

## Pubblicazioni di Valerio Vignoli dal 2005

### *Riviste internazionali*

- [J1] A.Burresi, A. Fort, S. Rocchi, M.B. Serrano Santos, N. Ulivieri, V. Vignoli, “Temperature profile investigation of SnO<sub>2</sub> sensors for CO detection enhancement”, *IEEE Trans. on Instrumentation and Measurement*, vol. 54, no. 1, pp. 79–86, Feb. 2005, (USA).
- [J2] A.Fort, S. Rocchi, M.B. Serrano-Santos, N. Ulivieri, V. Vignoli, G. Pioggia, F. Di Francesco, “A high-performance measurement system for simultaneous mass and resistance variation measurements on gas sensing polymer films”, *Sensors and Actuators B: Chemical*, Vol. 111-112, pp. 193 – 199, 11 November 2005, (USA).
- [J3] T. Addabbo, M. Alioto, A. Fort, S. Rocchi and V. Vignoli, “A Feedback Strategy to Improve the Entropy of a Chaos-Based Random Bit Generator”, *IEEE Transaction on Circuits and Systems I*, Vol. 53, n. 2, pp. 326 – 337, Feb. 2006, (USA).
- [J4] T. Addabbo, M. Alioto, A. Fort, S. Rocchi and V. Vignoli, “Low Hardware Complexity PRBG Based on a Piecewise Linear Chaotic Map”, *IEEE Transaction on Circuits and Systems – part II*, Vol. 53, n. 5, pp. 329-333, May 2006, (USA).
- [J5] A.Fort, M. Mugnaini, S. Rocchi, M.B. Serrano Santos, V. Vignoli, A. Atrei, R. Spinicci, “CO sensing with SnO<sub>2</sub>-based thick film sensors: state model for conductance responses during thermal-modulation”, *Sensors and Actuators B: Chemical*, Vol. 116, n. 1-2, pp. 43-48, 28 Jul. 2006, (USA).
- [J6] T. Addabbo, M. Alioto, A. Fort, S. Rocchi and V. Vignoli, “The Digital Tent Map: Performance Analysis and Optimized Design as a Source of Pseudo-random Bits”, *IEEE Transaction on Instrumentation and Measurement*, Vol. 55, n. 5, pp. 1451-1458, Oct. 2006, (USA).
- [J7] M. Alioto, L. Pancioni, S. Rocchi, V. Vignoli, “Exploiting Hysteresis in MCML Circuits”, *IEEE Trans. on Circuits and Systems - part II*, , Vol. 53, n. 11, pp. 1170-1174, Nov. 2006, (USA).
- [J8] A.Fort, S. Rocchi, M. B. Serrano-Santos, R. Spinicci, V. Vignoli, “Surface State Model for Conductance Responses During Thermal-Modulation of SnO<sub>2</sub>-Based Thick Film Sensors: Part I—Model Derivation”, *IEEE Transaction on Instrumentation and Measurement*, Vol. 55, n. 6, pp. 2102 – 2106, Dec. 2006, (USA).

- [J9] A.Fort, M. Mugnaini, S. Rocchi, M. B. Serrano-Santos, R. Spinicci, V. Vignoli, “Surface State Model for Conductance Responses During Thermal-Modulation of SnO<sub>2</sub>-Based Thick Film Sensors: Part II—Experimental Verification”, *IEEE Transaction on Instrumentation and Measurement*, Vol. 55, n. 6, pp. 2107 – 2117, Dec. 2006, (USA).
- [J10] T. Addabbo, M. B. C. Alioto, A. Fort, A. Pasini, S. Rocchi, V. Vignoli, “A Class of Maximum-Period Nonlinear Congruential Generators Derived From the Rényi Chaotic Map”, *IEEE Transactions on Circuits and Systems I: Fundamental Theory and Applications*, Vol 54, n. 4, pp. 816-828, April 2007, (USA).
- [J11] A.Fort, M. Mugnaini, S. Rocchi, M. B. Serrano-Santos, V. Vignoli and R. Spinicci, “Simplified Models for SnO<sub>2</sub> Sensors during Chemical and Thermal Transients in Mixtures of Inert, Oxidizing and Reducing Gases”, *Sensors and Actuators B: Chemical*, ,Vol. 124, n. 1, pp. 245-259, June 2007, (USA).
- [J12] M. Alioto, L. Pancioni, S. Rocchi, V. Vignoli, “Power–Delay–Area–Noise Margin Tradeoffs in Positive-Feedback MOS Current-Mode Logic”, , *IEEE Transactions on Circuits and Systems I: Vol.54, n.9, pp.1916-1928, Sept. 2007, (USA).*
- [J13] A.Fort, C. Lotti, M. Mugnaini, R. Palombari, S. Rocchi, V. Vignoli, “A Two Electrode C - NiO Nafion Amperometric Sensor for NO<sub>2</sub> Detection”, *Microelectronics Journal*, Vol. 40, n. 9, pp. 1308-1312, Sept. 2009 (USA).
- [J14] T. Addabbo, A. Fort, D. Papini, S. Rocchi, V. Vignoli, “Invariant Measures of Tunable Chaotic Sources: Robustness Analysis and Efficient Estimation”, *IEEE Transactions on Circuits and Systems I: Fundamental Theory and Applications*, Vol.56, n.4, pp.806-819, Apr. 2009, (USA).
- [J15] S. Bicelli, A. Depari, G. Faglia, A. Flammini, A. Fort, M. Mugnaini, A. Ponzoni, V. Vignoli, S. Rocchi, “Model and experimental characterization of dynamic behavior of low power Carbon Monoxide MOX sensors operated with pulsed temperature profiles”, *IEEE Transaction on Instrumentation and Measurement*, Vol. 58, n. 5, pp. 1324 – 1332, May 2009, (USA).
- [J16] T. Addabbo, A. Fort, D. Papini, S. Rocchi, V. Vignoli, “An efficient and accurate method for the estimation of the entropy and other dynamical invariants for piecewise affine chaotic maps”, accepted for publication on the *International Journal of Bifurcation and Chaos*, Vol. 19, n. 12, pp. 4175-4195, Dec. 2009, (USA).
- [J17] T. Addabbo, M. Alioto, A. Fort, S. Rocchi, V. Vignoli, “A Variability-Tolerant Feedback Technique For Throughput Maximization of TRBGs with predefined entropy”, accepted for publication on the *Journal of Circuits, Systems, and Computers*, vol. 19, n. 4, pp. 879-895, Apr. 2010, (USA).

- [J18] T. Addabbo, A. Fort, S. Rocchi, V. Vignoli, “Exploiting Chaotic Dynamics For A-D Converter Testing”, accepted for publication on the *International Journal of Bifurcation and Chaos*, vol. 20, n. 4, pp 1099-1118, 2010, (USA).
- [J19] T. Addabbo, D. De Caro, A. Fort, N. Petra, S. Rocchi, V. Vignoli, “Efficient Implementation of Pseudochaotic Piecewise Linear Maps with High Digitization Accuracies”, accepted for publication on the *International Journal of Circuit Theory and Applications*, (accepted 24.01.10; DOI: 10.1002/cta.702)
- [J20] A.Fort, M. Mugnaini, S. Rocchi, V. Vignoli, E. Comini, G. Faglia, A.Ponzoni, “Metal-Oxide nanowire sensors for CO detection: Characterization and Modeling”, *Sensors and Actuators B: Chemical*, Vol. 148, n. 1, pp. 283-291, 30 June 2010, (USA).
- [J21] A. Fort, M. Mugnaini, V. Vignoli, S. Rocchi, F. Perini, J. Monari, F. Fiocchi, M. Schiaffino, “Design, modeling and test of a system for atmospheric electric field measurement”, accepted for publication on the *IEEE Transaction on Instrumentation and Measurement* (27/10/2010).
- [J22] T. Addabbo, Ada Fort, Ljupco Kocarev, Santina Rocchi and Valerio Vignoli, “Pseudo-Chaotic Lossy Compressors for True Random Number Generation”, accepted for publication on the *IEEE Transactions on Circuits and Systems I: Fundamental Theory and Applications*, (USA) (22/12/2010).

### ***Riviste italiane***

- [JN1] A. Fort, M. Mugnaini, S. Rocchi, V. Vignoli, A. Romani; “Classificazione di olii extravergine di oliva”, *Tutto misure*, no.4, , pp.278-281, Dicembre 2008

### ***Capitoli di libro***

- [L1] T. Addabbo, A. Fort, S. Rocchi, and V. Vignoli, “Chaos Based Generation of True Random Bits”, in *Intelligent Computing Based on Chaos, Series: Studies in Computational Intelligence*, Vol. 184, L.Kocarev, Z.Galias, S.Lian (Eds.), Spriger, 2009, pp. 355-377.

### ***Brevetti***

- [B1] BREVETTO INTERNAZIONALE WO2010013276 “Three electrode electrochemical amperometric sensor”, S. Rocchi, A. Fort, V. Vignoli, M. Mugnaini, R. Palombari, pubblicato in data 04.02.2010.

### ***Congressi e Conferenze Internazionali***

- [C1] A.Fort, S. Rocchi, M.B. Serrano-Santos, R. Spinicci, A. Atrei, N. Ulivieri, V. Vignoli, "CO sensing with SnO<sub>2</sub>-based thick film sensors: surface state model for conductance responses during thermal-modulation", *Proceedings of the 11th International Symposium on Olfaction and Electronic Nose (ISOEN 2005)*, S. Marco, I. Montoliu (Editors), pp. 388-391, Barcelona, Spain, 13-15 April 2005.
- [C2] M. Alioto, A. Fort, L. Pancioni, S. Rocchi, V. Vignoli, "An Approach to the Design of PFSCl Gates", *Proceedings of the 2005 IEEE International Symposium on Circuits and Systems (ISCAS)*, Vol 3, pp. 892-895, Kobe (Japan), May 2005.
- [C3] T. Addabbo, M. Alioto, A. Fort, S. Rocchi, V. Vignoli, "Long Period Pseudo Random Bit Generators Derived from a Discretized Chaotic Map", *Proceedings of the 2005 IEEE International Symposium on Circuits and Systems (ISCAS)*, Vol. 2, pp. 892-895, Kobe (Japan), May 2005.
- [C4] R.Spinicci, A.Tofanari, A.Fort, M.B.Serrano-Santos, V.Vignoli, A.Atrei, "Surface behaviour of alumina supported tin dioxide and its reactivity towards carbon monoxide oxidation", *Proceedings of the 6<sup>th</sup> International Workshop on Catalytic Combustion (IWCC6)*, P. Forzatti, G. Groppi, P. Ciambelli, D. Sannino (Editors), pp. 123-126, Ischia (Italy), 11-14 Sept. 2005.
- [C5] T. Addabbo, M. Alioto, A. Fort, S. Rocchi and V. Vignoli, "Uniform-Distributed Noise Generator Based on a Chaotic Circuit", *Proceedings of the 2006 IEEE Instrumentation and Measurement Technology Conference (IMTC)*, pp. 1156-1160, Sorrento (Italy), 24-27 Apr. 2006 .
- [C6] A. Fort, V.Vignoli, S. Rocchi, L. Tondi, M.B. Serrano-Santos, M. Mugnaini, "Fine Tuning Design of Control Board Parameters for Sensing Applications", *Proceedings of the 2006 IEEE Instrumentation and Measurement Technology Conference (IMTC)*, pp. 2244-2248, Sorrento (Italy), 24-27 Apr. 2006.
- [C7] T. Addabbo, M. Alioto, A. Fort, S. Rocchi and V. Vignoli, "A Technique to Design High Entropy Chaos-Based True Random Bit Generators", *Proceedings of the 2006 IEEE International Symposium on Circuits and Systems (ISCAS)*, pp. 1183-1186, Kos (Grece), 21-24 May 2006.
- [C8] M. Alioto, L. Pancioni, S. Rocchi, V. Vignoli, "Analysis and Design of MCML Gates with Hysteresis" *Proceedings of the 2006 IEEE International Symposium on Circuits and Systems (ISCAS)*, pp. 1263-1266, Kos (Grece), 21-24 May 2006.
- [C9] M. Alioto, M. Poli, S. Rocchi, V. Vignoli, "Power Modeling of Precharged Address Bus and Application to Multi-bit DPA Attacks to DES Algorithm", *Proceedings of the 2006 international workshop on Power and Timing Modeling, Optimization and Simulation (PATMOS)*, pp. 593-602, Montpellier (France), 13-15 Sept. 2006.

- [C10] M. Alioto, M. Poli, S. Rocchi, V. Vignoli, "Techniques to Enhance the Resistance of Precharged Busses to Differential Power Analysis", *Proceedings of the 2006 international workshop on Power and Timing Modeling, Optimization and Simulation (PATMOS)*, pp. 624-633, Montpellier (France), 13-15 Sept. 2006.
- [C11] T. Addabbo, M. Alioto, A. Fort, S. Rocchi, V. Vignoli, "Entropy Enhancement in a Chaos-Based True Random Bit Generators", *Proceedings of the 2006 International IEEE Symposium on Nonlinear Theory and its Applications (NOLTA)*, pp. 372-378, Bologna (Italy), 11-14 Sept. 2006.
- [C12] T. Addabbo, M. Alioto, A. Fort, S. Rocchi, V. Vignoli, "Efficient Post-Processing Module for a Chaos-based Random Bit Generator", *Proceedings of the 13th IEEE International Conference on Electronics, Circuits and Systems (ICECS '06)*, pp.1224-1227, Nice (France), 10-13 Dec. 2006.
- [C13] T. Addabbo, M. Alioto, A. Fort, M. Mugnaini, S. Rocchi and V. Vignoli, "Implementation-Efficient Maximum-Period Nonlinear Congruential Generators", *Proceedings of the 2007 IEEE Instrumentation and Measurement Technology Conference (IMTC)*, pp.1-4, Warsaw (Poland), 1-3 May 2007.
- [C14] A.Fort, M.Mugnaini, S.Rocchi, M B Serrano-Santos, L.Tondi, V.Vignoli; "Characterization of Heaters for Tin-Oxide Sensors Used in Artificial Olfactory System" *Proceedings of the 12th International Symposium on Olfaction and Electronic Nose (ISOEN 2007)*, pp. 221-222, St. Petersburg (Russia), 3-5 May 2007.
- [C15] M. Alioto, M. Poli, S. Rocchi, V. Vignoli, "Mixed Techniques to Protect Precharged Busses against Differential Power Analysis Attacks," *Proceedings of the 2007 IEEE International Symposium on Circuits and Systems (ISCAS)*, pp.861-864, New Orleans (USA), 27-30 May 2007
- [C16] T. Addabbo, M. Alioto, A. Fort, S. Rocchi and V. Vignoli, "Maximum-Period PRNGs Derived From A Piecewise Linear One-Dimensional Map", *Proceedings of the 2007 IEEE International Symposium on Circuits and Systems (ISCAS)*, pp.693-696, New Orleans (USA), 27-30 May 2007.
- [C17] A.Fort , C. Lotti, M. Mugnaini, C. Palmerini, R.Palombari , S. Rocchi, L.Tondi, V.Vignoli "Characterization of a Two Electrode C - NiO Nafion® Amperometric Sensor for NO2 Detection" *Proceedings of the 2nd IEEE International Workshop on Advances in Sensors and Interfaces (IWASI)*, pp , 47-51, Bari (Italy), 26-27 June 2007.
- [C18] M. Alioto, M. Poli, S. Rocchi, V. Vignoli, "A General Model of DPA Attacks to Precharged Busses in Symmetric-Key Cryptographic Algorithms", *Proceedings of the 18th European Conference on Circuit Theory and Design (ECCTD 2007)*, pp. 368-371, Sevilla (Spain), 26-30 August 2007.

- [C19] T. Addabbo, A. Fort, S. Rocchi and V. Vignoli, "On the Generation of Pseudo-Random Sequences exploiting Digitized Chaotic Systems", *Proceedings of the 18th European Conference on Circuit Theory and Design (ECCTD 2007)*, pp: 639 – 642, Sevilla (Spain), 26-30 August 2007.
- [C20] A. Fort, C. Lotti, M. Mugnaini, R. Palombari, S. Rocchi, L. Tondi, V. Vignoli, "A Two Electrode Amperometric Sensor for  $NO_2$  Detection", *Proceedings of the XV IMEKO TC-4 International Symposium on Novelties in Electrical Measurements and Instrumentation*, pp. 53-58, Iasi (Romania), 19-21 September 2007
- [C21] T. Addabbo, A. Fort, S. Rocchi and V. Vignoli, "On the Efficient Digital Implementation of Nonlinear Congruential Generators derived from the Rényi Chaotic Map", *Proceedings of the 2008 IEEE International Instrumentation and Measurement Technology Conference (I2MTC)*, pp. 1707-1711, Vancouver Island (Canada), 12-15 May 2008.
- [C22] A. Fort, A. Depari, G. Faglia, A. Flammini, M. Mugnaini, A. Ponzoni, V. Vignoli, "Model and experimental characterization of dynamic behaviour of low power Carbon Monoxide MOX with pulsed temperature profile", *Proceedings of the 2008 IEEE International Instrumentation and Measurement Technology Conference (I2MTC)*, pp. 1413-1418, Vancouver Island (Canada), 12-15 May 2008.
- [C23] T. Addabbo, A. Fort, S. Rocchi and V. Vignoli, "An Efficient and Accurate Method for Computing the Invariant Measure of Piecewise Affine Chaotic Maps", *Proceedings of the 2008 IEEE International Symposium on Circuits and Systems (ISCAS)*, pp. 760-763, Seattle (USA), 18-21 May 2008.
- [C24] A. Depari, G. Faglia, A. Flammini, A. Fort, M. Mugnaini, A. Ponzoni, S. Rocchi, E. Sisinni, V. Vignoli, "CO Detection by Mox Sensors Exploiting their Dynamic Behavior", *Proceedings of the 22nd International Conference EUROSENSORS 2008*, pp. 1070-1073, Dresden, Germany, 07-10 September 2008.
- [C25] Tommaso Addabbo, Ada Fort, Marco Mugnaini, Santina Rocchi, Valerio Vignoli, "Statistical Characterization of a Chaotic Piecewise Linear Map for Uniform-Distributed Analog Noise Generation", *Proceedings of the 16th IMEKO TC4 Symposium & 13th Workshop on ADC Modelling and Testing*, pp. 688-693, Florence, Italy, 22 - 24 September 2008.
- [C26] A. Fort, C. Lotti, M. Mugnaini, R. Palombari, S. Rocchi, V. Vignoli, "Amperometric Sensors Based on Nafion Proton Conductor: A Comparison between Two Different Structures", *Proceedings of the 16th IMEKO TC4 Symposium & 13th Workshop on ADC Modelling and Testing*, pp. 517-521, Florence, Italy, 22 - 24 September 2008.
- [C27] A. Depari, G. Faglia, A. Flammini, A. Fort, M. Mugnaini, A. Ponzoni, E. Sisinni, V. Vignoli, "Behavior of MOX CO Sensors During Thermal Transients",

- Proceedings of the 7th IEEE Conference on Sensors*, pp. 851-854, Lecce, Italy, 26-29 October 2008.
- [C28] A. Fort, F. Chiavaioli, C. Lotti, M. Mugnaini, S. Rocchi, V. Vignoli, "A Laboratory Impedance Meter for Electrochemical Sensors", *Proceedings of the 13<sup>th</sup> International Symposium on Olfaction and Electronic Nose (ISOEN 2009)*, pp. 303-305, Brescia, Italy, 15-17 April 2009.
- [C29] A. Fort, M. Mugnaini, I. Pasquini, S. Rocchi, V. Vignoli, "Modeling of the Influence of H<sub>2</sub>O on Metal Oxide Sensor Responses to CO", *Proceedings of the 13<sup>th</sup> International Symposium on Olfaction and Electronic Nose (ISOEN 2009)*, pp. 365-368, Brescia, Italy, 15-17 April 2009.
- [C30] A. Fort, M. Innocenti, M. L. Foresti, M. Mugnaini, I. Pasquini, L. Pigani, S. Rocchi, V. Vignoli, "NO<sub>2</sub> QCM gas sensor based on electrochemical deposition of PEDOT", *Proceedings of the 3rd IEEE International Workshop on Advances in Sensors and Interfaces*, pp. 184-187, Trani (BA), Italy, 25-26 June 2009.
- [C31] A. Fort, M. Mugnaini, V. Vignoli, S. Rocchi, E. Comini, G. Faglia, A. Ponzoni, "Characterization and modelling of SnO<sub>2</sub> nanowires sensors for CO detection", *Proceedings of the 3rd IEEE International Workshop on Advances in Sensors and Interfaces*, pp. 41-45, Trani (BA), Italy, 25-26 June 2009.
- [C32] A. Fort, M. Mugnaini, S. Rocchi, V. Vignoli, E. Comini, G. Faglia, A. Ponzoni, "Metal-Oxide nanowires sensors for CO detection: Characterization and Modelling", *Proceedings of the 2010 IEEE Sensors Applications Symposium (SAS-2010)*, pp. 25-29, Limerick, Ireland, 23-25 February 2010.
- [C33] A. Fort, M. Mugnaini, V. Vignoli, S. Rocchi, F. Perini, J. Monari, M. Schiaffino, F. Fiocchi, "Design and modeling of an optimized sensor for atmospheric electric field measurement", *Proceedings of the 2010 IEEE Sensors Applications Symposium (SAS-2010)*, pp. 105-109, Limerick, Ireland, 23-25 February 2010.
- [C34] T. Addabbo, A. Fort, S. Rocchi, V. Vignoli, "Histogram Test of ADCs with Chaotic Samples", *Proceedings of the 2010 IEEE International Instrumentation and Measurement Technology Conference (I2MTC)*, pp. 546-549, Austin (Texas), 3-6 May 2010.
- [C35] A. Fort, M. Mugnaini, S. Rocchi, E. Simoni, V. Vignoli, "Accuracy Evaluation of a Grid Islanding Impedance Detection System", *Proceedings of the 2010 IEEE International Instrumentation and Measurement Technology Conference (I2MTC)*, pp. 1295-1298, Austin (Texas), 3-6 May 2010.
- [C36] A. Fort, M. Mugnaini, V. Vignoli, S. Rocchi, F. Perini, J. Monari, F. Fiocchi, M. Schiaffino, "A low power measurement system for the atmospheric electric field", *Proceedings of the 2010 IEEE International Instrumentation and Measurement Technology Conference (I2MTC)*, pp. 1290-1294, Austin (Texas), 3-6 May 2010.

- [C37] T. Addabbo, A. Fort, S. Rocchi, V. Vignoli, "A Scalable Low-Entropy Detector to Counteract the Parameter Variability effects in TRBGs", *Proceedings of the 2010 IEEE International Instrumentation and Measurement Technology Conference (I2MTC)*, pp. 605-609, Austin (Texas), 3-6 May 2010.
- [C38] A. Fort, M. Mugnaini, I. Pasquini, S. Rocchi, R. Spinicci, V. Vignoli, "Characterization of  $\text{YCOO}_3$  Film Used for CO Gas Detection", *Proceedings of the 2010 International Conference on Environmental Odour Monitoring and Control (NOSE2010)*, pp. 153-158, Florence (Italy), 22-24 September 2010.
- [C39] T. Addabbo, Ada Fort, Ljupco Kocarev, Santina Rocchi and Valerio Vignoli, "Pseudo-Chaotic Lossy Compression of TRBGs", in stampa sui *Proceedings of the 2011 IEEE International Symposium on Circuits and Systems (ISCAS)*, Rio de Janeiro (Brazil), 15-18 May 2011.
- [C40] A. Fort, M. Mugnaini, I. Pasquini, S. Rocchi, L. Romualdi, V. Vignoli, R. Spinicci, M. Gregorkiewitz, "Development and characterization of low power perovskite CO gas sensors", in stampa sui *Proceedings of the 2011 IEEE International Instrumentation and Measurement Technology Conference (I2MTC)*, Binjiang, Hangzhou (China), 10-12 May 2011.