Perretti, and G. F. Regnicoli, “Integrated Microsystem with Humidity, Temperature and Light Sensors for Monitoring the Preservation Conditions of Food”, in *Proceedings of IEEE International Conference on Sensors*, Limerick, Ireland, Oct. 2011, pp. 1859–1862. DOI: 10.1109/ICSENS.2011.6127283.

- [C.216] E. Dallago, A. Danioni, M. Grassi, P. Malcovati, M. Marchesi, and G. Venchi, “Multi-Cycle 0.35- $\mu\text{m}$  CMOS Integrated Electronic Interface Circuit for Energy Harvesting Systems”, in *Proceedings of IEEE International Conference on Sensors*, Limerick, Ireland, Oct. 2011, pp. 1901–1904. DOI: 10.1109/ICSENS.2011.6127398.
- [C.217] P. Malcovati, M. Belloni, F. Gozzini, C. Bazzani, and A. Baschiroto, “A 0.18- $\mu\text{m}$  CMOS, 91%-Efficiency, 0.1  $\div$  2-A Scalable Buck-Boost DC-DC Converter for LED Drivers”, in *IEEE International Solid-State Circuit Conference Digest of Technical Papers (ISSCC)*, San Francisco, CA, USA, Feb. 2012, pp. 280–281. DOI: 10.1109/ISSCC.2012.6177015.
- [C.218] C. Labanti, G. Baldazzi, P. Malcovati, G. Bertuccio, M. Feroci, G. Zampa, M. Grassi, L. Picolli, Y. Evangelista, F. Fuschino, M. Marisaldi, E. Morelli, R. Campana, E. Del Monte, L. Pacciani, F. Muleri, E. Costa, I. Donnarumma, F. Lazzarotto, M. Rapisarda, A. Rubini, P. Soffitta, N. Zampa, A. Rashevsky, A. Vacchi, S. Cappelli, F. Navarra, and P. Rossi, “Characterization of an ASIC Front-End Electronics Dedicated to the Silicon Drift Detectors”, in *IEEE Nuclear Science Symposium Conference Records (NSS)*, Valencia, Spain, Oct. 2011, pp. 648–652. DOI: 10.1109/NSSMIC.2011.6153984.
- [C.219] G. Diraco, A. Leone, P. Siciliano, M. Grassi, and P. Malcovati, “A Multi-Sensor System for Fall Detection in Ambient Assisted Living Contexts”, in *Proceedings of International Conference on Sensor Networks (SENSORNETS)*, Rome, Italy, Feb. 2012, pp. 213–219. DOI: 10.5220/0003834202130219.
- [C.220] F. Conso, M. Grassi, L. Picolli, D. Cartasegna, A. Donida, G. Rescio, G. F. Regnicoli, G. Perretti, and P. Malcovati, “Sistema Multi-Sensore Integrato di Umidità, Temperatura e Radiazione Luminosa per la Tracciabilità dei Prodotti Alimentari e la Certificazione di Qualità”, in *Atti della Riunione Annuale GMEE*, Monopoli, Italy, Sep. 2012, pp. 57–58.
- [C.221] P. Malcovati, M. Belloni, F. Gozzini, C. Bazzani, and A. Baschiroto, “Convertitore DC-DC Buck-Boost Integrato Scalabile per LED Driver”, in *Atti della Riunione Annuale GMEE*, Monopoli, Italy, Sep. 2012, pp. 137–138.
- [C.222] S. Cliquennois, A. Donida, P. Malcovati, A. Baschiroto, and A. Nagari, “Convertitore DC-DC Buck Integrato con Controllo Digitale Basato su un ADC SAR Multi-Funzione”, in *Atti della Riunione Annuale GMEE*, Monopoli, Italy, Sep. 2012, pp. 139–140.
- [C.223] M. Feroci et al., “LOFT: The Large Observatory for X-Ray Timing”, in *Proceedings of SPIE Space Telescopes and Instrumentation*, Amsterdam, The Netherlands, vol. 8443, Jul. 2012, pp. 84432D/1–16. DOI: 10.1117/12.926310.
- [C.224] S. Zane et al., “A Large Area Detector Proposed for the Large Observatory for X-Ray Timing (LOFT)”, in *Proceedings of SPIE Space Telescopes and Instrumentation*, Amsterdam, The Netherlands, vol. 8443, Jul. 2012, 84432F/1–15. DOI: 10.1117/12.925156.
- [C.225] M. Grassi, L. Picolli, F. Conso, P. Malcovati, G. F. Regnicoli, and G. Perretti, “Integrated Multi-Sensor Circuit for Environmental Data Tracing in Safe Food Storage and Delivery: The Sliced Emmental Cheese Case Study”, in *Proceedings of IEEE International Conference on Sensors*, Taipei, Taiwan, Oct. 2012, pp. 1886–1889. DOI: 10.1109/ICSENS.2012.6411316.

- [C.226] A. Lazzarini Barnabei, M. Grassi, E. Dallago, P. Malcovati, D. G. Finarelli, A. Liberale, and F. Quaglia, “A Wireless Irradiance-Temperature-Humidity Sensor for Photovoltaic Plant Monitoring Applications”, in *Proceedings of IEEE International Conference on Sensors*, Taipei, Taiwan, Oct. 2012, pp. 570–573. DOI: 10.1109/ICSENS.2012.6411267.
- [C.227] F. Conso, M. Grassi, P. Malcovati, and A. Baschirotto, “Reconfigurable Integrated Wide-Dynamic-Range Read-Out Circuit for MOX Gas-Sensor Grids Providing Local Temperature Regulation”, in *Proceedings of IEEE International Conference on Sensors*, Taipei, Taiwan, Oct. 2012, pp. 1822–1825. DOI: 10.1109/ICSENS.2012.6411195.
- [C.228] D. Cartasegna, P. Malcovati, L. Crespi, K. Lee, and A. Baschirotto, “Design of High-Order Class-D Audio Amplifiers”, in *Proceedings of International Conference on IC Design and Technology (ICICDT)*, Pavia, Italy, May 2013, pp. 151–154. DOI: 10.1109/ICICDT.2013.6563325.
- [C.229] F. Conso, M. Grassi, C. De Berti, P. Malcovati, and A. Baschirotto, “I<sup>2</sup>C System-on-Chip for Bi-Dimensional Gas-Sensor Arrays Providing Extended Dynamic-Range A/D Conversion and Row Temperature Regulation”, in *Proceedings of International Conference on IC Design and Technology (ICICDT)*, Pavia, Italy, May 2013, pp. 211–214. DOI: 10.1109/ICICDT.2013.6563339.
- [C.230] C. De Berti, P. Malcovati, L. Crespi, and A. Baschirotto, “A Low-Power, Continuous-Time Sigma-Delta Modulator for MEMS Microphones”, in *Proceedings of IEEE Ph. D. Research in Microelectronics and Electronics (PRIME)*, Villach, Austria, Jun. 2013, pp. 53–56. DOI: 10.1109/PRIME.2013.6603116.
- [C.231] A. Lazzarini Barnabei, E. Dallago, P. Malcovati, and A. Liberale, “An Improved Ultra-Low-Power Wireless Sensor-Station Supplied by a Photovoltaic Harvester”, in *Proceedings of IEEE Ph. D. Research in Microelectronics and Electronics (PRIME)*, Villach, Austria, Jun. 2013, pp. 205–208. DOI: 10.1109/PRIME.2013.6603155.
- [C.232] F. Conso, M. Grassi, C. De Berti, P. Malcovati, and A. Baschirotto, “Circuito Integrato Riconfigurabile con I<sup>2</sup>C per la Lettura di Matrici di Sensori di Gas Resistivi Eterogenei Dotato di Interfaccia Condivisa ad Ampio Range Dinamico e Sintesi Dinamica della Temperatura di Riga”, in *Atti della Riunione Annuale GMEE*, Trento, Italy, Sep. 2013, pp. 75–76.
- [C.233] D. Cartasegna, P. Malcovati, L. Crespi, and A. Baschirotto, “Amplificatore Audio in Classe-D con −92 dB di Distorsione Armonica Torale, 105 dB<sub>A</sub> di Range Dinamico in Tecnologia CMOS 0.18 μm”, in *Atti della Riunione Annuale GMEE*, Trento, Italy, Sep. 2013, pp. 141–142.
- [C.234] F. Conso, G. Rescio, M. Grassi, C. Ribellino, G. Billè, A. Rizzo, S. Petenyi, S. Privitera, and P. Malcovati, “Regolatore di Tensione Low-Drop-Out (LDO) con 7 ppm/°C di Stabilità in Temperatura e 5 mA di Corrente di Uscita in Tecnologia CMOS 0.25 μm”, in *Atti della Riunione Annuale GMEE*, Trento, Italy, Sep. 2013, pp. 143–144.
- [C.235] D. Cartasegna, P. Malcovati, L. Crespi, and A. Baschirotto, “A 0.18-μm CMOS, −92-dB THD, 105-dB<sub>A</sub> DR, Third-Order Audio Class-D Amplifier”, in *Proceedings of European Solid-State Circuit Conference (ESSCIRC)*, Bucharest, Romania, Sep. 2013, pp. 169–172. DOI: 10.1109/ESSCIRC.2013.6649099.

- [C.236] F. Conso, G. Rescio, M. Grassi, C. Ribellino, G. Billè, A. Rizzo, S. Petenyi, S. Privitera, and P. Malcovati, “A 0.25- $\mu\text{m}$  CMOS, 7-ppm/ $^{\circ}\text{C}$ , 8- $\mu\text{A}$  Quiescent Current,  $\pm 5\text{-mA}$  Output Current Low-Dropout Voltage Regulator”, in *Proceedings of European Solid-State Circuit Conference (ESSCIRC)*, Bucharest, Romania, Sep. 2013, pp. 97–100. DOI: 10.1109/ESSCIRC.2013.6649081.
- [C.237] F. Conso, M. Grassi, C. De Berti, P. Malcovati, and A. Baschiroto, “A 0.85%-Precision, 6-Decade-Range, I<sup>2</sup>C-Programmable Front-End ASIC for Resistive Gas-Sensor Arrays with 20-Input Analog MUX, Digital Output, and 1.5  $^{\circ}\text{C}$ -Accuracy Dynamic Temperature Synthesis”, in *Proceedings of IEEE International Conference on Sensors*, Baltimore, MD, USA, Nov. 2013, pp. 1–4. DOI: 10.1109/ICSENS.2013.6688250.
- [C.238] A. Donida, P. Malcovati, R. Cellier, A. Nagari, and A. Baschiroto, “A 40-nm CMOS, 1.1-V, 101-dB DR, 1.7-mW Continuous-Time  $\Sigma\Delta$  ADC for a Digital Closed-Loop Class-D Amplifier”, in *Proceedings of IEEE International Conference on Electronics Circuits and Systems (ICECS)*, Abu Dhabi, United Arab Emirates, Dec. 2013, pp. 437–440. DOI: 10.1109/ICECS.2013.6815448.
- [C.239] F. Fuschino, R. Campana, Y. Evangelista, M. Ahangarianabhari, L. Andreani, M. Grassi, G. Bertuccio, P. Malcovati, Y. Favre, M. Zuffa, G. Baldazzi, E. Del Monte, M. Feroci, C. Labanti, M. Marisaldi, F. Muleri, A. Rashevsky, I. Rashevskaya, A. Vacchi, G. Zampa, N. Zampa, C. Piemonte, G. Giacomini, A. Picciotto, and M. Boscardin, “Characterization of the VEGA ASIC Dedicated to Large Area Position-Sensitive SDDs for Space and Medical Applications”, in *IEEE Nuclear Science Symposium Conference Records (NSS)*, Seoul, Korea, Oct. 2013, pp. 1–5. DOI: 10.1109/NSSMIC.2013.6829435.
- [C.240] S. Zane et al., “The Large Area Detector of LOFT: The Large Observatory for X-Ray Timing”, in *Proceedings of SPIE Space Telescopes and Instrumentation*, Montreal, QC, Canada, vol. 9144, Jul. 2014, 91442W/1–19. DOI: 10.1117/12.2054654.
- [C.241] M. Feroci et al., “The Large Observatory for X-Ray Timing”, in *Proceedings of SPIE Space Telescopes and Instrumentation*, Montreal, QC, Canada, vol. 9144, Jul. 2014, 91442T/1–20. DOI: 10.1117/12.2055913.
- [C.242] M. Ahangarianabhari, G. Bertuccio, M. Grassi, D. Macera, and P. Malcovati, “ASIC VEGA – Catena di Lettura a Basso Consumo e Rumore per Schiere di Rivelatori di Raggi X Lineari a Deriva in Silicio ad Ampia Area: Progettazione e Risultati Sperimentali”, in *Atti della Riunione Annuale GMEE*, Ancona, Italy, Sep. 2014, pp. 127–128.
- [C.243] A. Donida, R. Cellier, A. Nagari, P. Malcovati, and A. Baschiroto, “Modulatore Sigma-Delta Tempo Continuo per Amplificatori Audio in Classe D Digitali in Anello Chiuso”, in *Atti della Riunione Annuale GMEE*, Ancona, Italy, Sep. 2014, pp. 129–130.
- [C.244] M. Grassi, G. F. Regnicoli, P. Malcovati, and G. Perretti, “Etichetta Integrata Multi-Sensore per la Tracciabilità di Prodotti Alimentari: Misura Congiunta dello Stato di Conservazione dei Campioni (Fette di Formaggio Emmentaler) e dei Parametri Ambientali”, in *Atti della Riunione Annuale GMEE*, Ancona, Italy, Sep. 2014, pp. 303–313.

- [C.245] A. D’Amico, A. Nagari, P. Malcovati, and A. Baschiroto, “An FSK Modulator at 23.2 MHz with  $\pm 0.95\%$  Accuracy for the USB Power Delivery Standard”, in *Proceedings of IEEE International Symposium on Circuits and Systems (ISCAS)*, Lisbon, Portugal, May 2015, pp. 2237–2240. DOI: 10.1109/ISCAS.2015.7169127.
- [C.246] D. Albano, M. Grassi, and P. Malcovati, “A Low Power 12-Bit ENOB SAR ADC for Silicon Drift X and Gamma Ray Detector Read-Out”, in *Proceedings of IEEE International Symposium on Circuits and Systems (ISCAS)*, Lisbon, Portugal, May 2015, pp. 297–300. DOI: 10.1109/ISCAS.2015.7168629.
- [C.247] C. De Berti, P. Malcovati, L. Crespi, and A. Baschiroto, “Colored Clock Jitter Model in Audio Continuous-Time  $\Sigma\Delta$  Modulators”, in *Proceedings of IEEE Northeast Workshop on Circuits and Systems (NEWCAS)*, Grenoble, France, Jun. 2015, 14B5/1–4. DOI: 10.1109/NEWCAS.2015.7182021.
- [C.248] M. Elkhayat, S. Mangiarotti, M. Grassi, P. Malcovati, and A. Fornasari, “Misure di Capacità e Controllo di Temperatura per un Sensore di Umidità Capacitivo con Riscaldatore Integrato in Tecnologia CMOS”, in *Atti della Riunione Annuale GMEE*, Lecco, Italy, Sep. 2015, pp. 53–54.
- [C.249] D. Albano, M. Grassi, and P. Malcovati, “Convertitore A/D ad Approssimazioni Successive a Basso Consumo per la Lettura di Rivelatori di Raggi X a Deriva in Silicio”, in *Atti della Riunione Annuale GMEE*, Lecco, Italy, Sep. 2015, pp. 111–112.
- [C.250] C. De Berti, P. Malcovati, L. Crespi, and A. Baschiroto, “Modulatore  $\Sigma\Delta$  Tempo-Continuo con 106.7 dB di Dynamic Range per Microfoni MEMS”, in *Atti della Riunione Annuale GMEE*, Lecce, Italy, Sep. 2015, pp. 129–130.
- [C.251] C. De Berti, P. Malcovati, L. Crespi, and A. Baschiroto, “A 106.7-dB DR, 390- $\mu$ W CT 3<sup>rd</sup>-Order  $\Sigma\Delta$  Modulator for MEMS Microphones”, in *Proceedings of European Solid-State Circuit Conference (ESSCIRC)*, Graz, Austria, Sep. 2015, pp. 209–212. DOI: 10.1109/ESSCIRC.2015.7313864.
- [C.252] L. Pancheri, M. A. Benkechache, R. Mendicino, H. Xu, G. F. Dalla Betta, G. Verzellesi, D. Comotti, L. Ratti, M. Grassi, L. Lodola, P. Malcovati, C. Vacchi, L. Fabris, M. Manghisoni, V. Re, G. Traversi, G. Batignani, S. Bettarini, G. Casarosa, F. Forti, A. Paladino, E. Paoloni, G. Rizzo, and F. Morsani, “PixFEL Project: Hybrid High Dynamic Range X-Ray Image Sensor for Application at Future FEL Facilities”, in *Proceedings of International Image Sensor Workshop (IISW)*, Vaals, The Netherlands, Jun. 2015, pp. 276–279.
- [C.253] M. De Matteis, A. Pezzotta, M. Sabatini, M. Grassi, M. Croce, P. Malcovati, and A. Baschiroto, “A 0.13- $\mu$ m-CMOS 90- $\mu$ W 51-dB-SNR Continuous-Time Accelerometer Front-End with 10-Bit SAR-ADC”, in *Proceedings of IEEE International Conference on Sensors*, Busan, Korea, Nov. 2015, pp. 1393–1396. DOI: 10.1109/ICSENS.2015.7370534.
- [C.254] M. Ahangarianabhari, G. Bertuccio, S. Caccia, M. Grassi, D. Macera, and P. Malcovati, “From StarX32 to VEGA: Low-Power and Low-Noise Mixed-Signal ASICs for X-Ray Detectors in Space and Medical Applications”, in *Proceedings of IEEE International Conference on Electronics Circuits and Systems (ICECS)*, Cairo, Egypt, Dec. 2015, pp. 388–391.

- [C.255] D. Comotti, L. Fabris, M. Grassi, L. Lodola, P. Malcovati, M. Manghisoni, L. Ratti, V. Re, G. Traversi, C. Vacchi, G. Batignani, S. Bettarini, G. Casarosa, F. Forti, F. Morsani, A. Paladino, E. Paoloni, G. Rizzo, M. A. Benkechkache, G. F. Dalla Betta, R. Mendicino, L. Pancheri, G. Verzellesi, and H. Xu, “Low-Noise Read-Out Channel with a Novel Dynamic Signal Compression for Future X-FEL Applications”, in *IEEE Nuclear Science Symposium Conference Records (NSS)*, Seattle, WA, USA, Nov. 2014, pp. 1–6. DOI: 10.1109/NSSMIC.2014.7431119.
- [C.256] L. Ratti, D. Comotti, L. Fabris, M. Grassi, L. Lodola, P. Malcovati, M. Manghisoni, V. Re, G. Traversi, C. Vacchi, G. Batignani, S. Bettarini, G. Casarosa, F. Forti, F. Morsani, A. Paladino, E. Paoloni, G. Rizzo, M. A. Benkechkache, G. F. Dalla Betta, R. Mendicino, L. Pancheri, G. Verzellesi, and H. Xu, “PixFEL: Enabling Technologies, Building Blocks and Architectures for Advanced X-Ray Pixel Cameras at the Next Generation FELs”, in *IEEE Nuclear Science Symposium Conference Records (NSS)*, Seattle, WA, USA, Nov. 2014, pp. 1–6. DOI: 10.1109/NSSMIC.2014.7431212.
- [C.257] G. F. Dalla Betta, G. Batignani, M. A. Benkechkache, S. Bettarini, G. Casarosa, D. Comotti, L. Fabris, F. Forti, M. Grassi, S. Latreche-Lassoued, L. Lodola, P. Malcovati, M. Manghisoni, R. Mendicino, F. Morsani, A. Paladino, L. Pancheri, E. Paoloni, L. Ratti, V. Re, G. Rizzo, G. Traversi, C. Vacchi, G. Verzellesi, and H. Xu, “Design and TCAD Simulations of Planar Active-Edge Pixel Sensors for Future XFEL Applications”, in *IEEE Nuclear Science Symposium Conference Records (NSS)*, Seattle, WA, USA, Nov. 2014, pp. 1–3. DOI: 10.1109/NSSMIC.2014.7431078.
- [C.258] M. Grassi, F. Conso, G. Rocca, P. Malcovati, and A. Baschiroto, “A Multi-Mode SC Audio  $\Sigma\Delta$  Modulator for MEMS Microphones with Reconfigurable Power Consumption, Noise-Shaping Order, and DR”, in *Proceedings of European Solid-State Circuit Conference (ESSCIRC)*, Lausanne, Switzerland, Sep. 2016, pp. 245–248. DOI: 10.1109/ESSCIRC.2016.7598288.
- [C.259] M. Grassi, F. Conso, G. Rocca, P. Malcovati, and A. Baschiroto, “Modulatore  $\Sigma\Delta$  Audio a Capacità Commutate Riconfigurabile per Microfoni MEMS”, in *Atti della Riunione Annuale GMEE*, Benevento, Italy, Sep. 2016, pp. 235–236.
- [C.260] M. Croce, M. Grassi, M. De Matteis, A. Pezzotta, M. Sabatini, A. Baschiroto, and P. Malcovati, “Circuito di Interfaccia Tempo-Continuo a Basso Consumo di Potenza per Accelerometri Capacitivi MEMS”, in *Atti della Riunione Annuale GMEE*, Benevento, Italy, Sep. 2016, pp. 237–238.
- [C.261] M. Elkhayat, S. Mangiarotti, M. Grassi, P. Malcovati, and A. Fornasari, “Sensore di Umidità Capacitivo con Controllo della Temperatura in Anello Chiuso e Riscaldatore Integrato in Tecnologia CMOS”, in *Atti della Riunione Annuale GMEE*, Benevento, Italy, Sep. 2016, pp. 241–242.
- [C.262] D. Comotti, L. Fabris, M. Grassi, L. Lodola, P. Malcovati, M. Manghisoni, L. Ratti, V. Re, G. Traversi, C. Vacchi, G. Batignani, S. Bettarini, G. Casarosa, F. Forti, F. Morsani, A. Paladino, E. Paoloni, G. Rizzo, M. A. Benkechkache, G. F. Dalla Betta, R. Mendicino, L. Pancheri, G. Verzellesi, and H. Xu, “A 10-Bit Resolution Read-Out Channel with Dynamic Range Compression for X-Ray Imaging at FELs”, in *IEEE Nuclear Science Symposium Conference Records*

- (*NSS*), San Diego, CA, USA, Nov. 2015, pp. 1–5. DOI: 10.1109/NSSMIC.2015.7581954.
- [C.263] M. Croce, C. De Berti, L. Crespi, P. Malcovati, and A. Baschirotto, “Cap-Less Audio Preamplifiers for Silicon Microphones”, in *Proceedings of IEEE International Conference on Sensors*, Orlando, FL, USA, Nov. 2016, pp. 943–945. DOI: 10.1109/ICSENS.2016.7808720.
- [C.264] L. Zou, M. D. Blasi, G. Rocca, M. Grassi, P. Malcovati, and A. Baschirotto, “Fully-Integrated Triple-Mode Sigma-Delta Modulator for Speech CODEC”, in *Proceedings of IEEE Nordic Circuits and Systems Conference (NORCAS)*, Copenhagen, Denmark, Nov. 2016, pp. 1–4. DOI: 10.1109/NORCHIP.2016.7792889.
- [C.265] M. Elkhayat, S. Mangiarotti, C. De Berti, M. Grassi, P. Malcovati, D. Albano, and A. Baschirotto, “Device Matching Measurements in 28-nm Technology for High Energy Physics Experiments”, in *Proceedings of IEEE International Conference on Electronics Circuits and Systems (ICECS)*, Monte Carlo, Monaco, Dec. 2016, pp. 13–16. DOI: 10.1109/ICECS.2016.7841120.
- [C.266] M. Feroci et al., “The LOFT Mission Concept: A Status Update”, in *Proceedings of SPIE Space Telescopes and Instrumentation*, Edinburgh, Scotland, UK, vol. 9905, Jun. 2016, 99051R/1–20. DOI: 10.1117/12.2233161.
- [C.267] L. Lodola, G. Batignani, S. Bettarini, G. Casarosa, L. Fabris, F. Forti, M. Giorgi, M. Grassi, P. Malcovati, M. Manghisoni, F. Morsani, A. Paladino, L. Pancheri, E. Paoloni, L. Ratti, V. Re, G. Rizzo, G. Traversi, C. Vacchi, G. F. Dalla Betta, and M. A. Benkechache, “PixFEL: Development of an X-Ray Diffraction Imager for Future FEL Applications”, in *Proceedings of International Workshop on Vertex Detectors (VERTEX)*, La Biodola, Isola d’Elba, Italy, Sep. 2016, pp. 065/1–8. DOI: 10.22323/1.287.0065.
- [C.268] L. Lodola, P. Malcovati, L. Ratti, and C. Vacchi, “A Time Interleaved, 10-Bit SAR ADC with Split Capacitor DAC for Diffraction Imaging at X-Ray FELs”, in *IEEE Nuclear Science Symposium Conference Records (NSS)*, Strasbourg, France, Nov. 2016, pp. 1–5. DOI: 10.1109/NSSMIC.2016.8069735.
- [C.269] L. Ratti, D. Comotti, L. Fabris, M. Grassi, L. Lodola, P. Malcovati, M. Manghisoni, V. Re, G. Traversi, C. Vacchi, G. Batignani, S. Bettarini, G. Casarosa, F. Forti, F. Morsani, A. Paladino, E. Paoloni, G. Rizzo, M. A. Benkechache, G. F. Dalla Betta, R. Mendicino, L. Pancheri, G. Verzellesi, and H. Xu, “PFM2: A  $32 \times 32$  Readout Chip for the PixFEL X-Ray Imager Demonstrator”, in *IEEE Nuclear Science Symposium Conference Records (NSS)*, Strasbourg, France, Nov. 2016, pp. 1–5. DOI: 10.1109/NSSMIC.2016.8069724.
- [C.270] M. Elkhayat, M. Grassi, P. Malcovati, and A. Baschirotto, “A Low Power 14-Bit 1-MS/s Extended-Range Incremental ADC for High Energy Physics Experiments in 28-nm Technology”, in *Proceedings of IEEE Ph. D. Research in Microelectronics and Electronics (PRIME)*, Giardini Naxos, Taormina, Italy, Jun. 2017, pp. 109–112. DOI: 10.1109/PRIME.2017.7974119.
- [C.271] M. Croce, C. De Berti, L. Crespi, P. Malcovati, and A. Baschirotto, “MEMS Microphone Fully-Integrated CMOS Cap-Less Preamplifiers”, in *Proceedings of IEEE Ph. D. Research in Microelectronics and Electronics (PRIME)*, Giardini Naxos, Taormina, Italy, Jun. 2017, pp. 37–40. DOI: 10.1109/PRIME.2017.7974101.

- [C.272] S. Merlo, P. Malcovati, M. Norgia, A. Pesatori, C. Svelto, A. Pnirov, A. Zhirnov, E. Nesterov, and V. Karassik, “Runways Ground Monitoring System by Phase-Sensitive Optical-Fiber OTDR”, in *Proceedings of IEEE International Workshop on Metrology for Aerospace (MAS)*, Padova, Italy, Jun. 2017, pp. 502–508.
- [C.273] L. Lodola, L. Ratti, D. Comotti, L. Fabris, M. Grassi, P. Malcovati, M. Manghisoni, V. Re, G. Traversi, C. Vacchi, G. Batignani, S. Bettarini, F. Forti, G. Casarosa, F. Morsani, A. Paladino, E. Paoloni, G. Rizzo, M. A. Benkechkache, G. F. Dalla Betta, R. Mendicino, L. Pancheri, G. Verzellesi, and H. Xu, “A Pixelated X-Ray Detector for Diffraction Imaging at Next-Generation High-Rate FEL Sources”, in *Proceedings of SPIE Hard X-Ray, Gamma-Ray, and Neutron Detector Physics*, San Diego, CA, USA, vol. 10392, Aug. 2017, pp. 103920D/1–11. DOI: 10.1117/12.2276966.
- [C.274] R. Di Lorenzo, M. Grassi, S. Assini, M. Granata, M. Barcella, and P. Malcovati, “Recupero di Energia Elettrica da Piante in Vaso”, in *Atti della Riunione Annuale GMEE*, Modena, Italy, Sep. 2017.
- [C.275] M. Croce, C. De Berti, L. Crespi, M. Grassi, P. Malcovati, and A. Baschirotto, “Preamplificatori Cap-Less CMOS Interamente Integrati per Microfoni MEMS”, in *Atti della Riunione Annuale GMEE*, Modena, Italy, Sep. 2017.
- [C.276] M. Elkhayat, S. Mangiarotti, D. Albano, C. De Berti, M. Grassi, P. Malcovati, and A. Baschirotto, “Misure di Matching di Condensatori Integrati in Tecnologia CMOS 28 nm per Esperimenti di Fisica delle Alte Energie”, in *Atti della Riunione Annuale GMEE*, Modena, Italy, Sep. 2017.
- [C.277] D. Allegri, A. Donida, P. Malcovati, and D. Barrettino, “CMOS-Based Multifrequency Impedance Analyzer for Biomedical Applications”, in *Proceedings of IEEE International Symposium on Circuits and Systems (ISCAS)*, Florence, Italy, May 2018, pp. 1–5. DOI: 10.1109/ISCAS.2018.8351287.
- [C.278] M. Feroci et al., “The Large Area Detector Onboard the eXTP Mission”, in *Proceedings of SPIE Space Telescopes and Instrumentation*, Austin, TX, USA, vol. 10699, Jul. 2018, pp. 106991C/1–15. DOI: 10.1117/12.2312466.
- [C.279] M. Elkhayat, M. Grassi, P. Malcovati, and A. Baschirotto, “ADC Incrementale a Due Stadi a 14 Bit in Tecnologia CMOS 28 nm per Sistemi Multi-Sensore”, in *Atti della Riunione Annuale GMEE*, Padova, Italy, Sep. 2018, pp. 365–366.
- [C.280] A. Liberale, M. Elkhayat, M. Grassi, and P. Malcovati, “Sistema di Pilotaggio in Anello Chiuso per Trasduttori Ultrasonici in Vasche di Pulitura”, in *Atti della Riunione Annuale GMEE*, Padova, Italy, Sep. 2018, pp. 255–256.
- [C.281] L. Ratti, D. Comotti, L. Fabris, M. Grassi, L. Lodola, P. Malcovati, M. Manghisoni, V. Re, G. Traversi, C. Vacchi, G. Batignani, S. Bettarini, G. Casarosa, F. Forti, F. Morsani, A. Paladino, E. Paoloni, G. Rizzo, M. A. Benkechkache, G. F. Dalla Betta, R. Mendicino, L. Pancheri, G. Verzellesi, and H. Xu, “The PixFEL Front-End for X-Ray Imaging in the Radiation Environment of Next Generation FELs”, in *IEEE Nuclear Science Symposium Conference Records (NSS)*, Atlanta, GA, USA, Oct. 2017, pp. 1–4. DOI: 10.1109/NSSMIC.2017.8533009.



## Patents

- [P.1] C. Calligaro, R. Gastaldi, P. Malcovati, and G. Torelli, “Voltage Generator Circuit Providing Potentials of Opposite Polarity”, pat. US 5546044, Aug. 1996.
- [P.2] D. Bolliger, P. Malcovati, and P. Sarro, “UV Radiation Detector”, pat. WO 9729517, Aug. 1997.
- [P.3] C. Calligaro, P. Malcovati, and G. Torelli, “Voltage Step-Up Circuit with Output Voltage Regulation”, pat. US 5777460, Jul. 1998.
- [P.4] U. Gatti, P. Malcovati, and F. Maloberti, “Bipolar Junction Transistor Charge Transfer Network”, pat. EP 1246199, Sep. 2002.
- [P.5] U. Gatti, P. Malcovati, V. Ferragina, and A. Fornasari, “Voltage Offset Compensation Method for Time Interleaved Multi-Path Analog-to-Digital Sigma-Delta Converters and Respective Circuit”, pat. EP 1401105, Jun. 2007.
- [P.6] M. Belloni, P. Malcovati, A. Baschirotto, and C. Bazzani, “Scalable Buck-Boost DC-DC Converter”, pat. US 8872487, Oct. 2014.
- [P.7] M. H. Freeman, J. Weaver, M. C. Freeman, R. Dieter, G. Noufer, R. Sandusky, J. Sesters, N. E. Farooqi, J. Devoy, J. Cormier, S. Jaeckel, A. Baschirotto, and P. Malcovati, “Electrical Circuit for Delivering Power to Consumer Electronic Devices”, pat. US 9312776, Apr. 2016.
- [P.8] M. H. Freeman, J. Weaver, M. C. Freeman, R. Dieter, G. Noufer, R. Sandusky, J. Sesters, N. E. Farooqi, J. Devoy, J. Cormier, S. Jaeckel, A. Baschirotto, and P. Malcovati, “Electrical Circuit for Delivering Power to Consumer Electronic Devices”, pat. US 9431914, Aug. 2016.
- [P.9] M. H. Freeman, J. Weaver, M. C. Freeman, R. Dieter, A. Baschirotto, P. Malcovati, M. Grassi, G. Noufer, R. Sandusky, N. E. Farooqi, J. Devoy, S. Jaeckel, and M. H. Y. Freeman, “Electrical Circuit for Delivering Power to Consumer Electronic Devices”, pat. US 9602016, Mar. 2017.
- [P.10] M. H. Freeman, J. Weaver, M. C. Freeman, R. Dieter, A. Baschirotto, P. Malcovati, M. Grassi, G. Noufer, R. Sandusky, N. E. Farooqi, J. Devoy, S. Jaeckel, and M. H. Y. Freeman, “Electrical Circuit for Delivering Power to Consumer Electronic Devices”, pat. US 9673717, Jun. 2017.
- [P.11] M. H. Freeman, J. Weaver, M. C. Freeman, R. Dieter, A. Baschirotto, P. Malcovati, M. Grassi, G. Noufer, R. Sandusky, N. E. Farooqi, J. Devoy, S. Jaeckel, and M. H. Y. Freeman, “Electrical Circuit for Delivering Power to Consumer Electronic Devices”, pat. US 9748852, Aug. 2017.
- [P.12] M. H. Freeman, J. Weaver, M. C. Freeman, R. Dieter, A. Baschirotto, P. Malcovati, M. Grassi, G. Noufer, R. Sandusky, N. E. Farooqi, J. Devoy, S. Jaeckel, and M. H. Y. Freeman, “Electrical Circuit for Delivering Power to Consumer Electronic Devices”, pat. US 9762132, Sep. 2017.
- [P.13] M. H. Freeman, J. Weaver, M. C. Freeman, R. Dieter, G. Noufer, R. Sandusky, J. Sesters, N. E. Farooqi, J. Devoy, J. Cormier, S. Jaeckel, A. Baschirotto, and P. Malcovati, “Electrical Circuit for Delivering Power to Consumer Electronic Devices”, pat. US 9780677, Oct. 2017.

- [P.14] M. H. Freeman, J. Weaver, M. C. Freeman, R. Dieter, A. Baschirotto, P. Malcovati, M. Grassi, G. Noufer, R. Sandusky, N. E. Farooqi, J. Devoy, S. Jaeckel, and M. H. Y. Freeman, “Electrical Circuit for Delivering Power to Consumer Electronic Devices”, pat. US 9780674, Sep. 2017.
- [P.15] M. H. Freeman, J. Weaver, M. C. Freeman, R. Dieter, A. Baschirotto, P. Malcovati, M. Grassi, G. Noufer, R. Sandusky, N. E. Farooqi, J. Devoy, S. Jaeckel, and M. H. Y. Freeman, “Electrical Circuit for Delivering Power to Consumer Electronic Devices”, pat. US 9893632, Feb. 2017.

## Theses

- [T.1] P. Malcovati, “Celle di Equalizzazione CMOS a Micro-Potenza Programmabili Digitalmente per Protesi Acustiche”, Tesi di Laurea, Facoltà di Ingegneria, Università degli Studi di Pavia, Italy, 1991.
- [T.2] P. Malcovati, “CMOS Thermoelectric Sensor Interfaces”, Ph. D. Thesis, 11424, ETH Zurich, Switzerland, 1996. DOI: 10.3929/ETHZ-A-001625830.

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