

FABIO PARESCHI

CURRICULUM VITAE

September 2020

PERSONAL INFORMATION

Name **PARESCHI Fabio**
Address **Via Turolido, 14
44123 Ferrara**
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Citizenship Italian
Place and date of birth Ferrara (Italy) - January 14, 1976

EDUCATION

March 26, 2007 **PhD in Information Technology**, awarded by University of Bologna under the European Doctorate Project (project FP6-MCA-EST-504195 - EDITH).
Thesis title: “*Chaos-Based Random Number Generators: Monolithic Implementation, Testing and Applications*”. Supervisors: Prof. Gianluca Setti and Prof. Riccardo Rovatti.
The PhD program included a six-month stay as visiting student at the Department of Electrical Engineering (ESAT) of the *Katholieke Universiteit Leuven (KULeuven)*, Leuven, Belgium, in the COSIC (Computer security and industrial cryptography) research group under the supervision of prof. Bart Preneel and prof. Ingrid Verbauwhede.

July 19, 2001 **MSc degree in Electronic Engineering** (five-year Italian university degree), awarded by University of Ferrara. Grade: 110/110 cum laude.
Thesis title: “*Confronto teorico e sperimentale tra metodologie innovative per la riduzione delle EMI dovute a segnali di clock e PWM [Theoretical and experimental verification of innovative methods for the reduction of EMI due to clock and PWM signals]*” (Italian language); supervisor: Prof. Gianluca Setti, assistant supervisor: dr. Michele Balestra.

TECHNICAL AND SCIENTIFIC EXPERIENCE

December 2018 – *today* Member of the **Department of Electronics and Telecommunications (DET)** of the Politecnico di Torino. **Assistant Professor** with time contract (articolo 24, comma 3, lettera B, Legge 30 dicembre 2010 n. 240) for the Italian Academic Recruitment Field 09/E3, Academic Discipline ING-INF/01 (electronic engineering).

January 2003 – December 2018 Member of the **Engineering Department (ENDIF)** of the University of Ferrara, in the Electrical Engineering and Signal Processing research group, headed by prof. Gianluca Setti.

- from October 2018 to December 2018: **Research Fellow** (articolo 18, Legge 30 dicembre 2010 n. 240). Title of the research project: “*Analisi ed ottimizzazione della compatibilità elettromagnetica in convertitori switching DC/DC risonanti*” [Analysis and optimization of electromagnetic compatibility in resonant switching DC/DC converters].
- from September 2017 to August 2018: **Research Fellow** (articolo 22, Legge 30 dicembre 2010 n. 240). Title of the research project: “*Progetto ed Implementazione di un sistema di comunicazione su linea di potenza di un convertitore switching DC/DC in classe E*” [Design and implementation of a powerline communication system for a DC/DC switching class-E converter].
- from September 2012 to August 2017: **Assistant Professor** (articolo 24, comma 3, lettera A, Legge 30 dicembre 2010 n. 240) for the Italian Academic Recruitment Field 09/E1, Academic Discipline ING-IND/31 (electrical engineering). Title of the research project: “*Teoria del Compressive Sensing ed Applicazioni alle Architetture per la Elaborazione di Segnali e alle Smart Grids*” [Compressive Sensing Theory and Applications to Signal Processing and Smart Grids].

September 2003 – today

- from August 2011 to July 2012: **Research Fellow** (articolo 22, Legge 30 dicembre 2010 n. 240). Title of the research project: “*Progetto, realizzazione e misura di un prototipo di un convertitore analogico-informazione basato su compressing sensing*” [Design, implementation and testing of a prototype of a compressing sensing based analog-to-information converter].
 - from April 2003 to March 2011: **Research Fellow** (articolo 59, Legge 27 dicembre 1997 n. 449) Title of the research project: “*Metodologie di analisi e progetto di circuiti caotici con assegnate proprietà statistiche: tecniche di implementazione robusta di circuiti tempodiscreti*” [Analysis and design methodologies for chaotic circuits with assigned statistical properties: robust implementation of discrete-time circuits].
- Member of the research center **ARCES (Advanced Research Center on Electronic Systems)** “E. De Castro” of the University of Bologna, in the Statistical Signal Processing research group.
- from January 2004 to December 2006: PhD student in the *European Doctorate in Information Technology (EDITH)* project, led by ARCES research center and involving several high-profile European research institution, either Academic and not.

SCIENTIFIC EXPERIENCE:

INTERNATIONAL AWARDS

2019 Transactions on
Biomedical Circuits and
Systems best paper award

The paper “Hardware-Algorithms Co-Design and Implementation of an Analog-to-Information Converter for Biosignals Based on Compressed Sensing” [21], appeared on *IEEE Transactions on Biomedical Circuits and Systems*, vol. 10, no. 1, pp. 149-162, February 2016, has received the **2019 BioCAS Transactions Best Paper Award**

best paper award
ECCTD 2005

The paper “*Chaos-based High-EMC Spread-Spectrum Clock Generator*” [56] presented at the 17th European Conference on Circuit Theory and Design, Cork (Ireland), August 29 - September 2, 2005 has received the **best paper award**.

best student paper award
EMCCompo 2019

The paper “*Impact of Dead Times on Radiated Emissions of Integrated and Discrete DC-DC Converter*” [42] presented at the 12th International Workshop on the Electromagnetic Compatibility of Integrated Circuits, Hangzhou (China), October 21-23, 2019, has received the **best student paper award**.

best student paper award
EMC Zurich 2005

The paper “*A PLL-based Clock Generator with Improved EMC*” [57] presented at the 16th International Zurich Symposium on Electromagnetic Compatibility, Zurich (Switzerland), February 13-18, 2005, has received the **best student paper award**.

Golden leaf certificate
PRIME 2019

The paper “*A Practical Architecture for SAR-based ADCs with Embedded Compressed Sensing Capabilities*” [43] presented at the 15th hD Research in Microelectronics and Electronics, Lausanne (Switzerland), July 15-18, 2019, has received the **golden leaf certificate (top 10% paper)**.

COLLABORATION WITH THE SCIENTIFIC COMMUNITY

January 2020 – today
Associate Editor
IEEE OJCAS

Associate Editor for the international journal *IEEE Open Journal of Circuits and Systems*. e-ISSN: 2644-1225, Editor in Chief: dr. Gabriele Manganaro, Analog Devices, Inc.

February 2011 – December 2013
Associate Editor
IEEE TCAS-II

Associate Editor for the international journal *IEEE Transactions on Circuits and Systems Part II: Express Briefs (TCAS2)*. ISSN: 1549-7747, Editor in Chief: prof. Yong Lian, University of Singapore. Role obtained for the years 2010/11 and confirmed for 2012/13.

November 2009 – today
Associate Editor
NOLTA-IEICE

Associate Editor for the international journal *Nonlinear Theory and Its Applications (NOLTA) – IEICE*. ISSN: 2185-4106, Editor in Chief: Takashi Hikiyara. Published quarterly, first issue: October 2010.

Guest Associate Editor
IEEE TCAS-I

Guest Associate Editor for the special issue of the international journal *IEEE Transactions on Circuits and Systems Part I: Regular Papers (TCAS1)*. ISSN: 1549-8328, Deputy Editor in Chief: prof. Eduardo A. B. da Silva, Universidade Federal do Rio de Janeiro. “Special Section on the 2017 IEEE International Symposium on Circuits and Systems (ISCAS 2017)”. Tentative publication date: May 2018.

Guest Associate Editor
Wiley-Hindawi Security and
Communication Networks

Guest Associate Editor for the special issue of the international journal *Wiley-Hindawi Security and Communication Networks*. ISSN: 1939-0122, Lead Guest Editor: prof. Junxin Chen, Northeastern University, China. “*Exploiting the Security Aspects of Compressive Sampling*”, tentative publication date: December 2017.

Guest Associate Editor
NOLTA-IEICE

Guest Associate Editor for two special issues of the international journal *Nonlinear Theory and Its Applications (NOLTA) – IEICE*. ISSN: 2185-4106

<p>May 28-31, 2018 <i>ISCAS organization</i></p>	<ul style="list-style-type: none"> • “<i>Special section on analysis, design and optimization of nonlinear circuits</i>”, Vol. 3, no. 3, June 2012. Guest Editor: Kohshi Okumura. • “<i>Special Issue on Random/Pseudorandom Numbers</i>”, vol. 7, no. 1, January 2016. Guest Editor: Yoshiyasu Tamura.
<p>May 27-30, 2007 <i>ISCAS organization support</i></p>	<p>Organization of the international conference ISCAS 2018 (International Symposium on Circuits and Systems), to be held in Firenze. General co-chairs: prof. Gianluca Setti, Politecnico di Torino, and Franco Maloberti, Università of Pavia. Member of the organizing committee as Local Arrangements Co-Chair.</p>
<p>September 11-14, 2006 <i>NOLTA organization support</i></p>	<p>Support to the organization of the international conference ISCAS 2007 (International Symposium on Circuits and Systems), held in New Orleans, Louisiana, USA. General chair: prof. Magdy Bayoumi, University of Louisiana at Lafayette. Member of the Local Support team.</p> <p>Support to the organization of the international conference NOLTA 2006 (International Symposium on Nonlinear Theory and its Applications), held in Bologna. General co-chair: prof. Gianluca Setti, University of Ferrara, and Toshimitsu Ushio, Osaka University. Member of the Local Arrangements team.</p>

MAIN RESEARCH TOPICS

<p>random number generation and testing</p>	<p>The research activity has been mainly focused on signal processing using advanced statistical analysis techniques in order to improve the performance of existing electronic circuits. In particular, the research activity included the design and implementation of analog and mixed-mode electronic circuits, with particular emphasis on the implementation of non-linear circuits. More in detail, among the main applications, we can mention:</p> <p>– study of the generation of random and pseudo-random numbers. In particular, the use of chaotic maps for the generation of random numbers has been studied. Two integrated circuits prototypes have been realized in integrated technology CMOS AMS 0.35 μm and CMOS UMC 0.18 μm [35][55]. This activity was completed by the statistical study of the random numbers generated for the validation of the generator under examination [32].</p>
<p>electromagnetic interferences</p>	<p>– study of electromagnetic interference reduction due to clock signals. We have studied both the use of chaotic maps and the use of deterministic signals with assigned properties [22]. Three integrated circuits prototypes have been realized in integrated AMS 0.35 μm CMOS technology [56][57], CMOS UMC 0.13 μm [36][53] and CMOS NSC 0.18 μm [28]. Part of this activity [28][29] was completed in collaboration with National Semiconductors Italia, Rozzano (MI), now Texas Instruments - Italy.</p>
<p>analog circuit self-test</p>	<p>– self-test of an analog circuit based on circuit self-oscillation. The main innovation consists in introducing complex oscillations in order to be able to simultaneously measure several parameters of the circuit through statistical analysis. This activity was developed in collaboration with the University of Washington, Seattle, Washington, USA, with the research group of prof. Mani Soma [30][38].</p>
<p>compressed sensing</p>	<p>– possibility of sampling redundant signals through a set of measures lower than those theoretically necessary (compressed sensing) [19][23][27][31]. This technique is largely used mainly on biomedical signals, notoriously recognized as signals in which the information content is very low when compared to the signal band. An integrated circuit prototype was built in TI 0.18 μm CMOS technology. Part of this activity was completed in collaboration with Texas Instruments Italia, Rozzano (MI) [21].</p>
<p>resonant dc/dc converters</p>	<p>– study of dc / dc converters of resonant switching type, with particular reference to class-E circuits. The state of the art in the design has been improved, introducing a semi-analytical technique that allows, without resorting to circuit simulations, the exact design of the soft-switching specifications (zero-voltage switching and zero-voltage-derivative switching). This activity was carried out in collaboration with Texas Instruments Italia, Rozzano (MI) [20][48].</p>

PUBLICATIONS

<p>Books</p>	<p>[1] Mauro Mangia, <u>Fabio Pareschi</u>, Valerio Cambareri, Riccardo Rovatti, and Gianluca Setti, <i>Adapted Compressed Sensing for Effective Hardware Implementations</i>. Springer International Publishing, 2018. ISBN: 978-3-319-61372-7.</p>
<p>Journal papers</p>	<p>[2] Carmine Paolino, Luciano Prono, <u>Fabio Pareschi</u>, Mauro Mangia, Riccardo Rovatti, and Gianluca Setti, “A Passive and Low-complexity Compressed Sensing Architecture Based on a Charge-redistribution SAR ADC”, in <i>Integration, the VLSI Journal</i>, vol. 75, pp. 40-51. November 2020. ISSN: 0167-9260.</p> <p>[3] Alex Marchioni, Mauro Mangia, <u>Fabio Pareschi</u>, Riccardo Rovatti, and Gianluca Setti, “Subspace Energy Monitoring for Anomaly Detection @Sensor or @Edge”, in <i>IEEE Internet of Things Journal</i>, vol. 7, no. 8, pp. 7575-7589. August 2020. ISSN: 2327-4662.</p>

- [4] Mauro Mangia, Luciano Prono, Alex Marchioni, [Fabio Pareschi](#), Riccardo Rovatti, and Gianluca Setti, "Deep Neural Oracles for Short-window Optimized Compressed Sensing of Biosignals", in *IEEE Transactions on Biomedical Circuits and Systems*, vol. 14, no. 3, pp. 545-557. June 2020. ISSN: 1932-4545.
- [5] Cesar Hugo Pimentel-Romero, Mauro Mangia, [Fabio Pareschi](#), Riccardo Rovatti, and Gianluca Setti, "Geometric Constraints in Sensing Matrix Design for Compressed Sensing" in *Signal Processing (Elsevier)*, vol. 171, art. no. 107498. June 2020. ISSN: 0165-1684.
- [6] [Fabio Pareschi](#), Nicola Bertoni, Mauro Mangia, Roberto Massolini, Giovanni Frattini, Riccardo Rovatti, and Gianluca Setti, "Class-E Isolated DC-DC Converter with High-Rate and Cost-Effective Bidirectional Data Channel", in *IEEE Transactions on Power Electronics*, vol. 35, no. 5, pp. 5304-5318. May 2020. ISSN:0885-8993.
- [7] Victor R. Gonzalez-Diaz, [Fabio Pareschi](#), "A 65nm Continuous-Time Sigma-Delta Modulator with Limited OTA DC Gain Compensation", in *IEEE ACCESS*, vol. 8, pp. 36464-36475. 2020. eISSN: 2169-3536.
- [8] Mauro Mangia, [Fabio Pareschi](#), Riccardo Rovatti, Gianluca Setti, "Adapted Compressed Sensing: a Game Worth Playing", in *IEEE Circuits and Systems Magazine*, vol. 20, no. 1, pp. 40-60. Firstquarter 2020. ISSN: 1531-636X.
- [9] Mauro Mangia, Alex Marchioni, [Fabio Pareschi](#), Riccardo Rovatti, and Gianluca Setti, "Chained Compressed Sensing: A Block-Chain-inspired Approach for Low-cost Security in IoT Sensing", in *IEEE Internet of Things Journal*, vol. 6, no. 4, pp. 6465-6475. August 2019. ISSN: 2327-4662.
- [10] Fabio Pareschi, Nicola Bertoni, Mauro Mangia, Riccardo Rovatti, and Gianluca Setti, "A Unified Design Theory for Class-E Resonant DC-DC Converter Topologies", in *IEEE ACCESS*, vol. 7, pp. 83825-83838. 2019. eISSN: 2169-3536.
- [11] Mauro Mangia, Alex Marchioni, [Fabio Pareschi](#), Riccardo Rovatti, and Gianluca Setti, "Administering Quality-Energy Trade-Off in IoT Sensing Applications by Means of Adapted Compressed Sensing", in *IEEE Journal on Emerging and Selected Topics in Circuits and Systems*, vol. 8, no. 4, pp. 895-907. December 2018. ISSN: 2156-3357.
- [12] Mauro Mangia, [Fabio Pareschi](#), Riccardo Rovatti, and Gianluca Setti, "Rakeness-based Compressed Sensing and Hub Spreading to Administer Short/Long Range Communication Tradeoff in IoT settings", in *IEEE Internet of Things Journal*, vol. 5, no. 3, pp. 2220-2233. June 2018. ISSN: 2327-4662.
- [13] Mauro Mangia, [Fabio Pareschi](#), Rohan Varma, Riccardo Rovatti, Jelena Kovacevic, and Gianluca Setti, "Rakeness-Based Compressed Sensing of Multiple-graph Signals for IoT Applications", in *IEEE Transactions on Circuits and Systems II - Express Briefs*, vol. 65, no. 5, pp. 682-686. May 2018. ISSN: 1549-7747.
- [14] Leo Yu Zhang, Leo Yu Zhang, Yuansheng Liu, Kwok-Wo Wong, [Fabio Pareschi](#), Yushu Zhang, Riccardo Rovatti, and Gianluca Setti, "On the Security of a Class of Diffusion Mechanisms for Image Encryption", in *IEEE Transactions on Cybernetics*, vol. 48, no. 4, pp. 1163-1175. April 2018. ISSN: 2168-2267.
- [15] Mauro Mangia, [Fabio Pareschi](#), Riccardo Rovatti, Gianluca Setti, "Adaptive Matrix Design for Boosting Compressed Sensing", in *IEEE Transactions on Circuits and Systems I - Regular Papers*, vol. 65, no. 3, pp. 1016-1027. March 2018. ISSN: 1549-8328.
- [16] [Fabio Pareschi](#), Mauro Mangia, Daniele Bortolotti, Andrea Bartolini, Luca Benini, Riccardo Rovatti, Gianluca Setti, "Energy Analysis of Decoders for Rakeness-based Compressed Sensing of ECG signals", in *IEEE Transactions on Biomedical Circuits and Systems*, (accepted for publication). ISSN: 1932-4545.
- [17] Mauro Mangia, [Fabio Pareschi](#), Riccardo Rovatti, and Gianluca Setti, "Low-cost Security of IoT Sensor Nodes with Rakeness-Based Compressed Sensing: Statistical and Known-Plaintext Attacks", in *IEEE Transactions on Information Forensics and Security*, vol. 13, no.2, pp. 327-340. February 2018. ISSN: 1556-6013.
- [18] Mauro Mangia, [Fabio Pareschi](#), Valerio Cambareri, Riccardo Rovatti, Gianluca Setti, "Rakeness-Based Design of Low-Complexity Compressed Sensing", in *IEEE Transactions on Circuits and Systems I - Regular Papers*, vol. 64, no. 5, pp. 1201-1213. May 2017. ISSN: 1549-8328.
- [19] Mauro Mangia, Daniele Bortolotti, [Fabio Pareschi](#), Andrea Bartolini, Luca Benini, Riccardo Rovatti, and Gianluca Setti, "Zeroing for HW-efficient Compressed Sensing Architectures Targeting Data Compression in Wireless Sensor Networks", in *Embedded Hardware Design (Microprocessors and Microsystems)*, vol. 48, pp.69-79. February 2017. ISSN: 0141-9331.

- [20] Nicola Bertoni, Giovanni Frattini, Roberto Massolini, [Fabio Pareschi](#), Riccardo Rovatti, Gianluca Setti, "An Analytical Approach for the Design of Class-E Resonant DC-DC Converters", in *IEEE Transactions on Power Electronics*, vol. 31, no. 11, pp. 7701-7713. November 2016. ISSN: 0885-8993.
- [21] [Fabio Pareschi](#), Pierluigi Albertini, Giovanni Frattini, Mauro Mangia, Riccardo Rovatti, Gianluca Setti, "Hardware-Algorithms Co-design and Implementation of an Analog-to-Information Converter for Biosignals based on Compressed Sensing," in *IEEE Transaction on Biomedical Circuits and Systems*, vol. 10, no. 1, pp. 149-162. February 2016. ISSN: 1932-4545.
- [22] [Fabio Pareschi](#), Riccardo Rovatti, and Gianluca Setti, "EMI Reduction via Spread Spectrum in DC/DC Converters: State of the Art, Optimization, and Tradeoffs", in *IEEE Access*, vol. 3, pp. 2857-2874. 2015. ISSN: 2169-3536.
- [23] Valerio Cambareri, Mauro Mangia, [Fabio Pareschi](#), Riccardo Rovatti, and Gianluca Setti, "On Known-Plaintext Attacks to a Compressed Sensing-Based Encryption: A Quantitative Analysis," in *IEEE Transactions on Information Forensics and Security*, Vol. 10, No. 10, pp. 2182-2195. October 2015 ISSN: 1556-6013.
- [24] Salvatore Caporale, [Fabio Pareschi](#), Valerio Cambareri, Riccardo Rovatti, Gianluca Setti, "A Soft-defined Pulse Width Modulation Approach - Part I: Principles," in *IEEE Transactions on Circuits and Systems I - Regular Papers*, Vol. 62, No. 9, pp. 2280-2289. September 2015. ISSN: 1549-8328.
- [25] Salvatore Caporale, [Fabio Pareschi](#), Valerio Cambareri, Riccardo Rovatti, Gianluca Setti, "A Soft-defined Pulse Width Modulation Approach - Part II: System Modeling," in *IEEE Transactions on Circuits and Systems I - Regular Papers*, Vol. 62, No. 9, pp. 2290-2300. September 2015. ISSN: 1549-8328.
- [26] Valerio Cambareri, Mauro Mangia, [Fabio Pareschi](#), Riccardo Rovatti, and Gianluca Setti, "A Case Study in Low-Complexity ECG Signal Encoding: How Compressing is Compressed Sensing?," in *IEEE Transactions on Signal Processing Letters*, Vol. 22 No. 10, pp 1743-1747. October 2015. ISSN: 1070-9908.
- [27] Valerio Cambareri, Mauro Mangia, [Fabio Pareschi](#), Riccardo Rovatti, and Gianluca Setti, "Low-Complexity Multiclass Encryption by Compressed Sensing", in *IEEE Transactions on Signal Processing*, Vol. 63, No. 9, pp. 2183-2195. May 2015. ISSN: 1053-587X.
- [28] [Fabio Pareschi](#), Gianluca Setti, Riccardo Rovatti, and Giovanni Frattini, "Short-term Optimized Spread Spectrum Clock Generator for EMI Reduction in Switching DC/DC Converters", in *IEEE Transactions on Circuits and Systems I - Regular Papers*, Vol. 61, No. 10, pp. 3044-3053. October 2014. ISSN: 1549-8328.
- [29] [Fabio Pareschi](#), Gianluca Setti, Riccardo Rovatti, and Giovanni Frattini, "Practical Optimization of EMI Reduction in Spread Spectrum Clock Generators with Application to Switching DC/DC Converters", in *IEEE Transactions on Power Electronics*, Vol. 29, No. 9, pp 4646-4657. September 2014. ISSN: 0885-8993.
- [30] Sergio Callegari, [Fabio Pareschi](#), Gianluca Setti, and Mani Soma, "On the usage of Resonate and Fire Dynamics in the Complex Oscillation Based Test Approach", in *International Journal of Circuit Theory and Applications*, Vol. 41, Issue 12, pp. 1290-1317. December 2013. ISSN: 1097-007X.
- [31] Javier Haboba, Mauro Mangia, [Fabio Pareschi](#), Riccardo Rovatti, and Gianluca Setti, "A pragmatic look at some compressive sensing architectures with saturation and quantization", in *IEEE Journal of Emerging and Selected Topics in Circuits and Systems - Issue on Circuits, Systems and Algorithms for Compressive Sensing*, Vol. 2, No. 3, pp. 443-459. September 2012. ISSN: 2156-3357.
- [32] [Fabio Pareschi](#), Riccardo Rovatti, and Gianluca Setti, "On Statistical Tests for Randomness included in the NIST SP800-22 test suite and based on the Binomial Distribution", in *IEEE Transactions on Information Forensics and Security*, ISSN 1556-6013, Vol. 7, No 2, pp. 491-505. April 2012.
- [33] Mauro Mangia, [Fabio Pareschi](#), Riccardo Rovatti, and Gianluca Setti, "Spectral shaping of spreading sequences as a mean to address the trade-off between narrowband and multi-access interferences in UWB systems", in *Nonlinear Theory and Its Applications (NOLTA), IEICE*, ISSN 2185-4106, Vol.E94-N, No.10, pp. 386-399. October 2011.
- [34] Victor R. Gonzalez-Diaz, [Fabio Pareschi](#), Gianluca Setti, and Franco Maloberti, "A Pseudorandom Number Generator Based on Time Variant Recursion of Accumulators", in *IEEE Transactions on Circuits and Systems II - Express Briefs*, ISSN 1549-7747, Vol. 58, No 9, pp. 580-584. September 2011.

- [35] Fabio Pareschi, Gianluca Setti, and Riccardo Rovatti, "Implementation and Testing of High-speed CMOS True Random Number Generators based on Chaotic Systems", in *IEEE Transactions on Circuits and Systems part I - Regular Papers*, ISSN 1549-8328, Vol. 57, No 12, pp. 3124-3137. December 2010.
- [36] Fabio Pareschi, Gianluca Setti, and Riccardo Rovatti, "A 3 GHz Serial ATA Spread Spectrum Clock Generator Employing a Chaotic PAM Modulation", in *IEEE Transactions on Circuits and Systems part I - Regular Papers*, ISSN 1549-8328, Vol. 57, No. 10, pp. 2577 - 2587. October 2010.
- [37] Fabio Pareschi, Riccardo Rovatti, and Gianluca Setti, "Statistical Testing of a Chaos Based CMOS True-Random Number Generator", in *Journal of Circuits, Systems, and Computers*, ISSN 0218-1266, Vol. 19, No. 4, pp. 897-910. June 2010.
- [38] Sergio Callegari, Fabio Pareschi, Gianluca Setti, and Mani Soma, "Complex Oscillation Based Test Framework and its Application to Analog Filters", in *IEEE Transactions on Circuits and Systems part I - Regular Papers*, ISSN 1549-8328, Vol. 57, No. 5, pp. 956 - 969. May 2010.
- [39] Fabio Pareschi, Riccardo Rovatti, and Gianluca Setti, "Periodicity as Condition to Noise Robustness for Chaotic Maps with Piecewise Constant Invariant Density", in *International Journal on Bifurcation and Chaos*, ISSN 0218-1274, Vol. 16, No. 11, pp. 3391-3400, November 2006.
- book chapters
- [40] Fabio Pareschi, Gianluca Setti, Sergio Callegari, and Riccardo Rovatti, "Implementation of low EMI Spread Spectrum Clock Generator Exploiting a Chaos-based Jitter", in *Intelligent Computing Based on Chaos*, L. Kocharev, Z. Galias, S. Lian (Eds.), pp. 145-171. Springer-Verlag, Berlin Heidelberg 2009. ISBN: 978-3-540-95971-7.
- [41] Fabio Pareschi, Sergio Callegari, Gianluca Setti, and Riccardo Rovatti, "Circuits and systems for the synthesis of chaotic signals in engineering applications", in *Intelligent Computing Based on Chaos*, L. Kocharev, Z. Galias, S. Lian (Eds.), pp. 173-196. Springer-Verlag, Berlin Heidelberg 2009. ISBN: 978-3-540-95971-7.
- selected international
conference proceedings paper
(peer reviewed)
- [42] Josip Bacmaga, Raul Blecic, Fabio Pareschi, Gianluca Setti, Adrijan Baric, "Impact of Dead Times on Radiated Emissions of Integrated and Discrete DC-DC Converter" in *Proceedings of 12th International Workshop on the Electromagnetic Compatibility of Integrated Circuits* (EMCCompo 2019). ISBN: 978-1-7281-4262-3. Hangzhou (China), October 21-23, 2019, pp. 266-268. **Winner of the Best Student Paper Award.**
- [43] Carmine Paolino, Fabio Pareschi, Mauro Mangia, Riccardo Rovatti, Gianluca Setti, "A Practical Architecture for SAR-based ADCs with Embedded Compressed Sensing Capabilities", in *Proceedings of 15th Conference on PhD Research in Microelectronics and Electronics* (PRIME2019), pp. 133-136. ISBN: 978-1-7281-3549-6. Lausanne (Switzerland), July 15-18, 2019. **Winner of the Gold Leaf Certificate** (top 10% paper).
- [44] Diana Mata-Hernandez, Victor R. Gonzalez-Diaz, J. Fermi Guerrero-Castellanos, Gerardo Mino-Aguilar, and Fabio Pareschi, "Design of Buck DC-DC Converters from the Linear Quadratic Regulator Approach", in *Proceedings of 2016 IEEE International Power Electronics and Motion Control Conference* (PEMC2016). Varna (Bulgaria), Sep. 25-28, 2016.
- [45] Nicola Bertoni, Bathiya Senevirathna, Fabio Pareschi, Mauro Mangia, Riccardo Rovatti, Pamela Abshire, Jonathan Z. Simon, and Gianluca Setti, "Low-Power EEG Monitor Based on Compressed Sensing with Compressed Domain Noise Rejection", in *Proceedings of 2016 International Symposium on Circuits and Systems* (ISCAS2016), pp.522-525. Montreal(Canada), May 22-25, 2016.
- [46] Bathiya Senevirathna, Lauren Berman, Nicola Bertoni, Fabio Pareschi, Mauro Mangia, Riccardo Rovatti, Gianluca Setti, Jonathan Simon, and Pamela Abshire, "Low Cost Mobile EEG for Characterization of Cortical Auditory Responses", in *Proceedings of 2016 International Symposium on Circuits and Systems* (ISCAS2016), pp. 1102-1105. Montreal(Canada), May 22-25, 2016.
- [47] Mauro Mangia, Daniele Bortolotti, Andrea Bartolini, Fabio Pareschi, Luca Benini, Riccardo Rovatti, and Gianluca Setti, "Long-Term ECG Monitoring with Zeroing Compressed Sensing Approach", in *Proceedings of 2015 Nordic Circuits and Systems Conference* (NORCAS2015). Oslo (Norway), October 26-28, 2015.
- [48] Nicola Bertoni, Giovanni Frattini, Roberto Massolini, Fabio Pareschi, Riccardo Rovatti, and Gianluca Setti, "A New Semi-Analytic Approach for Class-E Resonant DC-DC Converter Design", in *Proceedings of 2015 International Symposium on Circuits and Systems* (ISCAS2015), pp. 209-212. ISBN: 978-1-4799-8391-9. Lisbon (Portugal), May 24-27, 2015.
- [49] Valerio Cambareri, Javier Haboba, Fabio Pareschi, Riccardo Rovatti, Gianluca Setti, and Kwok-wo Wong, "A Two-Class Information Concealing System based on Compressed Sensing", in

- Proceedings of 2013 International Symposium on Circuits and Systems (ISCAS2013)*, pp. 1360-1363. ISBN: 978-1-4673-5762-3. Beijing (China), May 19-23, 2013.
- [50] Mauro Mangia, Fabio Pareschi, Riccardo Rovatti, Gianluca Setti, and Giovanni Frattini, "Coping with saturating projection stages in RMPI-based Compressive Sensing", to appear in *Proceedings of 2012 International Symposium on Circuits and Systems (ISCAS2012)*. Seoul (Korea), May 20-23, 2012.
- [51] Fabio Pareschi, Gianluca Setti, Riccardo Rovatti, and Giovanni Frattini, "A Spread Spectrum Clock Generator Based on a Short-Term Optimized Chaotic Map" in *Proceedings of 37th European Solid-State Circuits Conference (ESSCIRC2011)*, pp. 507-510, ISBN: 978-1-4577-0704-9. Helsinki (Finland), September 12-16, 2011.
- [52] Fabio Pareschi, Giuseppe Scotti, Luca Giancane, Riccardo Rovatti, Gianluca Setti, and Alessandro Trifiletti, "Power Analysis of a Chaos-Based Random Number Generator for Cryptographic Security", in *Proceedings of 2009 International Symposium on Circuits and Systems (ISCAS2009)*, pp. 2858-2861, ISBN: 978-1-4244-3828-0. Taipei (Taiwan), May 24-27, 2009.
- [53] Fabio Pareschi, Gianluca Setti and Riccardo Rovatti, "A 3 GHz Spread Spectrum Clock Generator for SATA Applications Using Chaotic PAM Modulation", in *Proceedings of 2008 Custom Integrated Circuits Conference (CICC2008)*, pp. 451-454, ISBN: 978-1-4244-2018-6. San Jose (USA), September 21-24, 2008.
- [54] Fabio Pareschi, Riccardo Rovatti, and Gianluca Setti, "Second Level NIST Randomness Test for Improving Test Reliability", in *Proceedings of 2007 International Symposium on Circuits and Systems (ISCAS2007)*, pp. 1437-1440, ISBN: 1-4244-0921-7. New Orleans (USA), May 27-30, 2007.
- [55] Fabio Pareschi, Gianluca Setti, and Riccardo Rovatti, "A Fast Chaos-based True Random Number Generator for Cryptographic Applications", in *Proceedings of 32th European Solid-State Circuit Conference (ESSCIRC2006)*, pp 130-133, 1-4244-0303-4. Montreux (Switzerland), September 19-21, 2006.
- [56] Luca Antonio De Michele, Fabio Pareschi, Riccardo Rovatti, and Gianluca Setti, "Chaos-based High-EMC Spread-Spectrum Clock Generator", in *Proceedings of 17th European Conference on Circuit Theory and Design (ECCTD2005)*, pp 165-168, ISBN: 0-7803-9066-0. Cork (Ireland), August 29 - September 2, 2005. **Winner of the best paper award.**
- [57] Fabio Pareschi, Luca Antonio De Michele, Riccardo Rovatti, and Gianluca Setti, "A PLL-based clock generator with improved EMC", in *Proceedings of 16th International Zurich symposium on Electromagnetic Compatibility (EMCZurich2005)*, pp 367-372, ISBN: 3-9521-1999-7. Zurich (Switzerland), February 13-18, 2005. **Winner of the best student paper award.**

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