

Part C. RELEVANT MERITS

C.1. Publications (including books)

1. O. Pereira-Rial, P. López, J. M. Carrillo, V. M. Brea, D. Cabello. A 11mA Capacitorless LDO with 3,08nA Quiescent Current and SSF-based Adaptive Biasing. *IEEE Transc. On Circuits and Systems II: Express Briefs*. (Early acces, 25 november 2021). DOI: 10.1109/TCSII.2021.3130674. Journal Impact factor (JCR 2020): 3,292 Rank: 97/273 [Q2], Engineering, Electrical & Electronic
2. O. Pereira-Rial, J.M. Carrillo, P. López, D. Cabello. A 0.6 V, ultra low-power, 1060 μm^2 selfbiased PTAT voltage generator for implantable biomedical devices. *AEU-Intenational Journal of Electronics and Communicataions*, vol. 137, pp.153800, 2021. DOI: 10.1016/j.aeue.2021.153800. Journal Impact factor (JCR 2020): 3,183 Rank: 102/273. [Q2], Engineering, Electrical & Electronic
3. D. Cabello, E. Ferro, O. Pereira-Rial, B. Martínez-Vázquez, V.M. Brea, J.M. Carrillo, P. López. On Chip Solar Energy Harvester and PMU with Cold Start-Up and Regulation Output Voltage for Biomedical Applications. *IEEE Transactions on Circuits and Systems-I: Regular Papers*. 67 (4), pp. 1103-1114, 2020. DOI: 10.1109/TCSI.2019.294452. Journal Impact Factor (JCR 2020): 3.605 Rank: 80/273 [Q2], Engineering, Electrical & Electronic
4. E. Ferro, V.M. Brea, P. López, D. Cabello. Micro-Energy Harvesting System Including a PMU and a Solar Cell on the Same Substrate with Cold Startup from 2,38 nW and Input Power range up to 10 μW using Continuous MPPT. *IEEE Transactions on Power Electronics*, 34 (6), pp. 5105-5116, 2019. DOI:10.1109/TEPEL.2018.2877105. Journal Impact Factor (JCR 2019): 6,373 Rank: 22/266 [D1], Engineering, Electrical & Electronic.
5. M. Suárez, V.M. Brea, J. Fernández-Berni, R. Carmona-Galán, D. Cabello, A. Rodríguez-Vázquez. Low Power CMOS Vision Sensor for Gaussian Pyramid Extraction. *IEEE Journal of Solid State Circuits*, 52 (2), pp.483-495, 2017. DOI:10.1109/JSSC.2016.261058. Journal Impact Factor (JCR 2017): 4,075 Rank: 34/260 [Q1], Engineering, Electrical & Electronic
6. E. Ferro, V.M. Brea, P. López, D. Cabello. Dynamic Model of Switched-Capacitor DC-DC Converters in the Slow-Switching Limit including Charge Reusing. *IEEE Transactions on Power Electronics*, 32 (7), pp.5293-5311, 2017. DOI: [10.1109/TPEL.2016.2607800](https://doi.org/10.1109/TPEL.2016.2607800). Journal Impact Factor (JCR 2017): 6,812 Rank: 14/260 [Q1], Engineering, Electrical & Electronic.
7. D. García-Lesta, D. Cabello, E. Ferro, P. López, V.M. Brea, Wireless Sensor Network with Perpetual Motes for Terrestrial Snail Activity Monitoring, *IEEE Sensors Journal*, 17 (15) pp. 5008-5015, 2017. DOI: [10.1109/JSEN.2017.2718107](https://doi.org/10.1109/JSEN.2017.2718107). Journal Impact Factor (JCR 2017): 2,617 Rank: 14/61 [Q1], Instruments & Instrumentation
8. J. Illade-Quinteiro, P. López, Víctor M. Brea, D. Cabello and G. Doménech-Asensi, Four-Transistor pinned photodiodes in standard CMOS technologies for time-of-flight sensors, *Semiconductor Science and Technologies*, 30 (4), pp. 045002-045013, 2015. Journal Impact Factor (JCR 2015): 2,098 Rank: 65/257 [Q2], Engineering, Electrical & Electronic
9. J. Illade-Quinteiro, P. López, V. Brea, D. Cabello and G. Doménech-Asensi. Distance Measurement Error in Time-of-flight Sensors due to Shot Noise. *Sensors*, Vol 15, 4624-4642. 2015. DOI: 10.3390/s150304624. Journal Impact Factor (JCR 2015): 2,003 Rank: 12/56 [Q1], Instruments & Instrumentation.

C.2. Research projects and grants

1. Title: Multispectral Intelligent Vision System with Embedded Low-Power Neural Computing (MISEL)
Funding: 2020 FETPROACT-09-2020 Neuromorphic computing technologies, European Commission, Grant agreement ID: 101016734
Participating entities: VTT Technical Research Centre of Finland (líder), AMO, BERGISCHE UNIVERSITAET WUPPERTAL, FRAUNHOFER GESELLSCHAFT ZUR FOERDERUNG DER ANGEWANDTEN FORSCHUNG E.V., KOVILTA OY, LABORATOIRE NATIONAL DE METROLOGIE ET D'ESSAIS, POLITECHNIKA LODZKA, LUNDS UNIVERSITET, UNIVERSITY OF SANTIAGO DE COMPOSTELA.
Duration: 01/01/2021 - 31/12/2024

- Principal investigator: Jacek Flack (VTT), WP3: Víctor Brea (USC)
Amount (USC): 653.301,25 €
Type of participation: investigator
2. Title: European Training Network (ETN) on Multimodal Environmental Exploration Systems-Novel Technologies (MENELAOSNT)
Funding: H2020-MSCA-ITN-2019, ENG 860370
Participating entities: Universitaet Siegen, Fraunhofer Gesellschaft zur Foerderung der Angewandtd Forschung E.V., Ingeniería Insitu SL, Universitatea Politehnica din Bucuresti, Sabanci Universitesi, Universidad de Santiago de Compostela (USC), Weizmann Institute of Science.
Duration: 48 meses, inicio 01/01/2020
Amount: 501.809,76 € (USC)
Coordinador: Paula López (Universidad de Santiago de Compostela)
Type of participation: investigator
3. Title: Sensores CMOS de visión, gestión de energía y seguimiento de objetos sobre GPUs
Funding: Ministerio de Ciencia, Innovación y Universidades, RTI2018-097088-B-C32
Participating entities: Instituto de Microelectrónica de Sevilla (IMSE), Universidad Politécnica de Cartagena, Universidad de Santiago de Compostela.
Duration: 01/01/2019 – 31/12/2021
Amount: 81.796,00 €
Principal investigator (subproyecto USC): Víctor M. Brea Sánchez
Type of participation: investigador
4. Title: Nanoeaters-II: Transfer and valorization of NANOTEchnologies to innovative PYMEs from the Euroregion. Work Package: Eyepress: Autonomous Implantable System for Monitoring of IntraOcular Eye Pressure.
Funding: INTETERRREG V A España-Portugal (POCTEP) (2014-2020)
Participating entities: Universidad de Santiago de Compostela, Iberian Nanotechnology Lab (Braga, Portugal)
Principal investigator: of the project: GAIN (Xunta de Galicia), of the work package: Víctor M. Brea Sánchez
Reference: 0181_NANOEATERS_1_E
Duration: 01/01/2017 - 31/12/2019
Amount: 126.707,27
Type of participation: Investigator
5. Title: integrated vision systems for feature extraction with energy harvesting and management on-chip for unmanned aerial platforms
Funding: Ministerio de Economía y Competitividad
Reference: TEC2015-66878-C3-3-R
Participating entities: Instituto de Microelectrónica de Sevilla (IMSE), Universidad Politécnica de Cartagena, Universidad de Santiago de Compostela.
Duration 01/01/2016 - 31/12/2018
Amount: 171.578,00 €
Principal investigator (USC subproject): Paula López Martínez
Type of participation: Investigator

C.3. Contracts

1. Title: Artificial vision systems for carry out traffic studies using images captured by RPAS (Sistemas de visión artificial para realizar estudios de tráfico mediante imágenes captadas por RPAS).
Type of contract: Contract associated with the grant obtained by the company in the NEOTEC 2015 call of the CDTI (Plan de empresa Aplygenia SL, EXP-0084916/SNEO-20151181)
Founding: Aplygenia, S.L.
Amount: 45.089,44 € (IVA no incluido)
Duration: 01/11/16 – 30/06/2018
Principal investigators: Víctor M. Brea Sánchez, Manuel Mucientes Molina

2. Title: Technologies for lateral protection, smart and adaptatives (ADAPTA) (Tecnologías de funciones de protección lateral, inteligentes y adaptativas)
Type of contract: contract associated with ADAPTA project, CENIT program, INGENIO 2010 program (CENIT-2008 1031).
Founding: Innovaciones Microelectrónicas, S.L. (Anafocus)
Participating entities: Universidad de Santiago de Compostela
Duration: January, 2009 - March, 2012
Amount: 130.500 € (IVA no incluido)
Principal investigator: Diego Cabello Ferrer

C.4. Patents

1. Inventors: Manuel Felipe Mucientes Molina, Víctor M. Brea Sánchez, Mauro Fernández Sanjurjo, Paula López Martínez, Diego Cabello Ferrer
Title: *vTrack4VC: Tracking system for counting and classifying vehicles.*
Software registers under exploitation: Rexistro territorial da propiedade intelectual, oficina delegada de Santiago de Compostela, asiento registral número 03/2016/754
Nº: SC210-16
Date of presentation: 27/06/2016
Exploitation contract date, amount and licensee: 19/07/2016, Apligenia SL. Royalties: 30 % of the net sells of the services and products that incorporate the licensed technology.

C.5 Awards

- “Best paper Award ECCTD 2003”: “On the Mathematical Domain of a CMOS Discrete-Time Cellular Non-linear Network Cell” (V.M. Brea, F. Pardo, D.L. Vilariño, D. Cabello and A. Paasio), European Conference on Circuit Theory and Design, AGH University of Science and Technology, Krakow, Poland, 2003. European Circuit Society.
- “Best student paper Award ECCTD 2013, Third place”: “A 176*120 pixel CMOS vision chips for Gaussian filtering with massively parallel CDS and A/D-conversion” (M. Suárez, V.M. Brea, D. Cabello, J. Fernández-Berni, R. Carmona-Galán, A. Rodríguez-Vázquez), European Conference on Circuit Theory and Design, Technische Universität Dresden, 2013. PhD student: M. Suárez.

C.6, C.7... (e. g., Institutional responsibilities, memberships of scientific societies...)

- Head of the Electronics and Computer Science Department of the University of Santiago de Compostela from June 14, 2002 to November 10, 2006
- Dean of the Faculty of Physics of the University of Santiago de Compostela from June 17, 1997 to January 31, 2002.
- Member of the Research Selection Committee. Consellería de Presidencia y Administración Pública, Government of Galicia (Xunta de Galicia). Type of activity: proposal of resolution of the calls for the general plan of knowledge of the Galician R & D program. From April 21, 1998 to June 26, 2006.
- Member of the Selection Committee of the Electronic Technologies and Communications, Electronic and photonic devices, Sensors and Microsystems area. Type of activity: selection of projects submitted to the Fundamental Research Projects program. 2008 call for research projects of the national R + D + I plan.
- Organizer member of the WASC 2015, <http://eunevis.org/wasc2015/index.php>
- Reviewer of international journals: IEEE Trans. on Circuits and Systems, IEEE Trans. on Power Electronics, IEEE Trans. on Biomedical Circuits and Systems, International Journal of Circuit Theory and Applications, Microprocessor and Microsystems, Journal of Real-Time Image Processing, ...