



CURRICULUM VITAE (CVA)

Part A. PERSONAL INFORMATION

		CV date	2025
First name	Vázquez García		
Family name	Carmen		
Gender	Female		
Open Researcher and Contributor ID (ORCID)	0000-0003-4895-0913		

A.1. Current position

Current position		
Position	Full Professor /Head of Master in Electronic Systems Eng	
Initial date	December 2009/ September 2014	
Institution	Universidad Carlos III Madrid (UC3M)	
Department/Center	Electronics Technology	Escuela Politécnica Superior
Key words	Optical fiber sensors, access networks, plastic optical fibers, photonics integrated circuits, power over fiber, 5G infrastructure	

A.2. Previous positions

Period	Position/Institution/Country
2017-2024	Head of Master degree on Photonics Engineering
2012-2013	Visiting Scientist (1 year) RLE/Massachusetts Institute of Technology-MIT/USA
2004-2007/2007-2011	Head of Electronics Technology Department/Vicechancellor UC3M
1999-2009	Associate Professor Electronics Tech Department, UC3M/ Spain
1995-1999	Tenure Track, Electronics Tech Department, UC3M/ Spain
1992-1995	Scholarship FPI Spanish Ministry of Education: Optoelectronics Division Company Telefónica I+D Madrid/Spain Photonics Department ETSIT Univ. Politécnica de Madrid/Spain
1991	Scholarship IAESTE Company TELECOM/Copenhagen/Denmark

A.3. Education

PhD, Licensed, Graduate	University/Country	Year
PhD Physics/ Photonics Technology Department	School of Telecommunications Engineering, Polytechnic University of Madrid (UPM)/ Spain	1995
Licensed Physics Electronics	Physics Faculty/ Universidad Complutense de Madrid/ Spain	1991

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

I am Full Professor at Electronics Technology Department of UC3M, leader of Displays and Photonics Applications Group. I am Head of Master degree on Electronics Systems Engineering and Applications. My work covers **integrated optics, optical communications and instrumentation including: power over fiber (PoF), plastic optical fibers, broadband access networks and monitoring techniques, radio over fiber systems, filters, fiber optic sensors and 5G & WDM networks**, and was developed in universities and companies which gives me a broad knowledge of photonics technologies to be applied in different environments. I proposed for the **first time** the **integration of PoF technology in long reach 5G mobile networks with multicore and hollow core fibers**. I was principal investigator (PI) in more than 30 research projects, currently I coordinate 6G_Xtreme project with EU Next Generation Funds and an infrastructure on 5G/6G ecosystem trying to impulse the synergies of power over fiber (PoF) and radio over fiber systems to operate in critical and extreme environments including radio access networks and IoT communication and sensing in space. From 2014 to 2023, **I coordinated** both research programs **SINFOTON and SINFOTON2** for developing Instrumentations Systems based

on Photonics **with more than 70 researchers**. In a recent EU project (5g-ppp.eu/bluespace/) I was PI and collaborate with 11 partners from industry and academia. I have active research collaborations with Vulcanology National Institute in Italy (Dr. E. Spagnolo ERC and Dr S Arestusini) to provide high temperature measurements with optical fibers in harsh environments, Solar Energy Institute in Spain (Prof. C Algora) using their high efficiency photovoltaic power converters in our PoF systems, with Research Laboratory of Electronics MIT (Prof. R. Ram) in new PoF applications, with Optoelectronics Research Center in UK (Prof. P. Petropoulos) developing disruptive 5G-NR PoF systems with hollow core fibers, among others. I have **supervised a 1 postdoc Juan de la Cierva** (very competitive postdoc contract from Spanish Ministry of Science 2 years); 1 Marie Curie awarded FIBERSTART. **I have supervised 11 PhD students, 7 were awarded with the doctoral prize** of UC3M Doctoral School, they work both on academia (6) and industry (5). I have received at my laboratories more than 12 PhD students and postdoctoral researchers for short stays. I actively participated in two **European Networks of Excellence** BONE and EPhoton ONE+. I am an active member of the Technical Program Committee (TPC) of multiple international conferences including European Conference of Optical Communications (ECOC), OSA Sensing Conference, and Optical Wireless and Fiber Power Transmission Conference (OWPT). I have given more than 45 invited talks and 2 plenary talks. All those activities **have conferred me a solid background and connections in photonics applications**. I have designed and characterized photonic integrated circuits on InGaAsP at Telefónica and on silicon photonics at MIT-USA and characterized the first erbium doped fiber amplifiers in Telecom-Denmark. I have published more than **300 scientific publications** (> 98 in indexed journals) and I **hold 9 patents**, being other 2 under review. I won the extraordinary doctorate prize of UPM, the UC3M young professor prize in 2004, and 7 biannual research prizes among the top best UC3M professors from 2012 to date. Since 2012, **I am Fellow of SPIE** (International Society for Optics and Photonics) and was member of their governing bodies such as SPIE Publications Committee and Fellow Committee. I am Senior Member of IEEE (Institute of Electrical, Electronics Engineering) and was appointed as **IEEE Photonics Society Emerging Technologies Taskforce Member** for identifying disruptive photonics technologies for 3 years. I was president of the Optoelectronics Committee of the Spanish Society of Optics. I am listed in Stanford Ranking as **2% most cited researchers** in *Photonics & Optoelectronics and Enabling & Strategic Technologies* along 2022 and 2023. I had dedication to institutional responsibilities being **Vicechancellor** at UC3M for 4 years where among others, I designed its Quality Assurance System. I was also Head of the Electronics Tech Department for 3 years. I have implemented and coordinated a joint master degree with 3 universities on Photonics Engineering that successfully ran for 7 years. I have **taught to more than 3000 graduate and undergraduate students** from 1995 in topics covering photonics and electronics instrumentation, including teaching on Optical fiber sensors at ENST Telecom Bretagne in France. I have a broad experience in research evaluation tasks at national and international level. I also care about dissemination of research on society so I participate in interviews and short videos to **promote to society scientific results** and give invite talks to promote women's in Engineering, as in Diversity workshop at 25th International Conference on Optical Network Design and Modelling ONDM2021.

Part C. RELEVANT MERITS (sorted by typology, selection)

C.1. Publications. CA=Corresponding author

1. R. Altuna, J. Barco-Alvárez and **C. Vázquez (CA)**, "Power Over Fiber Co-Transmission With 39.5 Gpbs Mixing 5 G NR Analog Radio Over Fiber and NRZ Signals Over Multicore Fiber," in *J of Lightwave Tech*, vol. 43, 4252-4258, **2025**.
2. **C. Vázquez (CA)**, G. Otero, R. Altuna, J D López-Cardona, D. Larrabeiti "Power over Fiber Pooling as part of 6G optical fronthaul," *J of Lightwave Tech*, 42, 4774-4781, **2024**.
3. A. Fresno-Hernández, B. Garcia-Cámara, **C. Vázquez** "Plasmonic Temperature Sensor Using Side-Polished Plastic Optical Fiber With Gold Coating" *IEEE Sensors J*, 24, 32222-32228, **2024**.
4. R Altuna, Y Jung, P Petropoulos, **C Vázquez (CA)** "Power Over Fiber and Analog Radio Over Fiber Simultaneous Transmission Over Long Distance in Single Mode, Multicore, and Hollow Core Fibers" *Laser and Photonics Review*, 18, 2400157 (11 pp), **2024**.
5. R. Altuna, J. D. López-Cardona and **C. Vázquez (CA)**, "Monitoring of Power over Fiber Signals Using Intercore Crosstalk in ARoF 5G NR Transmission," *J of Light Tech*, 41, 7155-7161, **2023**.

6. Vargas, S.; Tapetado, A.; **Vázquez, C** (CA)". Influence of Tilting Angle on Temperature Measurements of Different Object Sizes Using Fiber-Optic Pyrometers, 23, 8119 (14 pages), **Sensors** **2023**.
7. C. Algora, I. García, M. Delgado, R. Peña, **C. Vázquez**, M. Hinojosa and I. Rey-Stolle "Beaming power: Photovoltaic laser power converters for power-by-light, *Joule*, 6, 1–29, 2022.
8. J. D. López-Cardona, S. Rommel, E. Grivas, D. S. Montero, M. Dubov, D. Kritharidis, I. Tafur-Monroy, **C. Vázquez** (CA), "Power-over-fiber in a 10 km long multicore fiber link within a 5G fronthaul scenario," *Opt. Lett.*, 46, 5348-5351, **2021**.
9. F. M. A. Al-Zubaidi, J. D. L-Cardona, D. S. Montero **C. Vázquez** (CA) "Optically Powered Radio-Over-Fiber Systems in Support of 5G Cellular Networks and IoT," *J of Light Tech*, 39/39, 4262-4269, **2021**.
10. F.M.A. Al-Zubaidi, D. S. Montero, **C. Vázquez** (CA) "SI-POF Supporting Power-over-Fiber in Multi-Gbit/s Transmission for In-Home Networks", *J of Light Tech*, 39, 112-121, **2020**.
11. JD López-Cardona, **C Vázquez** (CA), DS Montero, PC Lallana "Remote Optical Powering using Fiber Optics in Hazardous Environments" *J of Light Tech*, 36, 748-754, **2018**.

C.2. Congress (selection) in all of them C. Vázquez is invited and presenter

- **C. Vázquez**, R. Altuna, J. Barco, D.S. Montero "Power over Fiber as enabler in 6G optical fronthaul", **6th Optical Wireless and Fiber Power Transmission Conference-OWPT2024**, April **2024**, (invited, plenary speaker, online).
- **C. Vázquez** "Power over Fiber in Radio Access Networks: 5G and beyond". **20th SBMO IEEE MTT-S International Microwave and Optoelectronics Conference**, (IMOC2023), Nov, Barcelona, **2023**. (Invited, plenary speaker, oral)
- **C. Vázquez** "Beyond 5G: A look into the Global impact of 6G: PoF" **Optica** Dec 2022 (Invited, online)
- **C. Vázquez** Power over fiber in support of C-RAN 5G cellular networks, **OWPT2022** (Invited, online)
- **C. Vázquez** "Power over fiber in support of 5G and IoT" **5G Seminars OSA**, Jun **2021** (Invited, online)
- **C. Vázquez** A. Núñez-Cascajero, A. Tapetado, I. Barrondo, and X. Barreiro "High Spatial Resolution Optical Fiber Thermometers for Applications in Harsh Environments" **Optical Sensors and Sensing Congress OSA**, **2020**. (Invited, online)
- **C. Vázquez**, JD. López-Cardona, DS Montero, I. Pérez, P. C. Lallana, F.M. Al Zubaidi "Power over fiber in Radio over Fiber Systems in 5G scenarios" **21st International Conference on Transparent Optical Networks ICTON 2019**. Angers (France). (Invited, oral)
- **C Vázquez**, et al "Integration of power over fiber in different RoF scenarios" **OPTO. Broadband Access Networks. SPIE Photonics West 2017**, S. Francisco (USA). (Invited, oral)
- **C. Vázquez**, D.S. Montero, "Multimode fibers in Millimeter-wave evolution for 5G cellular networks", **SPIE Photonics West 2016**, paper 97720F, San Francisco, CA (USA) (Invited, oral)
- **C. Vázquez** "Optical Fiber Sensor Networks and Monitoring Techniques" **Seminar in Boston chapter of IEEE Photonics Society** in Lincoln Laboratories Dec **2012**. & **Seminar Series on Optics and Quantum Electronics** Research Laboratory of Electronics-MIT, Cambridge (USA) (Invited, oral)

C.3. Research projects (selection) C. Vazquez is Principal Investigator (PI) at UC3M in all the projects

- (2024-2025) TSI-064100-2023-0037 *Ecosistemas 5G avanzados y 6G bajo soporte de alimentación remota mediante fibra óptica*. 2 M€. **PI-UC3M**
- (2022-2025) PID2021-122505OB-C32 *Optical Fiber providing Smart power by light, Green cOmmunications and sensing cApabiLitieS*. Spanish Research Agency (AEI). Partners: UPV-EHU, UC3M, U Zaragoza (UZ). Coordinator Prof. J. Zubia UPV-EHU. 176.902 € **PI**
- (2021-2024) TSI-063000-2021-135. 6G-Xtreme I: PoF. *Nuevas tecnologías para el desarrollo sostenible de 6G en entornos extremos con fibras ópticas y la tecnología "Power over Fiber"* UNICO 5G I+D. Secretaría de Estado de Telecomunicaciones e Infraestructuras Digitales. 798.485€ (UC3M) **PI**. **Coordinator** 6G-Xtreme with 3 projects: 2.393.999 € (all).
- (2019-2023) S2018/NMT-4326-SINFOTON2-CM. *Sensores e Instrumentación en Tecnologías Fotónicas II*. Partners: **UC3M**, UPM, CSIC, UAH, URJC. Program of Research Excellence in Technologies (PRET) 2018. Regional. 1.066.260€/ 363.642€ (UC3M) **Coordinator and IP-UC3M**
- (2019-2022) RTI2018-094669-B-C32 *Tecnologías Avanzadas Inteligentes basadas en fibras ópticas*. AEI. Partners: UPV-EHU, UC3M, UZ. Coordinator Prof. J. Zubia UPV-EHU. UC3M budget: 168.311€. **PI**

- (2019-2022) Y2018/EMT-4892. *Telealimentación Fotovoltaica por fibra Óptica para medida y control en entornos extremos*. Partners: **UC3M**, UPM. Coordinator Prof. C. Algora. Excellence Synergy Program 2018. Madrid Regional Government. UC3M budget: 371.214,45 €. **PI**
- (2017-2020) 5G PPP *BlueSPACE* project Grant 762055. *Building on the Use of Spatial Multiplexing 5G Networks Infrastructures and Showcasing Advanced technologies and Networking Capabilities*. ICT-07-2017. 11 partners. EU project. Coordinator: Technical University of Eindhoven Prof. I. Tafur. UC3M budget: 428.000 €. **PI-UC3M**
- (2014-2018). S2013/MIT-2790-SINFOTON-CM. *Sensores e Instrumentación en Tecnologías Fotónicas*. Partners: **UC3M**, UPM, CSIC, UAH, URJC. PRET 2013. Regional. 892.925€ / 314.547€ (UC3M) **Coordinator and IP-UC3M**
- (2016-2018) TEC2015-63826-C3-2-R. *Tecnologías sostenibles para sensado y comunicaciones basadas en fibras ópticas en el sector del transporte y biomédico*. Ministerio de Asuntos Económicos y Transformación Digital. Partners: UPV-EHU, UC3M, UZ. Coordinator UPV-EHU. UC3M budget: 191.180 €. **PI**
- (2012-2013) MEC (PRX12/00007) /Fund.Caja Madrid. *Dispositivos y sistemas fotónicos en tecnología CMOS que optimicen el consumo energético*. MIT. Grant awarded for international mobility activities along 1 year. **PI**

C.4. Contracts, technological or transfer merits (selection)

- (2023-2025) Optical fiber pyrometry proof of concept. Company: IkerGune **PI**. Potential exploitation of some of our patents on the topic but in the field of additive manufacturing.
 - (2021) Optical fiber splicing. ARQUIMEA CENTRO DE INVESTIGACIONES AVANZADAS SL **PI**. Expertise of the group in splicing specialty fibers.
 - (2021-2022) Using fiber optics to measure temperature during rock mechanics experiments. ISTITUTO NAZIONALE DI GEOFISICA E VULCANOLOGIA (Italy) **PI**. Use of our technology in SHIVA machine emulating rock frictions in volcanic process.
 - (2020-2021) Tunable Laser Diode Absorption Spectrometry (TDLAS) subsystems and optical power in Build-in RedLook, Company: SENSIA-SOLUTIONS S.L. **PI**. Evaluation of TDLAS components for potential future developments in the company.
 - (2016-2021) Optical fiber plug. HOYNG ROKH MONEGIER ESPAÑA, S.L.U. **PI**. Assistance in industry protection conflicts (novelty and inventive steps infractions) including reports writing and defense in courts.
 - 2020, Selection of the technology *Remote powering of radio equipment over optical fibre* developed in BlueSpace project as part of Innovation Radar Portal **for cutting-edge EU-funded innovations being developed by Europe's leading researchers** and innovators.
1. **C. Vázquez**, A. Tapetado, D.S. Montero, J. Montalvo. Method and system for monitoring optical fibre networks. ES201530018A. Priority date: 9/1/2015. PCT WO2016110604A1. Country of priority Spain/Europe. Owner: UC3M.
 2. **C. Vázquez**, DS Montero, JD López Cardona, J Madrigal, D Barrera, S Sales, "Sistema y método de monitorización de potencia y temperatura en redes de fibra óptica". ES2760798-B2. WO2021123471A1. Priority date: 19-12-2019/ 2020-11-24. Country of priority Spain-Europe. Owners: UC3M-UPV (Universidad Politécnica de Valencia) in the framework of BlueSpace project.
 3. **C. Vázquez**, P. Contreras, A. Núñez "Pirómetro con alta resolución espacial", Priority date: 2021-04-20/ 2022-04-19. ES2926693. PCT/ES2022/070240 WO2022223863 17-10-2022. Country of priority Spain/Europe. Owner: UC3M.