



CURRICULUM VITAE (CVA)

IMPORTANT – The Curriculum Vitae cannot exceed 4 pages. Instructions to fill this document are available in the website.

Part A. PERSONAL INFORMATION		CV date	12/01/2022
First name	Alejandro		
Family name	Carballar		

(*) Mandatory

A.1. Current position

Position	Professor		
Initial date	From 12/01/2018		
Institution	Universidad de Sevilla (US)		
Department/Center	Electronic Engineering Department – E.T.S. de Ingeniería		
Country	Spain		
Key words	optical networks; fiber-optic communication systems; all-optical signal processing; all-optical computing; ultrafast photonics; measurement and characterization of ultrafast optical signals and photonic components; all-fiber and integrated waveguide components and devices; light pulse interferometry; optical sensors; thermal solar energy.		

A.2. Previous positions (research activity interruptions, art. 14.2.b))

Period	Position/Institution/Country/Interruption cause
Apr. 2002 - Jan. 2018	Associate Professor , Electronic Engineering Department (US), Seville, Spain.
Mar. 2002 - Sep. 2006	Vicedean (Responsible for the Computer Centre and Library), at the E.T.S. Ingeniería (US), Seville, Spain.
Mar. 2002 - Dec. 2014	Vicedean at the Official College of Telecommunication Engineers of Andalusia, Spain.
Apr. 2000 - Mar. 2002	Assistant Professor III , Electronic Engineering Department (US), Seville, Spain.
Oct. 1999 - Mar. 2000	Assistant Professor II , Electronic Engineering Department (US), Seville, Spain.
Jan. 1996-Sep. 1999	Ph.D. Student / Research and Teaching Assistant , <i>Universidad Politécnica de Madrid- UPM</i> (Dpt. Photonic Technology), Madrid, Spain.

A.3. Education

	University/Country	Year
PhD, Licensed, Graduate		
Telecommunication Engineering	Universidad Politécnica de Madrid	1995
PhD. in Telecommunication Engineering	Universidad Politécnica de Madrid	1999

Part B. CV SUMMARY (max. 5000 characters, including spaces)

Alejandro Carballar was born in Santa Olalla (Huelva – SPAIN). He received the Telecommunication Engineer degree (six-year engineering program) and the Ph.D. degree

from the Polytechnic University of Madrid (UPM), Spain, in 1995 and 1999, respectively. From September 1999 to mid 2018, he worked as an Associate Professor at the Electronic Engineering Department in the University of Seville, where he was promoted to Full Professor in the area on Optical Communications at the end of 2018. His research interest involves a wide range of topics including light propagation in periodic structures (in particular fiber Bragg gratings), ultrafast optical signal processing, characterization of ultrashort electromagnetic pulses, optical computing, fiber-optics telecommunications, applications of advanced signal-processing techniques to photonic signals and systems, optical components characterization, fiber-optics sensors, and optical sensors for the optimization of thermosolar energy generation processes. His general indicators of quality of scientific production are:

- 4 Validated Research Periods (1996-2001, 2002-2007, 2008-2013, 2014-2019)
- 3 supervised Thesis:
 - Luis Miguel Rivas – 2012 – co-supervised with Dr. José Azaña
 - María R. Fernández-Ruiz – 2016 – co-supervised with Dr. José Azaña
 - Ovidio González de Uña – 2018
- Citations Statistics (**Web of Science**):
 - Number of JCR articles: 22
 - Total citations: 599
 - h-index: 11
 - Articles in Q1: 18

Other indicators:

- Scopus – A. Carballar: Total citations: 707; h-index: 12
- Google Scholar – A. Carballar: Total citations: 914; h-index: 13
- Research Gate (RG): RG Score: 25.08

He has published 22 articles in journals indexed in the “Journal of Citation Reports”, 7 book chapters/monographs, and 27 conference proceedings (2 invited) in international and national congresses. He has participated, and in many cases lead, 12 research projects; and he has directed R&D projects with a total financing of more than two million euros in private contracts with different companies (mainly, Vodafone) through AICIA (innovation and Technology Centre recognized by the Ministry of Education with the number 93). Dr. Carballar is a Senior Member of the IEEE (Institute of Electrical and Electronics Engineers) and OSA (Optical Society of America). He has acted as technical reviewer for several journals in the field of optoelectronics and optical communications. He was awarded with the 20th national prize for the “best doctoral thesis in data networks” from the Association of Telecommunication Engineers of Spain, in 2000; with the “extraordinary prize for the best doctoral thesis” from his former university, UPM, in 2001; with the University-Company Foundation Award for the Minerva Project: “Mobility Services Platform - Cartuja'93” in 2008, which he has been Technical Director of. He has been Deputy Director of Planning and Common Resources of the Faculty of Engineering of the University of Seville; he has been Vice Dean of the Association of Telecommunication Engineers of Western Andalusia; and currently, he is Deputy Director of Digitization and Communications in the Faculty of Engineering of the University of Seville.

Part C. RELEVANT MERITS (sorted by typology)

C.1. Publications (see instructions)

- [A.22] M. R. Fernández-Ruiz, A. Carballar, “Fiber Bragg Grating-based Optical Signal Processing: Review and Survey,” *APPLIED SCIENCES*, vol. **11** (17) article number 8189 (2021).
- [A.21] R. Rodríguez-Garrido, A. Carballar, J. Vera, J. González-Aguilar, A. Altamirano, A. Loureiro, D. Pereira, “High-Temperature monitoring in central receiver concentrating solar power plants with femtosecond-laser inscribed FBG,” *SENSORS*, vol. **21** (11) article number 3762 (2021).
- [A.20] O. J. González de Uña, F. J. López Narbona, J. Ferrero Álvarez-Rentería, A. Carballar, “Open innovation challenge as a strategy for developing new mobile health solutions,” *MEDICINA CLÍNICA*, vol. **150** pp. 361 - 365 (2018).

- [B.7] María R. Fernández-Ruiz, A. Carballar, R. Ashrafi, S. LaRochelle, and J. Azaña, "All-Optical Pulse Shaping in the Sub-Picosecond Regime Based on Fiber Grating Devices (Chapter 9 in Book: Shaping Light in Nonlinear Optical Fibers /edited by Sonia Boscolo, Christophe Finot), WILEY, ISBN: 978-1-119-08812-7; pp. 257 - 292 (2017).
- [A.19] M. R. Fernández-Ruiz, L. X. Wang, A. Carballar, M. Burla, J. Azaña, S. LaRochelle, "THz-bandwidth photonic Hilbert transformers based on fiber Bragg gratings in transmission," OPTICS LETTERS, vol. **40** pp. 41 - 44 (2015).
- [A.18] M. R. Fernández-Ruiz, A. Carballar, J. Azaña, "Arbitrary Time-Limited Optical Pulse Processors based on Transmission Bragg Gratings," IEEE PHOTONICS TECHNOLOGY LETTERS, vol. **26** pp. 1754 - 1757 (2014).
- [A.17] C. L. Janer, A. Carballar, L. Navarro, J. L. Galo, R. M. Rubio, "Photosensitivity Color-Center Model for Ge-Doped Silica Preforms," IEEE PHOTONICS JOURNAL, vol. **5** pp. 6100511 (2013).
- [A.16] M. R. Fernández-Ruiz, A. Carballar, J. Azaña, "Design of ultrafast all-optical signal processing devices based on fiber Bragg gratings in transmission," IEEE/OSA JOURNAL OF LIGHTWAVE TECHNOLOGY, vol. **31** pp. 1593 - 1600 (2013).
- [A.15] M. R. Fernández-Ruiz, M. Li, M. Dastmalchi, A. Carballar, S. LaRochelle, J. Azaña, "Picosecond optical signal processing based on transmissive fiber Bragg gratings," OPTICS LETTERS, vol. **38** pp. 1247 - 1249 (2013).
- [A.14] A. Carballar, C.L. Janer, "Complete Fiber Bragg Grating Characterization Using an Alternative Method Based on Spectral Interferometry and Minimum-Phase Reconstruction Algorithms," IEEE/OSA JOURNAL OF LIGHTWAVE TECHNOLOGY, vol. **30** pp. 2574 - 2582 (2012).

C.2. Research projects and Contracts

2016 - 2018	80. K€	Contract with MESUREX - AICIA - PI-1652/33/2016 (Principal Investigator): " <i>Measurement System of Concentrated Solar Flux for Solar Power Tower Receiver</i> "; inside the FEDER ININTERCONECTA Project EFECTO.
2015 - 2016	3.0 K€	Contract with AERTEC - AICIA - PRJ201302071 (Principal Investigator): " <i>Design of Optical Receiver for Pulsed Laser Tracking in Future Precision Strike Missile Systems</i> "; inside the ATK4GB Project.
2013 - 2014	7.6 K€	Contract with WININERTIA - FIUS - PRJ201302071 (Principal Investigator): " <i>Fiber optic-based sensing systems for testing and measurement of effects caused by extreme climates on high performance railway infraestructure located in arid areas</i> "; inside the FEDER ININTERCONECTA Project ARID-LAP.
2013	31 K€	Contract with TEAMS (Testing and Engineering of Aeronautical Materials and Structures S. L.) - AICIA - PI-1094/27/2013 (Principal Investigator): " <i>Wireless Data Acquisition System Study</i> "; ", inside the FP7 European Project WISDOM (Wing Structural Test Development Method) - JTI-CS - Joint Technology Initiatives - Clean Sky.
2011	3.9 K€	Andalusian Government CEIC - IAC10-II-7883 (Principal Investigator): " <i>Complete characterization of fiber Bragg gratings by using spectral interferometry and phase reconstruction algorithms</i> ."
2011	4.7 K€	Contract with Payán&Lara S.L. - FIUS - PRJ201101112 (Principal Investigator): " <i>Report on the movement of materials between a company's aviation industry and its major customer</i> ".
2006 - 2010	1.9 M€	Andalusian Government + VODAFONE - MINERVA Project (Principal Investigator - Project Manager): " <i>MINERVA Project: "On-the-Move Services Platform-Cartuja93"</i> ".

C.3. Technological or transfer merits

- [5] "Device and Procedure of Radiometry for the Solar Irradiance Measurement" (with R. Rodríguez), Spanish Patent No. P202030682. International extension: PCT/ES2021/070482
- [4] "Measurement Apparatus and Method based on OFDR with balanced detection and noise

- reduction" (with L. Romero), Spanish Patent No. P201200473, valid from May 3rd, 2012.
- [3] "Measurement Method and Apparatus for the characterization of optical and photonic devices" (with C. Janer), Spanish Patent No. P201101161, valid from Oct. 20th, 2011. International extension: PCT/ES2012/000268
- [2] "Fiber Bragg grating design method based on grating period variation for its application as optical filter" (with M. A. Muriel and J. Azaña), Spanish Patent No. P9900390, valid from Feb. 25th, 1999.
- [1] "Fourier transformer of time-domain optical signals, based on fiber Bragg gratings" (with M. A. Muriel and J. Azaña), Spanish Patent N^o. P9802483, valid from Nov. 26th, 1998.

C.4.- Research Awards and Fellowships

- Jun. 2011 - Sep. 2011 **Visiting Professor Fellowship** from the Ministry of Science and Technology, Government of Spain. Researcher at *Institut National de la Recherche Scientifique - Énergie, Matériaux et Télécommunications (INRS-EMT)*, Montreal, Quebec, CANADA.
- Feb. 2008 **2007 University-Company Collaboration Prize to the MINERVA Project** from the FUE Spanish Network in the ICT category.
- Dec. 2000 **Extraordinary Prize to the Best Doctoral Thesis** from the *Universidad Politécnica de Madrid (UPM)*, Spain.
- Mar. 2000 **XX National Lucent Technologies Prize to the "Best Doctoral Thesis in Telecommunication Networks"** from the Spanish National Association of Telecommunication Engineers.
- Jan. 1996 - Sep. 1999 **FPU ("Training for University Professors") Fellowship** (providing financial support for doctoral studies) from the Spanish Government.

C.5.- Others

Referee activities

- External evaluator of several graduate (Master and PhD) thesis.
- Frequent referee of manuscripts submitted to peer-review scientific journals, including the following ISI journals: *Optics Letters*, *Optics Express*, *IEEE Photonics Technology Letters*, *IEEE/OSA Journal of Lightwave Technology*, *IEEE Journal of Quantum Electronics*, *Journal of the Optical Society of America B*, *Optics Communications*, *IEEE Photonics Journal*, *IEEE Journal of Selected Topics in Quantum Electronics*, *IEEE Electronics Letters*, *Sensors*, *Applied Sciences*, etc. (~6 reviews/year).
- Grant reviewer for research funding agencies from Spain (CAM, ANECA, AGAE) and abroad (**European Commission H2020 and HE**).
- Reviewer for research certification agencies from Spain (ACIE, FINESE).

Postgraduate Expertise courses

"VODAFONE COURSE" (Organizer and Coordinator): This course has been sponsored and supported by Vodafone Spain Foundation and Andalusian Government.

- 1st ed. (2003): "Mobile Communications: GSM, GPRS and UMTS" (with Prof. Ramón Agustí)
- 2nd ed. (2004): "Mobile Communications and Services: GSM, GPRS and UMTS" (with Prof. J.M. Hernando)
- 3rd ed. (2005): "Mobile Technologies and Applications: GPRS and UMTS" (with Prof. J.M. Hernando)
- 4th ed. (2006): "Mobile Technologies and Applications: GPRS and UMTS" (with Prof. J.M. Hernando)
- 5th ed. (2007): "Mobile Technologies and Applications: GPRS and UMTS"
- 6th ed. (2008): "Mobile Technologies and Applications: GPRS and UMTS"
- 7th ed. (2009): "Mobile Technologies and Applications: GPRS and UMTS"
- 8th ed. (2010): "Mobility Communications: Technologies, Services and New Business Cases"
- 9th ed. (2011): "Mobility Communications: Technologies, Services and New Business Cases"
- 10th ed. (2012): "Mobility Communications: Technologies, Services and New Business Cases"
- 11th ed. (2013): "Mobility Communications: Technologies, Services and New Business Cases"