# IEEE Technical Committee on Cellular Nanoscale Networks and Array Computing Annual Report to the IEEE Circuits and Systems Society

*May 2013 – May 2014*

**Short Courses, Plenary Sessions, Keynote Speakers, Invited Lectures**

1. Ricardo Carmona-Galán, "CMOS Smart Image and Vision Sensors" (in collaboration with Prof. Á. Rodríguez-Vázquez), Seminar at the Institut de Ciències del Cosmos, Universitat de Barcelona, Spain, January 2014.
2. Ricardo Carmona-Galán, "Foundations and Practical Design of CMOS Image Sensors" (in collaboration with Prof. Á. Rodríguez-Vázquez), IEEE International Conference on Electronics, Circuits, and Systems (ICECS 2013) Tutorials, Abu Dhabi, UAE, December 2013.
3. Mustak E. Yalcin, "Active wave computing using the doppler effect and reconfigurable processor population," IRUN Winter School on nonlinear dynamics in cellular wave computing, Plenary lecture, January 28-30, 2013, Budpest, Hungary
4. Fernando Corinto, " Architectures for Nanoscale Hybrid Computing Systems," IRUN Winter School on nonlinear dynamics in cellular wave computing, Plenary lecture, January 28-30, 2013, Budpest, Hungary
5. Leon Chua, "1 3 7," 21st European Conference on Circuit Theory and Design (ECCTD 2013), Plenary Lecture, Dresden, Germany, Dec. 8 – 12, 2013.
6. Josef A. Nossek, "What is the Role of Circuit Theory in Communications Engineering?" 21st European Conference on Circuit Theory and Design (ECCTD 2013), Plenary Lecture, Dresden, Germany, Dec. 8 – 12, 2013.
7. Maciej Ogorzałek , "Self-powered integrated circuits and systems – dream becoming true!" 21st European Conference on Circuit Theory and Design (ECCTD 2013), Plenary Lecture, Dresden, Germany, Dec. 8 – 12, 2013.
8. Tamás Roska, "Frame-less detection of spatial-temporal events via wave algorithms" 21st European Conference on Circuit Theory and Design (ECCTD 2013), Plenary Lecture, Dresden, Germany, Dec. 8 – 12, 2013.
9. Tamás Roska, " Problems in Spatial-Temporal Event Detection," IRUN Winter School on nonlinear dynamics in cellular wave computing, Plenary lecture, January 28-30, 2013, Budpest, Hungary
10. Ángel Rodríguez-Vázquez," Brain-Machine Interface Circuits," 8th INTERNATIONAL CONFERENCE on ELECTRICAL and ELECTRONICS ENGINEERING, Plenary Lecture, Nov. 28-30 2013, Bursa, Turkey
11. "Implementing Neural and Synaptic Dynamics in Analogue CMOS", Workshop on neuromorphic models, circuits, and emerging nano-technologies for real-time neural processing systems, Living Machines 2013, London, 2 August 2013
12. "Implementation of Cortical Models using Configurable Analogue Spiking Neural Network Circuits", eFutures Community Meeting, London, 4 December 2013
13. X.Vilasís-Cardona, LHCb Calorimeter Performance, invited talk**,** V CPAN-Days, Santiago de Compostela, España, (November 2013)

14.

**Board memberships in Conferences**

1. Ronald Tetzlaff, General Chair, 21st European Conference on Circuit Theory and Design (ECCTD 2013), Dresden, Germany, Dec. 8 – 12, 2013.
2. Ronald Tetzlaff, Scientific Committee Member, IEEE International Workshop on Cellular Neural Networks and their Applications (CNNA), 2014.
3. Ronald Tetzlaff, Scientific Committee Member, Nonlinear Dynamics of Electronic Systems (NDES), 2013.
4. Akos Zarandy, Technical Program Committee Member, 21st European Conference on Circuit Theory and Design (ECCTD 2013), Dresden, Germany, Dec. 8 – 12, 2013.
5. Tamas Roska, Special Session Organiser, "Nonlinear Dynamics in Cellular Wave Computing," 21st European Conference on Circuit Theory and Design (ECCTD 2013), Dresden, Germany, Dec. 8 – 12, 2013.
6. Tamás Roska, Host Chair, IRUN Winter School on nonlinear dynamics in cellular wave computing, January 28-30, 2013, Budpest, Hungary
7. Fernando Corinto, Special Session Organiser, "Memristor Technology in Nonlinear Dynamical Circuits," 21st European Conference on Circuit Theory and Design (ECCTD 2013), Dresden, Germany, Dec. 8 – 12, 2013.
8. Fernando Corinto, Technical Program Committee Member, 21st European Conference on Circuit Theory and Design (ECCTD 2013), Dresden, Germany, Dec. 8 – 12, 2013.
9. Ricardo Carmona-Galán, Chair of the 2nd Workshop on Architecture of Smart Camera, Seville, June 3-4, 2013 (http://eunevis.org/wasc2013/)
10. Ricardo Carmona-Galán, Special Session Chair and Demo Session Co-chair in the 14th International Workshop on Cellular Nanoscale Networks and their Applications
11. Péter Szolgay, Special Session Organiser, "Problems and Solutions on Mega Core Array Architectures," 21st European Conference on Circuit Theory and Design (ECCTD 2013), Dresden, Germany, Dec. 8 – 12, 2013.
12. Chai Wah Wu, Organizing Committee Member, IMA Hot Topics Workshop: Mathematical and Computational Challenges in the Control, Optimization, and Design of Energy-Efficient Buildings, June 11-14, 2013.
13. Angela Slavova, Organizer of Special Session, "Mathematical Methods in Circuits and Systems Design" 21st European Conference on Circuit Theory and Design (ECCTD 2013), Dresden, Germany, Dec. 8 – 12, 2013.
14. Angela Slavova, Organizer of the Conference Bulgarian Section of SIAM (BGSIAM) 2013, Sofia 2013
15. Angela Slavova, Member of the Scientific Committee of Third and Fourth International Symposium on Radio Systems and Space Plasma, 2013.
16. Mustak E. Yalcin, Special session chairs: (in collaboration with Mattia Frasca ) "Spatio-temporal Dynamics in Memristor Circuits" 8th INTERNATIONAL CONFERENCE on ELECTRICAL and ELECTRONICS ENGINEERING, Nov. 28-30 2013, Bursa, Turkey
17. Piotr Dudek, "Implementing Neural and Synaptic Dynamics in Analogue CMOS", Workshop on neuromorphic models, circuits, and emerging nano-technologies for real-time neural processing systems, Living Machines 2013, London, 2 August 2013
18. PIotr Dudek, "Implementation of Cortical Models using Configurable Analogue Spiking Neural Network Circuits", eFutures Community Meeting, London, 4 December 2013

19. Xavier Vilasís-Cardona,

**Editorial Boards**

1. Ricardo Carmona-Galán, Associate Editor of IEEE Transactions on Circuits and Systems-I: January 2012-December 2013.
2. Ronald Tetzlaff, Editorial Board of the International Journal of Circuit Theory and Applications.
3. Ronald Tetzlaff, Editorial Board of the AEÜ – International Journal of Electronics and Communications
4. Péter Szolgay, Editor of Int. J. Circuit Theory and Applications, Wiley
5. Chai Wah Wu, Senior Editorial Board Member, IEEE Journal on Emerging and Selected Topics in Circuits and Systems
6. Chai Wah Wu, Deputy Editor-in-Chief, IEEE CAS Magazine
7. Angela Slavova, Editor-in-chief, International Journal of Neural Networks and Applications , International Science Press
8. Angela Slavova, Editorial Board Member, International Journal Environmental Sciences
9. Angela Slavova, Editorial Board Member, Universal Journal of Applied Mathematics
10. Mustak E. Yalcin, Guest Associate Editor, International Journal of Bifurcation and Chaos,
11. Mustak E. Yalcin, Editorial Board Member, Journal of Reconfigurable Computing
12. Piotr Dudek, Review Editor, Frontiers in Neuromorphic Engineering (2010 – present)

**Other IEEE Service and Professional Activities**

1. Ricardo Carmona-Galán, Member of the IEEE CASS Technical Committee on Sensory Systems (2012-present)
2. Ricardo Carmona-Galán, Member of the IEEE CASS Technical Committee on Cellular Nanoscale Networks and Array Computing (2004-present)
3. Ricardo Carmona -Galán,Secretary of the Scientific Staff Meeting, Institute of Microelectronics of Seville (Spain) 2009-present.
4. Ricardo Carmona-Galán, Member of the Institute Council, Institute of Microelectronics of Seville (Spain) 2012-present
5. Chai Wah Wu, IEEE-EAB ABET evaluator
6. Chai Wah Wu, Moody's Mega Math Challenge Judge
7. Chai Wah Wu, Webmaster/Social Media, IEEE Mid-Hudson section
8. Chai Wah Wu, Publicity Chair, IEEE Mid-Hudson section

9. Piotr Dudek, Chair-Elect, IEEE CAS Sensory Systems TC (2013-2015)
10. Piotr Dudek, Co-organiser of UK Design Forum, Manchester, 19-20 March 2014
11. Piotr Dudek, Champion of the Special Interest Group on "Neurally-Inspired Engineering", UK Neuroinformatics Node

**Awards, Honors, Patents**

1. Conference Best Paper Award: J. Fernández-Berni, R. Carmona-Galán, R. del Río, J. A. Leñero-Bardallo, M. Suárez-Cambre, Á. Rodrí-Vázquez, "Smart imaging for power-efficient extraction of Viola-Jones local descriptors". IS&T/SPIE Electronic Imaging: Image Sensors and Imaging Systems, Proceeding of SPIE, Vol. 9022, pp. 9022-09, San Francisco, California (USA), Feb. 2014. (DOI:10.1117/12.2042384).
2. Third Best Student Paper Award: M. Suárez, V. M. Brea, D. Cabello, J. Fernández-Berni, R. Carmona-Galán and Á. Rodríguez-Vázquez, "A 176x120 Pixel CMOS Vision Chip for Gaussian Filtering with Massivelly Parallel CDS and A/D-Conversion", 21st European Conference on Circuit Theory and Design (ECCTD 2013), pp. 45:1-45:4, Dresden (Germany), September 2013.
3. Chai Wah Wu, IEEE R1 Technological Innovation Award, 2013.

**Publications**

**Journal Articles**

1. R. Carmona-Galán, Á. Zarándy, C. Rekeczky, P. Földesy, A. Rodríguez-Pérez, C. Domínguez-Matas, J. Fernández-Berni, G. Liñ án-Cembrano, B. Pérez-Verdú, Z. Kárász, M. Suárez-Cambre, V. Brea-Sánchez, T. Roska, Á. Rodríguez-Vázquez, „A hierarchical vision processing architecture oriented to 3D integration of smart camera chips”, Journal of Systems Architecture (2013), doi: http://dx.doi.org/10.1016/j.sysarc.2013.03.002
2. Tamas Zsedrovits, Akos Zarandy, Balint Vanek, Tamas Peni, Jozsef Bokor, Tamas Roska, „Estimation of Relative Direction Angle of Distant, Approaching Airplane in Sense-and-avoid” Journal of Intelligent and Robotic Systems, Volume 69, Issue 1-4 , pp 407-415, 2013
3. J. Fernández-Berni, R. Carmona-Galán, R. del Río and Á. Rodríguez-Vázquez, "Bottom-up performance analysis of focal-plane mixed-signal hardware for Viola-Jones early vision tasks". International Journal of Circuit Theory and Applications, Vol. xx, No. xx, pp. xxx-xxx. (First published on-line on Apr. 16, 2014. DOI: 10.1002/cta.1996). ISSN: 1097-007X.
4. L. C. Gontard, G. Moldovan, R. Carmona-Galán, Chao Lin and A. I. Kirkland, "Detecting single-electron events in TEM using low-cost electronics and a silicon strip sensor". Microscopy (Previously Journal of Electron Microscopy), Vol. xx, No. xx, pp. xxx-xxx. (First published online on Jan. 8, 2014. DOI:10.1093/jmicro/dft051) ISSN: 2050-5701, eISSN: 2050-5698.
5. R. Carmona-Galán, Á. Zarándy, Cs. Rekeczky, P. Földesy, A. Rodríguez-Pérez, C. Domínguez-Matas, J. Fernández-Berni, G. Liñán-Cembrano, B. Pérez-Verdú, Z. Kárász, M. Suárez-Cambre, V. M. Brea-Sánchez, T. Roska and Á. Rodríguez-Vázquez, "A hierarchical vision processing architecture oriented to 3D integration of smart camera chips". Journal of Systems Architecture, Vol. 59, No. 10, Part A, pp. 908-919, 2013. (DOI: 10.1016/j.sysarc.2013.03.002) ISSN: 1383-7621.
6. Z. Nagy, C.Nemes, A.Hiba, Á Csík, A.Kiss, M.Ruszinkó and P. Szolgay, “Accelerating unstructured finite volume computations on fieldprogrammable gate arrays”, Concurrency and Computation:Practice and Experience, 2013. DOI:10.1002/cpe.3022
7. C.Nemes, G.Barcza, Z.Nagy, Ö. Legeza and P.Szolgay,”The density matrix renormalization groupalgorithm on kilo-processor architectures:implementation and trade-offs”,Computer Pysics Communications, 2014, Accepted for publication

8. H. Liu, M. Cao, C. W. Wu, “Coupling Strength Allocation for Synchronization in Complex Networks Using Spectral Graph Theory”, IEEE TCAS-I, vol. 61, issue 5, pp. 1520 – 1530, May 2014.
9. Slavova A., P.Zecca, M.Markova, Modeling of natural disasters via Cellular Neural Networks approach, International Jornal of Environmental Sciences, 2013, issue 1, pp.16-26
10. Slavova A., R.Tetzlaff, CNN Computing of Double Sine-Gordon Equation with Physical Applications, C. R. Acad. Sci. Bulg.,vol.67, No. 1, 2014, pp.21-28
11. Yeniceri R. and Yalcin M.E. “True random bit generation with time-delay sampled-data feedback system,” Electronics Letters, Vol. 49, No 8, 2013, doi: 10.1049/el.2012.3448.
12. Yalcin M.E.,Yeniceri R. and Ozoguz S. “A Chaotic Time-delay Sampled-data System and its Implementation,” ," International Journal of Bifurcation and Chaos, Vol. 44, No 3, 2014, doi:10.1142/S0218127414500394.
13. Wang, F. Z., Chua, L. O., Yang, X., Helian, N., Tetzlaff, R., & Schmidt, T., et al. Adaptive Neuromorphic Architecture (ANA). Neural Networks (2013), Sep; 45:111-6. doi: 10.1016/j.neunet.2013.02.009. Epub 2013 Mar 14
14. R. Tetzlaff, C. Wah Wu, Guest Editorial about Memristors in IEEE Circuits and Systems Magazine, 05/2013
15. A. Ascoli, F. Corinto, V. Senger and R. Tetzlaff, “Model dependency of memristor circuit dynamics” chapter in book “Systemtheorie Signalverarbeitung Sprachtechnologie”, Studientexte zur Sprachkommunikation, published on the special occasion of the 65th birthday of Prof. R*ü*diger Hoffmann, edited by D. Mehnert, U. Kordon, M. Wolff, TUD Press, pp. 45-58, 2013, ISSN 0940-6832, ISBN 978-3-944331-19-5
16. A. Ascoli, F. Corinto, V. Senger and R. Tetzlaff, “Memristor model comparison”, Circuits and Systems Magazine, 2ndquarter 2013 89-105, DOI: 10.1109/MCAS.2013.2256272
17. P.Mroszczyk and P.Dudek, “Tunable CMOS Delay Gate With Improved Matching Properties”, IEEE Transactions on Circuits and Systems I (in print)
18. S.J.Carey, D.R.W.Barr and P.Dudek, "Low Power High-Performance Smart Camera System based on SCAMP Vision Sensor".Journal of Systems Architecture**,** Vol 59, Issue 10, Part A, pp.889-899, November 2013
19. S.J.Carey, D.R.W.Barr, B.Wang, A.Lopich and P.Dudek, "Mixed signal SIMD processor array vision chip for real-time image processing", Analog Integrated Circuits and Signal Processing**,** Vol 77, Issue 3, pp.385-399, November 2013
20. Xavier Vilasis Cardona : journal articles can be followed in this link: http://cds.cern.ch/collection/LHCb Papers?ln=en

**Peer Reviewed Conference Papers**

1. Zarandy, Z. Nagy, B. Vanek, T. Zsedrovits, A. Kiss, M. Nemeth, “A Five-Camera Vision System for UAV Visual Attitude Calculation and Collision Warning”, Computer Vision Systems (ICVS 2013, St. Petersburg), Lecture Notes in Computer, Science Volume 7963, 2013, pp 11-20
2. Ákos Zarándy, Tamás Zsedrovits, Zoltán Nagy, András Kiss, Tamás Roska, „On-board see-and-avoid system”, Conference of the Hungarian Association for Image Processing and Pattern Recognition (Kepaf 2013) pp 604-617. Bakonybel, 2013
3. S. J. Carey, Á. Zarándy, P. Dudek, „Characterization of processing errors on analog fully-programmable cellular sensor-processor arrays” ISCAS-2014, Melbourne, Australia

4. Á. Rodríguez-Vázquez, R. Carmona, J. Fernández-Berni, S. Vargas, J. A. Leñero and B. Pérez-Verdú, "Using 3-D Technologies for Form Factor Improvement of Low-Power Vision Sensors". 5th IEEE Latin American Symposium on Circuits and Systems (LASCAS 2014), pp. XX-XX, Santiago (Chile), February 2014.
5. J. Fernández-Berni, R. Carmona-Galán, R. del Río, J. A. Leñero-Bardallo, M. Suárez-Cambre, Á. Rodrí-Vázquez, "Smart imaging for power-efficient extraction of Viola-Jones local descriptors". IS&T/SPIE Electronic Imaging: Image Sensors and Imaging Systems, Proceeding of SPIE, Vol. 9022, pp. 9022-09, San Francisco, California (USA), Feb. 2014. (DOI:10.1117/12.2042384) Best paper award.
6. M. Suárez, V. M. Brea, D. Cabello, J. Fernández-Berni, R. Carmona-Galán and Á. Rodríguez-Vázquez, "A 176x120 Pixel CMOS Vision Chip for Gaussian Filtering with Massivelly Parallel CDS and A/D-Conversion", 21st European Conference on Circuit Theory and Design (ECCTD 2013), pp. 45:1-45:4, Dresden (Germany), September 2013 (Third Best Student Paper Award).
7. J. Fernández-Berni, R. Carmona-Galán and A. Rodríguez-Vázquez, "Reconfigurable focal-plane hardware for block-wise intra-frame HDR imaging", IISS International Image Sensor Workshop (IISW 2013), pp. 289-292, Snowbird Resort, Utah (USA), June 2013.
8. J. Fernández-Berni, R. Carmona-Galán and A. Rodríguez-Vázquez, "An Ultra-Low-Power Voltage-Mode Asynchronous WTA-LTA Circuit", IEEE International Symposium on Circuits and Systems (ISCAS 2013), pp. 1817-1820, Beijing, China, May 2013. ISBN: 978-1-4673-5761-6.
9. I. Vornicu, R. Carmona-Galán and A. Rodríguez-Vázquez, "A CMOS 8x8 SPAD Array for Time-of-Flight Measurement and Light-Spot Statistics", IEEE International Symposium on Circuits and Systems (ISCAS 2013), pp. 2626-2629, Beijing, China, May 2013. ISBN: 978-1-4673-5761-6.
10. C.Nemes, G.Barcza, Z.Nagy, Ö. Legeza and P.Szolgay," Implementation trade-offs of the density matrix renormalization groupalgorithm on kilo-processor architectures", Proc. of ECCTD, pp.100-104, 2013 Dresden
11. B.J.Borbély, P.Szolgay, Z. Kincses, Zs.Vörösházi, "Analysis of myoelectric signals using a Field Programable SoC", Proc. of ECCTD, pp.105-109, 2013 Dresden
12. K. Chandu, M. Stanich, C. W. Wu, B. Trager,"Hybrid halftoning using direct multi-bit search (DMS) screen algorithm", Electronics Imaging 2014, Color Imaging XIX: Displaying, Processing, Hardcopy, and Applications, 90150P, Proceedings of SPIE 9015, January 2014.
13. C. W. Wu, B. Trager, K. Chandu, M. Stanich, "A Riesz energy based approach to generating dispersed dot patterns for halftoning applications", Electronics Imaging 2014, Color Imaging XIX: Displaying, Processing, Hardcopy, and Applications, 90150Q, Proceedings of SPIE 9015, January 2014.
14. H. Liu, M. Cao, C. W. Wu, "Graph comparison and its application in network synchronization", European Control Conference, July 2013, pp. 3809-3814.
15. H. Liu, M. Cao, C. W. Wu, "New spectral graph theoretic conditions for synchronization in directed complex networks", ISCAS 2013, May 2013, pp. 2307-2310.
16. Slavova A., Stabilization Of Coupled Reaction-Diffusion CNN, IEEE Proc., ECCTD2013, ISBN:978-3-00-043430-3
17. Slavova, A. , Control techniques for complex chaotic systems, BGSIAM 2013, Sofia, 2013.

18. K. Majetta, C. Clauß, T. Schmidt, R. Tetzlaff: „Simulationsmodelle für Memristoren“ Asim-Treffen STS/GMMS 2013, Seiten 21-29, Düsseldorf, 28.02.-01.03.2013
19. U. Feldmann, T. Schmidt, R. Tetzlaff “Analysis of Multi-Memristor Circuits“ in Proc. of the IEEE International Symposium on Circuits and Systems, ISCAS 2013, May 19-23 2013, Beijing, China
20. A. Nonlinear Networks (RD-CNN), from medicine to bionics, 1st European Ph.D. Conference, Budapest 2013.
21. A. Ascoli, V. Senger, R. Tetzlaff, F. Corinto: A novel polynomial memristor model IEEE Workshop on Nonlinear Dynamics in Electronic Systems NDES, Bari 2013 – Book of Abstracts
22. T. Tang, R. Tetzlaff, Applying Cellular Neural Networks dynamics for image representation, Proc of the European Conference on Circuit Theory and Design (ECCTD), pp.1-4, 8-12 Sept. 2013, Dresden
23. Braunschweig, R.; Muller, J.; Muller, J.; Tetzlaff, R., "NERO mastering 300k CNN cells," Proc. of the European Conference on Circuit Theory and Design (ECCTD), pp.1-4, 8-12 Sept. 2013, Dresden
24. Weiran Cai; R. Tetzlaff, F. Ellinger, "Critical role of initial condition in the dynamics of memristive systems: Orbital narrowing revisited", Proc. of the European Conference on Circuit Theory and Design (ECCTD), 8-12 Sept. 2013, Dresden
25. F. Corinto, M. Gilli, A. Ascoli and R. Tetzlaff, “Complex dynamics in neuromorphic memristor circuits”, Proc. of the European Conference on Circuit Theory and Design (ECCTD), 8-12 Sept. 2013, Dresden
26. K. Majetta, C. Clauß, T. Schmidt and R. Tetzlaff, “Modeling and Simulation of Memristors with Modelica”, Proc. of the European Conference on Circuit Theory and Design (ECCTD), 8-12 Sept. 2013, Dresden
27. A. Ascoli, F. Corinto, V. Senger and R. Tetzlaff, “Insights on memristor modeling”, Proc. of the European Conference on Circuit Theory and Design (ECCTD), vol., no., pp.1,4, 8-12 Sept. 2013, Dresden, doi: 10.1109/ECCTD.2013.6662200
28. A. Ascoli, R. Tetzlaff, F. Corinto, M. Mirchev and M. Gilli, “Memristor-based filtering applications”, Proc. Latin American Test Workshop (LATW), 2013
29. V. Senger, R. Tetzlaff “Eigenvalue based EEG signal analysis for seizure prediction“ – 6th International Workshop on Seizure Prediction, San Diego, Book of Abstracts, November 2013
30. P.Mroszczyk and P.Dudek, “The Accuracy and Scalability of Continuous-Time Bayesian Inference in Analogue CMOS Circuits”, IEEE International Symposium on Circuits and Systems, ISCAS 2014
31. S.J.Carey, Á.Zarándy and P.Dudek, “Characterization of processing errors on analog fully-programmable cellular sensor-processor arrays”, IEEE International Symposium on Circuits and Systems, ISCAS 2014
32. D.R.W. Barr, D.Walsh and P.Dudek, "A Smart Surface Simulation Environment", IEEE International Conference on Systems, Man and Cybernetics, SMC 2013, October 2013.
33. I.Georgilas, A.Adamatzky, D.Barr, P.Dudek and C.Melhuish, "Metachronal waves in cellular automata: Cilia-like manipulation in actuator arrays", VI International Workshop on Nature Inspired Cooperative Strategies for Optimisation (NICSO 2013), September 2013
34. P.Mroszczyk and P.Dudek, "Trigger-Wave Propagation in Arbitrary Metrics in Asynchronous Cellular Logic Arrays", European Conference on Circuit Theory and Design, ECCTD 2013, Dresden, Germany, 8-12 September 2013

35. A.Lopich and P.Dudek, "A General-purpose Vision Processor with 160x80 Pixel-Parallel SIMD Processor Array", IEEE Custom Integrated Circuits Conference, CICC 2013, San Jose, California, 23-25 September 2013
36. B.Wang and P.Dudek, "AMBER: Adapting Multi-resolution Background Extractor", IEEE International Conference on Image Processing, ICIP 2013, Melbourne, Australia, 15-18 September 2013
37. P.Mroszczyk and P.Dudek, "Tunable CMOS Delay Gate with Reduced Impact of Fabrication Mismatch on Timing Parameters", IEEE International NEWCAS Conference 2013, Paris, pp.1-4, June 2013.
38. S.J.Carey, A.Lopich, D.R.W.Barr, B.Wang and P.Dudek, "A 100,000 fps Vision Sensor with Embedded 535 GOPS/W 256x256 SIMD Processor Array", VLSI Circuits Symposium 2013, Kyoto, pp.C182-C183, June 2013
39. Ascoli, R. Tetzlaff, F. Corinto and M. Gilli, "PSpice switch-based versatile memristor model", in Proc. of the IEEE International Symposium on Circuits and Systems, ISCAS 2013, May 19-23 2013, Beijing, China
40. Alsheima Osman, Ronald Tetzlaff, Identification of complex systems by Reaction-Diffusion Cellular
41. X.Vilasís-Cardona, First Years of Running for the LHCb Calorimeter Systems CALOR 2014 - Giessen (Germany)
42. MAURICIO FERRE, Joan, GASCON, David ; VILASIS CARDONA, Xavier ; PICATOSTE OLLOQUI, Eduardo ; MACHEFERT, Frederic ; LEFRANCOIS, Jacques (Universite de Paris-Sud 11 ; DUARTE, Olivier **Radiation hard programmable delay line for LHCb Calorimeter Upgrade ,**TWEPP 2013 - Topical Workshop on Electronics for Particle Physics Peruggia (Italy) – Sept. 2013.
43. MAURICIO FERRE, Joan, GASCON, David ; VILASIS CARDONA, Xavier ; PICATOSTE OLLOQUI, Eduardo ; MACHEFERT, Frederic ; LEFRANCOIS, Jacques (Universite de Paris-Sud 11 ; DUARTE, Olivier, **Upgrade of the LHCb Calorimeters** TWEPP 2013 - Topical Workshop on Electronics for Particle Physics, Peruggia (Italy) – Sept. 2013
44. BADALOV, Alexey ; CAMPORA PEREZ, Daniel Hugo; ZVYAGIN, Alexander, NEUFELD, Niko; VILASIS CARDONA, Xavier, **A GPU offloading mechanism for LHCb,** 20th International Conference on Computing in High Energy and Nuclear Physics (CHEP2013) Oct 2013.

## Books and Book Chapters

A. Ascoli, F. Corinto, V. Senger and R. Tetzlaff, "Model dependency of memristor circuit dynamics" chapter in book "Systemtheorie Signalverarbeitung Sprachtechnologie", Studientexte zur Sprachkommunikation, published on the special occasion of the 65th birthday of Prof. R*ü*diger Hoffmann, edited by D. Mehnert, U. Kordon, M. Wolff, TUD Press, pp. 45-58, 2013, ISSN 0940-6832, ISBN 978-3-944331-19-5

K. Lehnertz, C. E. Elger, R. Tetzlaff: "Recent Advances in Predicting and Preventing Epileptic Seizures", 304pp, November 2013, ISBN: 978-981-4525-34-3, World Scientific

J. Müller, J. Müller, R. Becker, and R. Tetzlaff "Signal Processing Platform Based on Cellular Nonlinear Networks" in the book "Recent Advances in Predicting and Preventing Epileptic Seizures": pp. 215-227, November 2013, ISBN: 978-981-4525-34-3, World Scientific

V. Senger, R. Tetzlaff “Seizure prediction by Cellular Nonlinear Networks?“ In: R. Tetzlaff, C. E. Elger, K. Lehnertz (eds), Recent Advances in Predicting and Preventing Epileptic Seizures, November 2013, ISBN: 978-981-4525-34-3, World Scientific

Slavova, A. Book Chapter: “Chaotic Systems and their Applications in Industry”, in Book: ”Mathematics in Industry”, Cambridge Scholars Publishing, 2014

Slavova, A. Editor of the book: “Mathematics in Industry”, Cambridge Scholars Publishing, 2014

**Other Publications**

1. J. A. Díaz-Madrid, G. Domenech-Asensi, G. Rodríguez-Bermúdez, R. Carmona-Galán, "Implementación de un ADC de tipo cíclico y topología pipeline, reconfigurable y de bajo consumo en tecnología CMOS de 0.35um".Congreso nacional de I+D en Defensa y Seguridad (DESEi+d 2013), pp. 43-51, Madrid, Noviembre 2013. ISBN: 978-84-7402-399-2.
2. S.J.Carey, D.R.W. Barr, B.Wang, A.Lopich, and P.Dudek, “Live Demonstration: A Sensor-Processor Array Integrated Circuit for High-speed Real-time Machine Vision”, IEEE International Symposium on Circuits and Systems, ISCAS 2014