CURRICULUM VITAE ABREVIADO (CVA)

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

Part A. PERSONAL INFORMATION

First name	Javier		
Family name	Mateos López		
Gender (*)	Male	Birth date (dd/mm/yyyy)	15/10/1970
ID number	07953688N		
e-mail	javierm@usal.es	URL Web: https://produccioncientifica.usal.es/investigadores/56427/detalle	
Open Research and Contributor ID (ORCID)(*)	0000-0003-4041-7145		

(*) Mandatory

A.1. Current position

Position	Full Professor (Catedrático de Universidad)		
Initial date	28/02/2017		
Institution	University of Salamanca		
Departament/Center	Applied Physics		
Country	Spain	Teleph. number	923294436
Keywords	Semiconductor devices, Monte Carlo simulation, nanoelectronics, THz		

A.2. Previous positions (research activity interruptions, art. 45.2.c)

Period	Position/Institution/Country/Interruption cause
10/10/1993 - 31/12/1993	Graduate Teaching Assistant /Univ. Salamanca/Spain
01/01/1994 - 17/10/1996	PhD Grand Holder/University of Salamanca/Spain
18/10/1996 - 17/10/1999	Assistant Professor/ University of Salamanca/Spain
18/10/1999 - 01/01/2001	Temporary Associate Professor/ Univ. of Salamanca/Spain
02/01/2001 - 27/02/2017	Associate Professor (PTU)/ University of Salamanca/Spain

A.3. Education

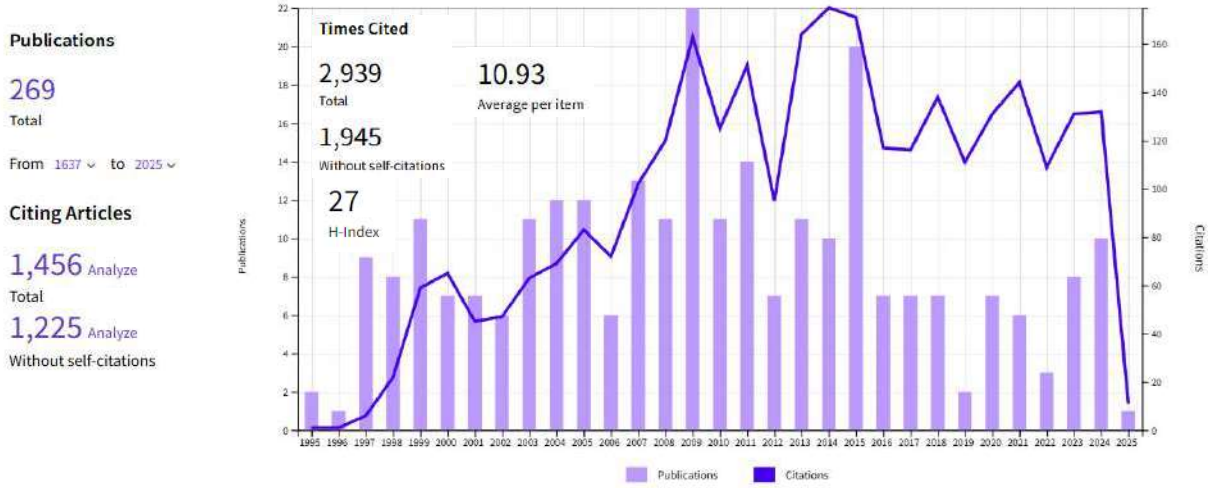
PhD, Licensed, Graduate	University/Country	Year
Licensed in Physics	University of Salamanca	1993
PhD in Physics	University of Salamanca	1997

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

Number of Sexenios: 5 Date of last sexenio: 2024

Javier Mateos (born 1970), Full Professor in the Department of Applied Physics of the University of Salamanca (USAL) since February 2017, is with the Research Group on High-Frequency Nanoelectronic Devices (nanoelec.usal.es) since 1993. He is author or co-author of 142 JCR papers (h-index=26), more than 130 contributions to conference proceedings with peer-review, 2 book chapters and is editor of 2 books. He presented more than 200 contributions (35 invited) in international conferences and has participated in more than 40 research projects (being IP of 14 of them) funded by different institutions, with a significant presence in international projects: 2 EU-funded projects (ROOTHz within FP7 and NANO-TERA within FP3), 3 funded by NATO, 6 Acciones Integradas (4 with France and 2 with Italy) and several international Research networks (EUROSOI, Phantoms, GDR THz, GDRE, nanoICT). He was coordinator of the EU project ROOTHz (2011-2013), aiming to the fabrication of emitters and detectors in the THz range with nanodevices based on narrow and wide bandgap semiconductors (www.usal.es\roothz). He was also the responsible at USAL of the international GaNGUN project (https://anr.fr/Project-ANR-17-CE24-0042), a collaborative project between IEMN (France), NTU (Singapore) and USAL which was awarded in a France-Singapore joint call (funded by ANR-France and NSF-Singapore, with USAL acting as

subcontracted partner). In the framework of this collaboration, he stayed for 4 months at NTU (Oct. 2019-Jan. 2020), financed with a mobility grant by the MICINN. As a result of his research activity three patents were filed, with him as co-inventor. He was Associate Editor of one of the most prestigious journals in the field of semiconductor devices, IEEE Transactions on Electron Devices, from 2016 to 2024.



Part C. RELEVANT MERITS *(sorted by typology)*

C.1. Publications (10 relevant publications)

G. Paz-Martínez, I. Íñiguez-de-la-Torre, P. Artillan, H. Sánchez-Martín, S. García-Sánchez, T. González and J. Mateos, “High-frequency microwave detection with GaN HEMTs in the subthreshold regime,” IEEE Trans. Microw. Theory Tech. 72, 3753 (2024).

G. Paz-Martínez, P. Artillan, J. Mateos, E. Rochefeuille, T. González and I. Íñiguez-de-la-Torre, “A closed-form expression for the frequency-dependent microwave responsivity of transistors based on the I–V curve and S-parameters,” IEEE Trans. Microw. Theory Tech. 72, 415 (2024)

I. Íñiguez-de-la-Torre, E. Pérez-Martín, P. Artillan, E. Rochefeuille, H. Sánchez-Martín, G. Paz-Martínez, T. González, and J. Mateos, “Current and voltage responsivity up to 110 GHz in GaN asymmetric nano-diodes,” Applied Physics Letters 123, 123503 (2023)

E. Pérez-Martín, H. Sánchez-Martín, T. González, J. Mateos and I. Íñiguez-de-la-Torre, “Trap-assisted enhancement of the responsivity in asymmetric planar GaN-based nanodiodes at low temperature,” Nanotechnology 34, 325201 (2023)

T. Gonzalez, B. Orfao, S. Pérez, J. Mateos, and B. G. Vasallo, “Role of impact ionization and self-consistent tunnel injection in Schottky-barrier diodes operating under strong reverse-bias conditions,” Applied Physics Express 16, 024003 (2023)

G. Paz-Martínez, I. Íñiguez-de-la-Torre, H. Sánchez-Martín, T. González and J. Mateos, “Analysis of GaN-based HEMTs operating as RF detectors over a wide temperature range,” IEEE Transactions on Microwave Theory and Techniques 71, pp. 3126-3135 (2023)

S. García-Sánchez, M. Abou Daher, M. Lesecq, L. Huo, R. Lingaparthi, D. Nethaji, K. Radhakrishnan, I. Íñiguez-de-la-Torre, B. G. Vasallo, S. Pérez, T. González, and J. Mateos, “On the Practical Limitations for the Generation of Gunn Oscillations in Highly Doped GaN Diodes,” IEEE Trans. on Electron Devices 70, 3447 (2023)

G. Paz-Martínez, I. Íñiguez-de-la-Torre, H. Sánchez-Martín, B. García-Vasallo, N. Wichmann, T. González, and J. Mateos, “Comparison of GaN and InGaAs high electron mobility transistors as zero-bias microwave detectors,” J. Appl. Phys. 132, 134501 (2022)

B. Orfao, G. Di Gioia, B. G. Vasallo, S. Pérez, J. Mateos, Y. Roelens, E. Frayssinet, Y. Cordier, M. Zaknoune and T. González, “Comprehensive model for ideal reverse leakage current components in Schottky barrier diodes tested in GaN-on-SiC samples,” Journal of Applied Physics 132, 044502 (2022)

B. Orfao, B. G. Vasallo, S. Pérez, J. Mateos, D. Moro-Melgar, M. Zaknoune, and T. González, "Dielectric Passivation and Edge Effects in Planar GaN Schottky Barrier Diodes," IEEE Trans. on Electron Devices 9, 4296 (2021)

C.2. Congress

J. Mateos, S. García-Sánchez, I. Íñiguez-de-la-Torre, B. G. Vasallo, S. Pérez, T. González, M. Abou Daher, M. Lesecq, C. Gaquière, L. Huo, R. Lingaparthi, D. Nethaji, K. Radhakrishnan, *Epilayer optimization and practical limitations for the fabrication of planar Gunn diodes with shaped nanochannels on highly doped GaN active layers,* **Invited talk**
11th International Conference on Materials for Advanced Technologies ICMAT 2023, Singapur, Junio 2023

J. Mateos, I. Íñiguez-de-la-Torre, S. Pérez, H. Sánchez-Martín, J. A. Novoa, G. Ducournau, C. Gaquière and T. González
Planar Asymmetric Semiconductor Nanodiodes for THz Detection **Keynote talk**
43rd Int. Conf. on Infrared, Millimeter and THz Waves 2018, Nagoya (Japan), Sept.2018

Organizer and speaker of the series of workshops “Fundamentals and Engineering Considerations of Terahertz Technologies: from Devices to Applications” in the European Microwave Week (EuMW): editions 2015 (Paris), 2016 (London), 2017 (Nurnberg), 2018 (Madrid), 2019 (Paris), 2023 (Berlin), 2024 (Paris)

C.3. Research projects

Title: Nuevas soluciones con diodos y transistores para sensado y comunicaciones de banda ancha en el rango THz (PID2023-147555OB-I00)
Financing entity: Ministerio de Ciencia, Innovación y Universidades - AEI
Duration: 2024-2027 **Budget:** 220.000 €
Principal investigator: Javier Mateos López, Ignacio Íñiguez de la Torre Mulas

Title: Diodos Gunn planares de GaN con terminal de sustrato para generación de alta potencia en el rango de sub-THz (PDC2023-145896-I00)
Financing entity: Ministerio de Ciencia e Innovación - Agencia Estatal de Investigación
Duration: 2024-2025 **Budget:** 240.000 €
Principal investigator: Javier Mateos López, Beatriz García Vasallo

Title: Mejora de la tecnología de diodos de barrera Schottky de GaN para electrónica eficiente de alta potencia (SA136P23)
Financing entity: Junta de Castilla y León (Consejería de Educación)
Duration: 2023-2027 **Budget:** 180.000 €
Principal investigator: Tomás González Sánchez y Sergio García Sánchez

Title: Nanodispositivos ultrarrápidos y eficientes para comunicaciones y espectroscopía de THz basados en semiconductores de gap ancho y estrecho (PID2020-115842RB-I00)
Financing entity: Ministerio de Ciencia e Innovación - Agencia Estatal de Investigación
Duration: 2021-2024 **Budget:** 118.580 €
Principal investigator: Javier Mateos López, Beatriz García Vasallo

Title: Simulación y caracterización de efectos electrotérmicos en dispositivos de subterahercios para comunicaciones de alta velocidad (SA254P18)
Financing entity: Junta de Castilla y León (Consejería de Educación)
Duration: 2019-2021 **Budget:** 120.000 €
Principal investigator: Tomás González Sánchez

Title: Tecnologías de diodos de GaN para generación y detección en la banda de subterahercios (TEC2017-83910-R)
Financing entity: Ministerio de Ciencia, Innovación y Universidades - Secretaría de Estado de Universidades, Investigación, Desarrollo e Innovación y Presidencia de la Agencia Estatal de Investigación,
Duration: 2018-2020 **Budget:** 160.930,00 €
Principal investigator: Javier Mateos López, Mª Susana Pérez Santos (USAL)

C.4. Contracts, technological or transfer merits, Include patents and other industrial or intellectual property activities (contracts, licenses, agreements, etc.) in which you have collaborated. Indicate: a) the order of signature of authors; b) reference; c) title; d) priority countries; e) date; f) Entity and companies that exploit the patent or similar information, if any

Title: Realization of Monte Carlo simulations and delivery of designs for the fabrication of devices within the GaNGUN project: definition of the first technological process (expdte nº 3985)
Entity: IEMN (Institut d'Electronique, Microélectronique et Nanotechnologies) (France)
Duration: 2019 – 2020 **Budget:** 10.000 EUR
Principal investigator: Tomás González Sánchez

Title: Realization of Monte Carlo simulations and delivery of designs for the fabrication of devices within the GaNGUN project: optimization of the devices (expdte nº 3984)
Entity:: IEMN (Institut d'Electronique, Microélectronique et Nanotechnologies) (France)
Duration: 2019 – 2020 **Budget:** 10.000 EUR
Principal investigator: Javier Mateos López

Patents

High-power high-frequency planar Gunn oscillator based on doped GaN with geometrically-shaped nanochannels and substrate terminal, J. Mateos, S. García-Sánchez and S. Pérez
Type: European Patent (EP23383053.8) **Date:** 13 October 2023

Device and method for mixing electromagnetic waves with frequencies up to the THz range L. Varani, P. Nouvel, A. Penot, J. Mateos, J. Grahn, C. Gaquiere, A. Song, and J. Torres
Type: European Patent (EP12306383.6) **Date:** 8 November 2012

Device and method for direct demodulation of signals with carrier frequencies up to the THz range, L. Thome, L. Varani P. Nouvel, A. Song, C. Daher, S. Blin, J. Grahn, J. Torres, J. Mateos, and C. Gaquiere,
Type: European Patent (EP12306382.8) **Date:** 8 November 2012

PhD Thesis (10 last years)

Elsa Pérez Martín, Universidad de Salamanca, “Estudio de la influencia de las trampas en el comportamiento DC y AC de nanodiodos de GaN a temperaturas criogénicas y su aplicación como detectores de microondas.”
Co-supervisors: Javier Mateos and Ignacio Íñiguez de la Torre Mulas. 20 June 2023

Beatriz Orfao e Vale Tabernero, Universidad de Salamanca, “Simulación, fabricación y caracterización de diodos de barrera Schottky de nitruro de galio para aplicaciones en el rango de sub-terahercios.”
Co-supervisors: Javier Mateos and Tomás González. 2 June 2023

Diego Moro Melgar, Université Pierre et Marie Curie (LERMA), Observatoire de Paris. “Conception et Optimisation de la Tête haute Fréquence d’un Recepteur Hétérodyne à 1.2 THz pour l’Instrument JUICE-SWI.”
Co-supervisors: Alain Maestrini, Javier Mateos. 6 September 2017

Fecha del CVA	17/01/2025

Parte A. DATOS PERSONALES

Nombre	Teona		
Apellidos	Mirea		
Sexo	Mujer	Fecha de Nacimiento	08/12/1989
DNI/NIE/Pasaporte	X3269092X		
URL Web	https://www.researchgate.net/profile/Teona_Mirea		
Dirección Email	teona.mirea@upm.es		
Open Researcher and Contributor ID (ORCID)	0000-0003-2324-4895		

A.1. Situación profesional actual

Puesto	Prof. Contratado Doctor		
Fecha inicio	2023		
Organismo / Institución	Universidad Politécnica de Madrid		
Departamento / Centro	Ingeniería Electrónica / Escuela Técnica Superior de Ingenieros de Telecomunicación		
País	España	Teléfono	
Palabras clave	330700 - Tecnología electrónica		

A.3. Formación académica

Grado/Master/Tesis	Universidad / País	Año
Doctorado en Ingeniería de Sistemas Electrónicos	Universidad Politécnica de Madrid / España	2017
Ingeniero de Telecomunicación Especialidad Electrónica	Universidad Politécnica de Madrid	2013

Parte B. RESUMEN DEL CV
Research:

1) H index:
Google Scholar: 12, citations 490
WOS: 9, citations 303
Scopus: 11, citations 380

2) Publications:

- 23 JCR articles (13 in Q1 and 10 in Q2)
- 53 international conferences paticipations, from which 45 have published proceedings
- 1 book chapter

3) Patents: 1

4) Theses: 2

5) Research projects:
Participation in 9 research projects, Principal Investigator of 2:

· Comunidad de Madrid: 1 with a budget of 39.706€ (2022-2024)
· Industrial: 1 with budget 251.092€ (2020-2022)

Docency:

- Grado en Ingeniería de Tecnologías y Servicios de Telecomunicación
- Máster Universitario en Ingeniería de Telecomunicación
- Grado en Ingeniería Biomédica
- Grado en Ingeniería de Materiales

· Bachelor and Master theses: 12

· Innovation in docency:

- Innovation projects at UPM: participation in SIVALSE 2024, coordinator of EVIEL 2023
- ETSIT representation in the management committee of EELISA community "Advanced Materials for a Sustainable Future" since 02/22

· Docency evaluation:

- DOCENTIA excellent score for 19-20, 20-21

I+D Management:

· Secretary of research centre CEMDATIC since 09/22
· Deputy director of research centre CEMDATIC since 05/21 to 9/22
· Secretary of Spanish IEEE Sensors chapter since 03/21

Others:
· Member of the faculty senate (claustro universitario) of Universidad Politécnica de Madrid since 03/23
· Member of the technical committee of the international congress European Frequency and Time Forum (EFTF) since 10/20
· Member of the advisory board of the company Sorex Sensors Ltd. (09/20- 09/22)
· Member of the council of the Electronic Engineering Dept. from UPM since2014
· Member of the Centre of Advanced Materials and Devices for ICT (CEMDATIC) since 2013
· Member of the Electronic Materials and Microsystems Group (GMME) since 2013

Parte C. LISTADO DE APORTACIONES MÁS RELEVANTES

C.1. Publicaciones más importantes en libros y revistas con "peer review" y conferencias

AC: Autor de correspondencia; (nº x / nº y): posición firma solicitante / total autores. Si aplica, indique el número de citaciones

1 **Artículo científico**. José Manuel Carmona Cejas; (2/5) Teona Mirea; Ricardo Hervás-García; Jimena Olivares Roza; Marta Clement Lorenzo. 2024. Dual-Mode Solidly Mounted Resonator-Based Sensor for Temperature and Humidity Detection and Discrimination. Sensors. MDPI. 24-9, pp.2877. ISSN 1424-8220. https://doi.org/10.3390/s24092877

2 **Artículo científico**. Eduardo Lugo-Hernández; (2/7) Teona Mirea; José Manuel Carmona Cejas; Marta Clement Lorenzo; Jimena Olivares Roza; J. Carlos Collado; Jordi Mateu. 2023. Analysis of spurious peaks at series resonance in solidly mounted resonators by combined BVD-Mason modelling. Ultrasonics. Elsevier. 131, pp.106958. ISSN 0041-624X. https://doi.org/10.1016/j.ultras.2023.106958

3 **Artículo científico**. Carlos Angulo Barrios; (2/3) Teona Mirea; Miguel Huerga Represa. 2022. A Self-Referenced Refractive Index Sensor Based on Gold Nanoislands. Sensors. MDPI. 23-1, pp.66-66-12. ISSN 1424-8220. https://doi.org/10.3390/s23010066

4 **Artículo científico**. (1/4) Teona Mirea; Marta Clement Lorenzo; Jimena Olivares Roza; Enrique Iborra Grau. 2020. Assessment of the Absolute Mass Attachment to an AlN-Based Solidly Mounted Resonator Using a Single Shear Mode. IEEE Electron Device Letters. 41-4, pp.609-612. ISSN 0741-3106. https://doi.org/10.1109/LED.2020.2976490

5 **Artículo científico**. (1/4) Teona Mirea; Jimena Olivares Roza; Marta Clement Lorenzo; Enrique Iborra Grau. 2019. Impact of FBAR design on its sensitivity as in-liquid gravimetric sensor. Sensors and Actuators A-Physical. 289-null, pp.87-93. ISSN 0924-4247. https://doi.org/10.1016/j.sna.2019.02.012

6 **Artículo científico**. Mario DeMiguel-Ramos; Barbara Diaz-Duran; Jose-Miguel Escolano; Mariano Barba; (5/8) Teona Mirea; Jimena Olivares; Marta Clement; Enrique Iborra. 2017. Gravimetric biosensor based on a 1.3 GHz AlN shear-mode solidly mounted resonator. SENSORS AND ACTUATORS B-CHEMICAL. 239-null, pp.1282-1288. ISSN 0925-4005. https://doi.org/10.1016/j.snb.2016.09.079

7 **Artículo científico**. (1/4) Teona Mirea; Ventsislav Yantchev; Jimena Olivares Roza; Enrique Iborra Grau. 2016. Influence of liquid properties on the performance of S0-mode Lamb wave sensors II: Experimental Validation. Sensors And Actuators B-Chemical. 229, pp.331-337. ISSN 0925-4005. https://doi.org/10.1016/j.snb.2016.01.131

8 **Artículo científico**. Santiago Esconjauregui; Taron Makaryan; (3/13) Teona Mirea; et al; Enrique Iborra Grau. 2015. Carbon nanotube forests as top electrode in electroacoustic resonators. Applied Physics Letters. 107-null, pp.133106-133106 -5. ISSN 0003-6951. https://doi.org/10.1063/1.4932197

9 **Artículo científico**. (1/7) Teona Mirea; Jimena Olivares; Marta Clement; Mario DeMiguel-Ramos; Jose de Frutos Vaquerizo; Jesus Sangrador; Enrique Iborra. 2015. Carbon nanotube growth on piezoelectric AlN films: influence of catalyst underlayers. RSC ADVANCES. 5-98, pp.80682-80687. ISSN 2046-2069. https://doi.org/10.1039/C5RA16840F

10 **Artículo científico**. (1/2) Teona Mirea; Ventsislav Yantchev. 2015. Influence of liquid properties on the performance of S0-mode Lamb wave sensors: A theoretical analysis. Sensors And Actuators B-Chemical. 208, pp.212-219. ISSN 0925-4005. https://doi.org/10.1016/j.snb.2014.11.026

11 **Capítulo de libro**. (1/1) Teona Mirea (AC). 2023. FBAR Devices: Fundamentals, Fabrication and Applications. Springer Series on Chemical Sensors and Biosensors. Springer. pp.1-28. https://doi.org/10.1007/5346_2023_27

C.3. Proyectos o líneas de investigación

1 **Proyecto**. HYBRID INTEGRATION OF ALKALINE NIOBATE -TANTALATE FILMS FOR ADVANCED PHOTONIC AND PIEZOELECTRIC DEVICES. Union Europea. Marta Clement Lorenzo. (Universidad Politécnica de Madrid). 01/11/2024-31/10/2028. Miembro de equipo.

2 **Proyecto**. PDC2023-145904-I00, EASENG: Sensores electroacústicos SMR-MEMS para monitorización de la calidad del aire en las cabinas y en los entornos hostiles de los sistemas de escape. Plan Estatal 2021-2023 Prueba de concepto. Marta Clement Lorenzo. (Universidad Politécnica de Madrid). 01/01/2024-31/12/2025. 290.867 €. Miembro de equipo.

3 **Proyecto**. DETECCION Y CUANTIFICACION DE EXOSOMAS MEDIANTE MICROSENSORES ELECTROACUSTICOS. Comunidad de Madrid. Teona Mirea. (Universidad Politécnica de Madrid). 01/07/2022-25/11/2024. 39.706 €. Investigador principal.

4 **Proyecto**. PID2020-118410RB-C22, Materiales para resonadores electro-acústicos y sensores para futuras aplicaciones sub-6GHz 5G - EAD5G. Ministerio de Ciencia e Innovación. Universidades. Jimena Olivares Roza. (Universidad Politécnica de Madrid). 01/09/2021-31/08/2024. 88.935 €. Miembro de equipo.

5 **Proyecto**. TEC2017-84817-C2-1-R, Sensores gravimétricos de gases basados en resonadores electroacústicos de película delgada de AlN para aplicaciones en temperaturas extremas. Ministerio de Economía y Competitividad. Jimena Olivares. 01/01/2018-30/09/2021. 164.000 €. Miembro de equipo.

6 **Proyecto**. MAT2013-45957, MATERIALES AVANZADOS PARA BIOSENSORES BASADOS EN RESONADORES PIEZOELÉCTRICOS COMBINADOS CON NANOTUBOS DE CARBONO Y GRAFENO. Ministerio de Economía y Competitividad. Enrique Iborra Grau. 01/01/2014-31/10/2017. 180.018,37 €. Miembro de equipo.

7 **Proyecto**. 320023262E130030233, INTEGRATING DEVICES AND MATERIALS : A CHALLENGE FOR NEW INSTRUMENTATION IN ICT. COST Office. Jose Manuel Oton Sanchez. 06/05/2013-17/03/2017. 129.000 €. Miembro de equipo.

8 **Proyecto**. HEALTH-F3-2012-304814, RAPID APTAMER BASED DIAGNOSTICS FOR BACTERIAL MENINGITIS RAPTADIAG. Comisión Europea. Morten Andreas Geday. 18/06/2012-18/06/2015. 2.174.503,25 €. Miembro de equipo.

9 **Proyecto**. MAT2010-18933, Materiales multifuncionales en película delgada para dispositivos piezoeléctricos avanzados (resonadores acústicos y sensores MEMS) - MAREA. MINISTERIO DE CIENCIA E INNOVACIÓN. Marta Clement Lorenzo. 01/01/2011-31/12/2014. 200.000 €. Miembro de equipo.

10 **Contrato**. Thin film acoustic resonator device and array development and optimisation SOREX Sensors LTD. Teona Mirea. (Universidad Politécnica de Madrid). 01/05/2020-01/10/2022. 251.092,47 €.

11 **Contrato**. THIN FILM BULK ACOSUTIC RESONATOR DEVELOPMENT SOREX Sensors LTD. Jimena Olivares Roza. 01/09/2018-29/02/2020. 135.880 €.

C.4. Actividades de transferencia de tecnología/conocimiento y explotación de resultados

Patente de invención. GB1707440.2. METHOD FOR OPERATION OF RESONATOR 12/04/2017. Cambridge Enterprise Limited y Universidad Politécnica de Madrid.

CURRICULUM VITAE ABREVIADO (CVA)

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

Part A. PERSONAL INFORMATION

First name	Elena		
Family name	Pascual Corral		
Gender (*)	Female	Birth date (dd/mm/yyyy)	30/04/1981
Social Security, Passport, ID number	44402830L		
e-mail	elenapc@usal.es	URL Web:	
Open Researcher and Contributor ID (ORCID) (*)		0000-0002-4771-9042	

(*) Mandatory

A.1. Current position

Position	Associate Professor- tenured		
Initial date	14/06/2022		
Institution	University of Salamanca (USAL)		
Department/Center	Applied Physics	Escuela Politécnica Superior de Zamora	
Country	Spain	Teleph. number	923294500-ext 6330
Key words	Semiconductors, Silicon, Graphene, Monte Carlo models, Transistors, Electronic devices, Electronic transport, Electronic noise		

A.2. Previous positions (research activity interruptions, indicate total months)

Period	Position/Institution/Country/Interruption cause
2018-2022	Lecturer in Physics/Universidad de Salamanca/Spain
2014-2018	Assistant Professor/Universidad de Salamanca/Spain
2013-2018	Private University Adjunct Professor/European Aviation College SA, Universidad de Salamanca/Spain
2005-2008	PhD grant holder/Universidad de Salamanca/Spain

A.3. Education

PhD, Licensed, Graduate	University/Country	Year
Physics BSc	University of Salamanca / Spain	2005
Physics PhD	University of Salamanca / Spain	2010

(Include all the necessary rows)

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

I am Associate Professor in the Department of Applied Physics at the University of Salamanca (USAL) since 2022. I obtained my degree in Physics in 2005 and my PhD within the Physics and Mathematics programme in 2010. I have developed my teaching activity in multiple degrees (Degrees in Materials Engineering, Mechanical Engineering, Computer Engineering, Commercial Aviation Pilots and Master's degree in Education and in Semiconductors and Electronic Technologies). I have also supervised 15 BSc theses, 10 MSc theses, and 1 PhD thesis in progress. I have received two consecutive "Excellent" distinctions within the Docentia faculty evaluation program. I am currently Technical Responsible of the USAL for the subject 'Physics' within the programme of the university entrance exams starting in the 2023-2024 academic year. I have also participated in outreach activities for the public within different

programmes such as in International Day of Women and Girls in Science, University Open Days, talks in schools and colleges, design of challenges for primary and secondary education within the Gender Engineering programme, etc.

My research activity started in 2005 when I began working in USAL Recognised Research Group in High Frequency Nanoelectronic devices (Nanoelec), it has been focused on the development and use of advanced stochastic microscopic models (Monte Carlo techniques) capable of capturing complex transport phenomena. Additionally, I am expert in studying the static, dynamic, and noise response of devices at high frequencies. Between 2005 and 2013, my research primarily centred on Monte Carlo modelling of electronic transport in silicon devices, including Schottky diodes and Schottky Barrier MOSFETs. This work also encompassed the study of electronic noise processes and small-signal behaviour in the high-frequency range. During this time, I served as a predoctoral researcher in the European STREP METAMOS project (IST-016677), which aimed to investigate advanced Schottky FETs and involved collaboration with several European companies and academic institutions. Afterwards, my research focus shifted towards exploring the electronic properties of graphene through Monte Carlo models, with particular emphasis on the out-of-equilibrium carrier dynamics and the high-frequency (up to THz) properties of graphene, graphene-based devices, and other two-dimensional materials (molybdenum disulfide, silicon, etc.). I have participated in two national projects related to this topic, TEC2013-42622-R and TEC2016-80839-P. In 2019 I carried out a research stay at the Department of Engineering Researchers at Swansea University, in the Nanoelectronic Devices Computational Group (NanoDeCo) in Swansea, Wales (UK), devoted to optimize the computational load of the Monte Carlo simulator of two-dimensional materials through the design of a code parallelization strategy using MPI (Message Passage Interface). This stay took place within the framework of the High Performance Computing (HPC)-Europe3 Transnational Access Programme. I am Principal Investigator of a national project from the 2021 call of the "State Program to Promote Scientific and Technical Research and its Transfer," which will conclude in April 2025. This project focuses on the research and development of electronic insoles with tactile perception, where the sensor material data collection has been performed using automated processing with microcontrollers, emphasizing low power consumption, low cost, and data acquisition reliability. I am also currently involved in in the European Erasmus + project “GIRLS Generation for Innovation, Resilience, Leadership and Sustainability. The Game is on!” as a Research member, promoting teaching innovation in higher education. I act as a reviewer for several prestigious journals in the field of Electronics, guest editor in an international indexed journal, and part of the organising committee of three national and international conferences. I have received two six-year research merit recognitions from the CNEAI and am the author or co-author of over 50 publications in JCR-indexed journals and contributions at national and international conferences.

Part C. RELEVANT MERITS

C.1. Publications

◦ Iglesias J. M., Nardone A., Rengel R., Kalna, K., Martín M. J., and **Pascual E.**, “Carrier mobility and high-field velocity in 2D transition metal dichalcogenides: degeneracy and screening”, 2D Materials, 10 (2), 025011 (2023) https://iopscience.iop.org/article/10.1088/2053-1583/acb1c2

◦ **Pascual E.**, Iglesias J. M., Martín M. J., and Rengel R., “Harmonic extraction in graphene: Monte Carlo analysis of the substrate influence”, Materials, 14, 5108 (2021) https://doi.org/10.3390/ma14175108

◦ Iglesias J. M., **Pascual E.**, Martín M. J., and Rengel R., "Relevance of collinear processes to the ultrafast dynamics of photoexcited carriers in graphene", Physica E: Low-dimensional Systems and Nanostructures, 123, 114211 (2020) https://doi.org/10.1016/j.physe.2020.114211
◦ **Pascual E.**, Iglesias J. M., Martín M. J., and Rengel R., "Electronic transport and noise characterization in MoS2″, Semiconductor Science and Technology, 35, 055021 (2020) https://doi.org/10.1088/1361-6641/ab7777
◦ Iglesias J. M., **Pascual E.**, Hamham E. M., Martín M. J., and Rengel R., "Interband scattering-induced ambipolar transport in graphene", Semiconductor Science and Technology, 34, 065011 (2019) https://doi.org/10.1088/1361-6641/ab2087
◦ Hamham E. M., Iglesias J. M., **Pascual E.**, Martín M. J., and Rengel R., "Impact of the hot phonon effect on electronic transport in monolayer silicene", Journal of Physics D: Applied Physics, 51, 415102 (2018) https://doi.org/10.1088/1361-6463/aad94c
◦ Iglesias J. M., Martín M. J., **Pascual E.** and Rengel R., "Substrate influence on the early relaxation stages of photoexcited carriers in monolayer graphene", Applied Surface Science , 424, 52-57 (2017) https://doi.org/10.1016/j.apsusc.2017.02.114
◦ Rengel R., **Pascual E.** and Martín M. J., "Influence of the substrate on the diffusion coefficient and the momentum relaxation in graphene: The role of surface polar phonons", Applied Physics Letters 104, 233107 (2014) https://doi.org/10.1063/1.4882238
◦ Martín M. J., **Pascual E.** and Rengel R., "RF dynamic and noise performance of Metallic Source/Drain SOI n-MOSFETs", Solid-State Electronics 73, 64 (2012) https://doi.org/10.1016/j.sse.2012.04.027
◦ **Pascual E.**, Martín M. J., Rengel R., Larrieu G and Dubois E., "Enhanced carrier injection in Schottky contacts using dopant segregation: a Monte Carlo research", Semiconductor Science and Technology 24 025022 (2009) https://doi.org/10.1088/0268-1242/24/2/025022

C.2. Congress

◦ **Pascual E.**, Iglesias J. M., Martín M. J., Rengel R., and Kalna, K., "Monte Carlo Simulations for 2D Materials: Parallelization Strategy and Degeneracy in MoS2″, ImagineNano 2020, Bilbao, Spain, September 2020. Poster.
◦ **Pascual E.**, Iglesias J. M., Martín M. J., Rengel R., and Kalna, K., "Exploration of a 2D Material Monte Carlo Simulator: Parallelization Strategy and Noise Characterization of MoS2″, Graphene and 2DM Online conference (GO2020), July 2020. Poster.
◦ **Pascual E.**, Iglesias J. M., Hamham E. M., Martín M. J. and Rengel R., "Microscopic analysis of electronic transport in MoS2″, 21st International Conference on Electron Dynamics in Semiconductors, EDISON 2019, Nara, Japan, July 2019. Poster.
◦ **Pascual E.**, Iglesias J. M., Hamham E. M., Martín M. J. and Rengel R., "Diffusive electronic transport in MoS2: a Monte Carlo study", 12th Spanish Conference on Electron Devices (CDE2018), Salamanca, Spain, November 2018. Poster.
◦ Iglesias J. M., Hamham E.M., Martín M. J., **Pascual E.**, Jiménez D., Feijoo P. C., Pasadas F., Rengel R., "Graphene encapsulated on h-BN: an analysis of mobility and saturation velocity for GFET operation, 20th International Conference on Electron Dynamics in Semiconductors, EDISON 2017, Buffalo, USA, July 2017. Poster.
◦ Iglesias J. M., Martín M. J., **Pascual E.** and Rengel R., "A Monte Carlo study on the hot carrier relaxation dynamics in photoexcited graphene", 19th International Conference on Electron Dynamics in Semiconductors, Optoelectronics and Nanostructures (EDISON19), Salamanca, Spain, June 2015. Oral presentation.

◦ **Pascual E.**, Rengel R., and Martín M. J., “Influence of the underlap length on the RF noise performance of a Schottky Barrier MOSFET”, 21st International Conference on Noise and Fluctuations (ICNF 2011), Toronto (Canada), June 2011. Poster.
◦ **Pascual E.**, Rengel R., and Martín M. J., “Influence of the underlap length on the RF noise performance of a Schottky Barrier MOSFET”, 21st International Conference on Noise and Fluctuations (ICNF 2011), Toronto (Canada), June 2011. Poster.
◦ Dubois E., Larrieu G., Breil N., et al (**Pascual E. 11/21)**, “Metallic source/drain architecture for advanced MOS technology: an overview of METAMOS results”, 8th Symposium Diagnostics & Yield Advanced Silicon Devices and Technologies for ULSI Era, Warsaw (Poland), June 2009. Invited speaker.
◦ **Pascual E.**, Rengel R. and Martín M. J., “Current drive in n- type Schottky Barrier MOSFETs: a Monte Carlo study”, 7th Spanish Conference on Electronic Devices (CDE 2009), Santiago de Compostela (Spain), February 2009. Oral presentation.

C.3. Research projects, indicating your personal contribution. In the case of young researchers, indicate lines of research for which they have been responsible.
◦ Electronic insoles with tactile perception. (TEC2016-80839-P). Funding entity: Ministerio de Ciencia e Innovación. Participating entity: USAL. Date: 01/12/2022-30/04/2025 Funding: € 224.250,00 IP: Caridad J.M./ Pascual E. Participation: Principal Investigator.
◦ GIRLS Generation for Innovation, Resilience, Leadership and Sustainability. The Game is on! Erasmus+ Programme of the European Union (2022-1-ES01-KA220-HED-000089166). Funding entity: EU. Participating entity: USAL. Date: 1/09/2022-31/08/2025 Funding: €98.400,00 IP: Queiruga MA. Participation: Research member.
◦ Ultrafast carrier dynamics and high frequency multiscale approach for the study of Graphene and alternative 2D materials. (TEC2016-80839-P). Funding entity: Ministerio de Economía y Competitividad (MINECO) y FEDER. Participating entity: USAL. Date: 30/12/2016-29/12/2019 Funding: €78.771,00. IP: Martín MJ/ Rengel R. Participation: Research member.
◦ Non-equilibrium carrier dynamics in graphene and graphene-based devices for high-performance electronics (TEC2013-42622-R). Funding entity: Ministerio de Economía y Competitividad (MINECO) y FEDER. Participating entity: USAL. Date: 01/01/2014-31/12/2017. Funding: €113.256,00. PI: Rengel R. Participation: Team member.
◦ Metallic Source and Drain for advance MOS technology (IST-16677). Funding entity: European Commission, 6th Framework program, Participating entity: USAL. Funding: €163.835. Date: 01/09/2005-31/12/2008. Contribution: Predoctoral researcher.

C.4. Contracts, technological or transfer merits

Participation (as mentor) in the market-oriented prototype project, within the initiative 'University-Business Knowledge Transfer' of Castilla y León (T-CUE) "Prototipo de entrenador basado en realidad virtual inmersiva para la conducción de carretillas automotoras industriales". Funding entities: USAL and CUALTIS formación. Date: 2018-20.

CURRICULUM VITAE ABREVIADO (CVA)

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

Part A. PERSONAL INFORMATION

CVA Date	15/01/2025

First name	Salvador		
Family name	Dueñas Carazo		
Gender (*)	Male	Birth date (dd/mm/yyyy)	11/08/1961
Social Security, Passport, ID number	11402049Y		
e-mail	salvador.duenas@uva.es	URL Web: gcme.uva.es	
Open Researcher and Contributor ID (ORCID) (*)		0000-0002-2328-1752	

(*) Mandatory

A.1. Current position

Position	Catedrático de Universidad		
Initial date	16/02/2010		
Institution	University of Valladolid		
Department/Center	Electronics	Faculty of Science	
Country	Spain	Teleph. number	+34983423679
Key words	Semiconductors, microlectronics, high k dielectrics, electrical characterization, RRAM, Solar Cells		

A.2. Previous positions (research activity interuptions, indicate total months)

Period	Position/Institution/Country/Interruption cause
1991-2010	Profesor Titular de Universidad/Univ. Valladolid/Spain
1990-1991	Profesor Titular de Universidad Interino/Univ. Valladolid/Spain
1986-1990	Profesor Titular de Escuela Universitaria/Univ. Valladolid/Spain
1984-1986	Profesor Ayudante de Universidad

A.3. Education

PhD, Licensed, Graduate	University/Country	Year
Graduate on Physics	University of Valladolid/Spain	1984
Licensed on Physics	University of Valladolid/Spain	1984
PhD on Phyiscs	University of Valladolid/Spain	1989

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

I am the coordinator of the Electronic Materials and Devices Characterization Group of the University of Valladolid. I am a founding member and have belonged to it uninterruptedly. Since the very beginning, and specifically in the last 10 years, I and my research group have been devoted to the electrical characterization of structures and materials in the Electronic Devices field. The main objective of our research is the adaptation and setup of a set of standard techniques based on the analysis of conduction mechanisms and electrical parameters (capacity, conductance, etc.). In addition, we have developed and extensively used original techniques and new variants of these standard techniques that are more precise and appropriate in certain circumstances. Among the original techniques we can mention Optical Admittance Spectroscopy (OAS), Deep Level Spectroscopy at Constant Capacitance (CC-DLOS), Capacitance-Voltage Transient Technique (CVTT), Conductance Transient Technique

(G-t), Radio-Frequency Impedance Analysis, and the Flat Band Voltage Transient Technique. Recently, in the Resistive Memories field we have developed a method to obtain the Memory Maps of Small Signal Parameters. On the other hand, the Double-Swing Quiescent Current Technique allows to detect ferroelectric behavior in very leaky dielectric films. With these techniques we have approached the study of new materials and manufacturing processes in electronic technology. Thus we have studied semiconductors such as: Si, GaAs, InP, AlGaAs, InGaAs, SiC, GaN...; high permittivity dielectrics: silicon nitride and oxides from: aluminum, zirconium, hafnium, scandium, gadolinium, holmium, titanium...; technological processes: anodization, conventional and high pressure sputtering, reactive ion etching, ion implantation, molecular beam epitaxy, atomic layer deposition...; advanced devices and techniques: multichip modules, silicon on sapphire, high electronic mobility transistors, etc. In addition, we maintain a line of research related to the qualification of silicon substrates for the improvement of the efficiency of solar cells; Our contribution in this field consists in the use of our experimental techniques for the detection of defects whose presence can affect the efficiency values, in samples that go from the commercial silicon substrates that exhibit iron contamination, to hyperdoped silicon substrates with titanium or vanadium to obtain third generation solar cells with high efficiency due to the presence of the known as intermediate band. Our scientific interest has focused in recent years on the study of high permittivity dielectrics in a double aspect: on the one hand, in the search for an alternative material to silicon dioxide as a gate insulator for integrated circuit transistors; on the other hand, in the development of applications in the field of memories, specifically those based on the resistive switching and ferroelectricity phenomena. In these lines of research, we have collaborated on a stable and continuous basis with groups from the Universities of Helsinki (Finland) and Tartu (Estonia), as well as with national groups (Instituto de Microelectrónica de Barcelona, Universidad Autónoma de Barcelona y Universidad de Granada). Our main contributions in this field have consisted in the electrical characterization of materials and devices. We have developed new experimental techniques such as, for example, the measurement of memory maps in direct and small signal regimes, the influence of temperature on memristor devices properties or the determination of ferroelectric properties in very leakage ferroelectric materials. Another point of interest for us is the use of graphene layers in combination con functional oxides layers. As a result of this work, we have published more than 300 publications in journals[1], conferences, and books. In addition, both our group and our collaborators have trained numerous PhDs in the field of electronic materials and devices, as well as numerous final theses and master's degree projects in the field of electronic materials and devices. I have been a reviewer of numerous indexed scientific journals, and in some of them I have been Associate Editor.

On the other hand, I would like to mention that in the period 2007-2010, I was manager of the TEC area of Research Projects of the Spanish National R&D Program of the Ministry of Science and Technology. And, in the period 2010-14 I have been General Director of the Science Park of the University of Valladolid. This allowed me to carry out an important management of knowledge transfer projects generated in my university, as well as an intense activity of dissemination of scientific and technological production at the University to society in general through constant contact with the mass media.

Part C. RELEVANT MERITS

C.1. Publications

1. H. García, G. Vinuesa, M. B. González, F. Campabadal, **H. Castán**, and S. Dueñas. "Reset transition in HfO_2-based memristors using a constant power signal". Materials Science in Semiconductor Processing **2025**, Vol.186, p. 109037.

2. G. Vinuesa, H. García, M. B. González, F. Campabadal, **H. Castán**, and S. Dueñas. "Dynamics of set and reset processes in HfO_2 switching devices". Microelectronic Engineering **2025**, Vol.296, p. 1112281.

3. G. Vinuesa, H. García, S. Poblador, M. B. González, F. Campabadal, **H. Castán**, and S. Dueñas. "Impact of the temperature on the conductive filament morphology in HfO_2-based RRAM". Materials Letters **2024**, Vol.357, p. 135699.

[1] From Google Scholar: Total works: 223 (64 on the last 5 years), total citations: 2281 , average citations during the last 5 years period: aprox. 200 per year. H factor: 23, i10 Index; 69).

4. D. Maldonado, G. Vinuesa, S. Aldana, F. L. Aguirre, A.Cantudo, H. García, M. B. González, F. Jiménez-Molinos, F. Campabadal, E. Miranda, S. Dueñas, **H. Castán** and J.B. Roldán. "A thorough investigation of the switching dynamics of TiN/Ti/10 nm-HfO_2/W resistive memories". Materials Science in Semiconductor Processing **2024**, Vol.169, p. 107878.

5. H. García, G. Vinuesa, E. García-Ochoa, F. L. Aguirre, M. B. González, F. Jiménez-Molinos, F. Campabadal, J. B. Roldán, E. Miranda, S. Dueñas, and **H. Castán**. "Effects of the voltage ramp rate on the conduction characteristics of HfO_2-based resistive switching devices". Journal of Physics D: Applied Physic, **2023**, Vol. 56 (36), p. 365108.

6. G. Vinuesa, H. García, J. M. Lendínez, E. García-Ochoa, M. B. González, D. Maldonado, C. Aguilera-Pedregosa, E. Moreno, F. Jiménez-Molinos, J. B. Roldán, F. Campabadal, **H. Castán**, and S. Dueñas, "Variability and power enhancement of current controlled resistive switching devices". Microelectronics Engineering **2023**, Vol. 276, p. 112008.

7. F. Jiménez-Molinos, G. Vinuesa, H. García, A. Tarre, A. Tamm, K. Kalam, K. Kukli, S. Dueñas, H. Castán, M. B. González, F. Campabadal, and J. B. Roldán , "Thermal effects on TiN/Ti/HfO2/Pt memristors charge conduction", Journal of Applied Physics 132, 194501 (2022) https://doi.org/10.1063/5.0104890.

8. D. Maldonado, C. Aguilera-Pedregosa, G. Vinuesa, H. García, S. Dueñas, H. Castán, S. Aldana, M.B. González, E. Moreno, F. Jiménez-Molinos, F. Campabadal, J.B. Roldán, "An experimental and simulation study of the role of thermal effects on variability in TiN/Ti/HfO2/W resistive switching nonlinear devices,Chaos, Solitons & Fractals,Volume 160,2022,112247, https://doi.org/10.1016/j.chaos.2022.112247.

9. M. Lanza, R. Waser, D. Ielmini, and S. Pazos. (2021). "Standards for the Characterization of Endurance in Resistive Switching Devices". ACS Nano 2021 15 (11), 17214-17231. DOI: 10.1021/acsnano.1c06980. Author position: 32/36

10. García, H.; Boo, J.; Vinuesa, G.; G. Ossorio, Ó.; Sahelices, B.; Dueñas, S.; Castán, H.; González, M.B.; Campabadal, F. "Influences of the Temperature on the Electrical Properties of HfO2-Based Resistive Switching Devices". Electronics 2021, 10, 2816. https://doi.org/10.3390/electronics10222816.

C.2. Conferences (Some recent conferences)

1. G. Vinuesa, H. García, S. Dueñas, and H. Castán (2024). "Thermoelectric Analysis of Dielectric Materials Properties for Neuromorphic Technologies". 245th the Electrochemical Society (ECS) Meeting. 26-30 May 2024. Invited talk. San Francisco (CA, EEUU).

2. G. Vinuesa, H. García, S. Dueñas, and H. Castán. I.Íñiguez-de-la-Torre, T. González, K. Dorai Swamy Reddy, M. Uhlmann, C. Wenger, and E. Pérez (2024). "Effect of the Temperature on the Performance and Dynamic Behavior of HfO2-based RRAM Devices". 245th the Electrochemical Society (ECS) Meeting. 26-30 May 2024. Poster. San Francisco (CA, EEUU).

3. M. M. Al Chawa, C. de Benito, H. Castán, S. Duenas, S. Stavrinides, R. Tetzlaff, and R. Picos (2022). "Empirical modelling of ReRAM measured characteristics using charge and flux". 2022 International Conference on Modern Circuits and Systems technologies (MOCAST) on Electronic and Communications. 8-10 June 2022. Oral presentation. Bremen (Germany).

4. K. Kalam, M. Otsus, R. Rammula, R. Stern, G. Vinuesa, S. Duenas, H. Castán, K. Kukli, and A. Tamm. "Magnetic and electric properties of atomic layer deposited HfO2-Fe2O3 thin films". 22nd International Conference on Atomic Layer Deposition (ALD). 26-29 June 2022. Oral presentation. Ghent (Belgium)

5. G. Vinuesa, O. G. Ossorio, H. García, B. Sahelices, H. Castán, S. Dueñas, M. Ritala, M. Leskelä and K. Kukli (2021). "Effective control of filament efficiency by means of spacer HfAlOx layers and growth temperature in HfO2 based ReRAM devices". 22th Conference on Insulating

Films on Semiconductors (INFOS 2021). 28 june - 2 july 2021. Virtual Conference. Oral presentation.

6. H. García, G. Vinuesa, O. G. Ossorio, B. Sahelices, H. Castán, S. Dueñas, M. B. González and F. Campabadal (2021). "Study of the set and reset transitions in HfO2-based ReRAM devices using a capacitor discharge". 22th Conference on Insulating Films on Semiconductors (INFOS 2021). 28 june - 2 july 2021. Virtual Conference. Oral presentation.

7. G. Vinuesa, P. Marín, O. Gonzalez Ossorio, B. Sahelices, H. Garcia, H. Castan, and S. Duenas (2021). "Thermoelectrical Characterization of Piezoelectric Diaphragms: Towards a Better Understanding of Ferroelectrics for Future Memory Applications". 239th Electrochemical Society Meeting (ECS Meeting). 30 may - 3 june 2021. Virtual Conference. Oral presentation.

8. H. García, O. G. Ossorio, S. Dueñas and H. Castán (2020). "(Invited) Current and Voltage Control of Intermediate States in Bipolar RRAM Devices for Neuristor Applications". 237th ECS Meeting with the 18th International Meeting on Chemical Sensors (IMCS 2020). Montreal (Canadá). 10 - 14 may 2020. Virtual Conference. Oral presentation.

9. S. Dueñas, H. Castán, O. G. Ossorio, G. Vinuesa, H. García , K. Kukli and M. Leskelä (2020). "Double Swing Quiescent-Current: An Experimental Detection Method of Ferroelectricity in Very Leaky Dielectric Films". 237th ECS Meeting with the 18th International Meeting on Chemical Sensors (IMCS 2020). Montreal (Canadá).10-14 may 2020. Virtual Conference. Oral presentation.

10. E.Miranda, H. García, H. Castán, S. Dueñas, M. B. González, F. Campabadal, J. Muñoz-Gorriz and J. Suñé (2019). "Key factors for the observation of the snapback effect in memristive structures". International Conference on Memristive Materials, Devices & Systems (MEMRISYS 2019). Dresde (Alemania). 8 - 11 julio de 2019. Oral presentation.

C.3. Research projects

1. Ref: **PID2022-139586NB-C43. Title**: Advanced electrical characterization of memristive devices**. Project leaders**: Helena Castán Lanaspa and Salvador Dueñas (Universidad de Valladolid. **Date**s: 01/09/2023 to 31/08/2026.Total funding: 145000€. Role: Research Leader.

2. **Ref: TEC2017-84321-C4-2-R Title**: Fabrication, characterization,Simulation, modeling and applications of resistive switching devices. **Project leaders**: Helena Castán Lanaspa and Salvador Dueñas (Universidad de Valladolid). **Funding entity**: Ministerio de Economía y Competitividad. **Date**s: 01/01/2018 to 30/09/2021. **Total funding**: 103000 €. **Role:** Research leader.

3. Ref: TEC2014-52152-C3-3-R. Title: Electrical characterization of MIS and MIM structures based on high-k dielectrics for RRAMS y memristors application. **Project leader**: Helena Castán Lanaspa (Universidad de Valladolid). **Funding entity**: Ministerio de Economía y Competitividad. **Date**s: 01/01/2015 to 31/12/2018. **Total funding**: 101400 €. **Role:** Research team member.

4. Ref:TEC2011-27292-C02-01.Title: Fabrication and characterization of high permittivity dielectric films deposited by ALD on silicon and graphene. **Project leader**: Helena Castán Lanaspa (Universidad de Valladolid). **Funding entity**: Ministerio de Ciencia e Innovación
Dates: 01/01/2012 to 31/12/2014. **Total funding**: 86400 €. **Role:** Research team member.

5. Ref: TEC2008-06698-C02-02. Title: Electrical characterization of high k dielectric films deposited by ALD. **Project leader**: Salvador Dueñas Carazo (Universidad de Valladolid).
Funding entity: Ministerio de Ciencia e Innovación. **Dates**: 01/01/2008 to 31/12/2011.
Total funding: 150000 €. **Role:** Research leader.

C.4. Contracts, technological or transfer merits

Solar Power System. Inventors: Salvador Dueñas; Cipriano Bote Mateo. Ownership institution: University of Valladolid4.Prioritiy country: Spain. Year of publication: 2011.

Fecha del CVA	18/07/2024

Parte A. DATOS PERSONALES

Nombre y apellidos	Mª Susana Pérez Santos		
DNI/NIE/pasaporte	07956224H	Edad	53
Núm. identificación del investigador	Researcher ID	G-4502-2015	
	Código Orcid	0000-0002-1494-0795	

A.1. Situación profesional actual

Organismo	Universidad de Salamanca		
Dpto./Centro	Facultad de Ciencias		
Dirección	Plaza de la Merced s/n		
Teléfono	923294436	correo electrónico	susana@usal.es
Categoría profesional	Catedrática de Universidad	Fecha inicio	6/09/2021
Espec. cód. UNESCO	2203		
Palabras clave	Dispositivos semiconductores, simulación Monte Carlo, nanoelectrónica, ruido electrónico, terahercios		

A.2. Formación académica *(título, institución, fecha)*

Licenciatura/Grado/Doctorado	Universidad	Año
Licenciada en Ciencias Físicas	Universidad de Salamanca	1993
Doctora en Ciencias Físicas	Universidad de Salamanca	1999

Parte B. RESUMEN LIBRE DEL CURRÍCULUM

Número de Sexenios: 4
Fecha de concesión último sexenio: 17 de Julio de 2020

Susana Pérez (nacida en 1970), Catedrática de Universidad en el Departamento de Física Aplicada de la Universidad de Salamanca (USAL) desde 2021. Ha sido Vicerrectora de Investigación y Transferencia de la Universidad de Salamanca desde Diciembre de 2017 hasta Junio de 2021, Directora del Departamento de Física Aplicada desde Mayo de 2012 hasta Diciembre de 2017 y Vicedecana de la Facultad de Ciencias desde 2008 hasta Mayo de 2012.

Trabaja en el grupo de investigación de “Nanodispositivos electrónicos de alta frecuencia” (nanoelec.usal.es) desde 1994. Su trabajo de investigación se ha centrado en la simulación Monte Carlo de dispositivos III-V, principalmente HEMTs, diodos Schottky y nanodiodos semiconductores para aplicaciones de alta frecuencia y en la caracterización eléctrica de estos dispositivos semiconductores.

Es autora o coautora de 46 artículos JCR (con índice h: 14 en SCI, 16 en Google Scholar), más de 40 contribuciones a proceedings de congresos con revisión por pares. Ha presentado más de 50 contribuciones (de ellas 11 invitadas) en congresos internacionales y ha participado en más de 30 proyectos de investigación con una significante intervención en proyectos de investigación internacionales: 1 proyecto financiados por la EU (ROOTHz en el FP7), 1 por la OTAN, 2 Acciones Integradas (1 con Francia y 1 con Italia) y varias redes de investigación internacionales (Phantoms, GDR THz, GDRE).

Asimismo, ha participado y coordinado varios proyectos y acciones de divulgación de la ciencia y proyectos de Atracción y Retención de Talento, financiados o cofinanciados por Instituciones locales, regionales y estatales. Particularmente relevante es la preparación y coordinación del Concurso UE para Jóvenes Científicos (EUCYS)-2021 y COFUND USAL4EXCELLENCE, ambos financiados por la Comisión Europea.

Parte C. MÉRITOS MÁS RELEVANTES

C.1. Publicaciones (10 publicaciones seleccionadas en los últimos 10 años)

R.A. Pena, B. Orfao, I. Íñiguez-de-la-Torre, G. Paz, M.A. Daher, Y. Roelens, M. Zaknoune, J. Mateos, T. González, B.G. Vasallo and S. Pérez
Reverse Leakage Current Hysteresis in GaN Schottky Barrier Diodes Interpreted in Terms of a Trap Energy Band
IEEE Transaction on Electron Devices, Early access doi: 10.1109/TED.2024.3409202, (2024)

S. García; I. Íñiguez-de-la-Torre; S. Pérez, T. González and J. Mateos
Role of impact ionization and self-consistent tunnel injection in Schottky-barrier diodes operating under strong reverse-bias conditions
Applied Physics Express, **16**, (2023), p. 024003 [1-5]

S. García; I. Íñiguez-de-la-Torre; S. Pérez, T. González and J. Mateos
Optimization of the Epilayer Design for the Fabrication of Doped GaN Planar Gunn Diodes
IEEE Transaction on Electron Devices 69, (2022), p. 514-520

B. Orfao, B.G. Vasallo, S. Pérez, J. Mateos, D. Moro-Melgar, M. Zaknoune and T. González
Dielectric Passivation and Edge Effects in planar GaN Schottky Barrier Diodes
IEEE Transaction on Electron Devices 68, (2021), p. 4296-4301

S. García; I. Íñiguez-de-la-Torre; S. Pérez, K. Ranjan, M. Agrawal, R. Lingaparthi,D. Nethaji, K. Radhakrishnan, G. I. Ng, T. González and J. Mateos
Non-linear thermal resistance model for the simulation of high power GaN-based devices
Semiconductor Science and Technology 36, (2021), p. 055002 [1-7]

B. Orfao, B.G. Vasallo, D. Moro-Melgar, S. Pérez, J. Mateos and T. González
Analysis of Surface Charge Effects and Edge Fringing Capacitance in Planar GaAs and GaN Schottky Barrier Diodes
IEEE Transaction on Electron Devices 67, (2020), p. 3530-3535

H. Sanchez-Martin, J. Mateos, J. A. Novoa, J. A. Delgado-Notario, Y. M. Meziani, S. Perez, H. Theveneau, G. Ducournau, C. Gaquiere, T. Gonzalez, I. Iniguez-de-la-Torre,
Voltage controlled sub-THz detection with gated planar asymmetric nanochannels
Applied Physics Letters 113, 043504 [1-4] (2018)

S. García, I. Íñiguez-de-la-Torre, J. Mateos, T. González and S. Pérez
Impact of substrate and thermal boundary resistance on the performance of AlGaN/ GaN HEMTs analyzed by means of electrothermal Monte Carlo simulations
Semiconductor Science and Technology 31, 065005 [1-9] (2016)

S. García, I. Íñiguez-de-la-Torre, O. García-Pérez, J. Mateos, T. González, P. Sangaré, C. Gaquière and S. Pérez
Self-consistent electro-thermal simulations of AlGaN/GaN diodes by means of Monte Carlo method
Semiconductor Science and Technology 30, 035001 [1-8] (2015)

D. Pardo, J. Grajal, C.G. Pérez-Moreno and S. Pérez
An Assessment of Available Models for the Design of Schottky-Based Multipliers Up to THz Frequencies
IEEE Transactions on Terahertz Science and Technology 4, 277-287 (2014)

C.2. Proyectos (Últimos 10 años)

Título: Diodos Gunn planares de GaN con terminal de sustrato para generación de alta potencia en el rango de sub-THz (PDC2023-145896-I00)
Entidad financiadora: Ministerio de Ciencia, Innovación y Universidades
Periodo: 2024-2025 Financiación: 290.400,00 €
Investigador principal: Javier Mateos López, Beatriz García Vasallo (USAL)

Título: Nanodispositivos ultrarrápidos y eficientes para comunicaciones y espectroscopía de THz basados en semiconductores de gap ancho y estrecho (PID2020-115842RB-I00)
Entidad financiadora: Ministerio de Ciencia, Innovación
Periodo: 2021-2024 Financiación: 118.580 €
Investigador principal: Javier Mateos López, Beatriz García Vasallo (USAL)

Título: Simulación y caracterización de efectos electrotérmicos en dispositivos de subterahercios para comunicaciones de alta velocidad (SA254P18)
Entidad financiadora: Junta de Castilla y León (Consejería de Educación)
Periodo: 2018-2021 Financiación: 120.000 €
Investigador principal: Tomás González Sánchez (USAL)

Título: Tecnologías de diodos de GaN para generación y detección en la banda de subterahercios (TEC2017-83910-R)
Entidad financiadora: Ministerio de Ciencia, Innovación y Universidades - Secretaría de Estado de Universidades, Investigación, Desarrollo e Innovación y Presidencia de la Agencia Estatal de Investigación,
Periodo: 2018-2020 Financiación: 160.930,00 €
Investigador principal: Javier Mateos López, Mª Susana Pérez Santos (USAL)

Título: Emisores y detectores de terahercios basados en nanodiodos semiconductores para comunicaciones e imagen médica y de seguridad (SA022U16)
Entidad financiadora: Junta de Castilla y León (Consejería de Educación)
Periodo: 2016-2018 Financiación: 119.999 €
Investigador principal: Tomás González Sánchez (USAL)

Título: Nanoelectrónica de gap ancho y estrecho para la mejora de la eficiencia en aplicaciones de RF y THz (TEC2013-41640-R)
Entidad financiadora: Ministerio de Economía y Competitividad - Dirección General de Investigación
Periodo: 2014-2017 Financiación: 126.324 €
Investigador principal: Javier Mateos López, Mª Susana Pérez Santos (USAL)

Título: Estudio de efectos térmicos en dispositivos de RF. Modelado y caracterización experimental (SA052U13)
Entidad financiadora: Junta de Castilla y León (Consejería de Educación)
Periodo: 2013-2016 Financiación: 34.980 €
Investigador principal: Tomás González Sánchez (USAL)

Título: Nanodispositivos semiconductores para la emisión y detección de radiación de THz a temperatura ambiente (SA183A12-1)
Entidad financiadora: Junta de Castilla y León (Consejería de Educación)
Periodo: 2012-2013 Financiación: 29.900 €
Investigador principal: Javier Mateos López (USAL)

Título: Diodos y transistores avanzados para generación, detección y procesado de señales milimétricas y submilimétricas (TEC2010-15413)
Entidad financiadora: Ministerio de Ciencia e Innovación - Dirección General de Investigación
Periodo: 2011-2013 Financiación: 160.204 €
Investigador principal: Tomás González Sánchez (USAL)

C.3. Contratos

Título: A. T. para el modelado del funcionamiento de dispositivos HEMT de GaN (Art. 83)
Entidad financiadora: Ministerio de Defensa, Centro de Investigación y Desarrollo de la Armada (CIDA)
Periodo: 2005-06/2006 Financiación: 12.000 EUR
Investigador principal: Tomás González Sánchez

Título: A. T. para el modelado del funcionamiento de dispositivos HEMT de GaN (Art. 83)
Entidad financiadora: Ministerio de Defensa, Centro de Investigación y Desarrollo de la Armada (CIDA)
Periodo:09/2006-2008 Financiación: 68.000 EUR
Investigador principal: Tomás González Sánchez

Título: Modelado de transistores HEMT de GaN para aplicaciones de potencia a alta frecuencia (Art. 83)
Entidad financiadora: Ministerio de Defensa, Centro de Investigación y Desarrollo de la Armada (CIDA)
Periodo: 2008 Financiación: 40.000 EUR
Investigador principal: Tomás González Sánchez

Título: Desarrollo del Proyecto Cloud-IO. Plataforma Cloud Computing para la Integración y Despliegue Rápido de Servicios sobre Redes inalámbricas de Sensores.
Entidad financiadora: Ingeniería de Software Avanzado, S. A.
Periodo: 2011-04/09/2013 Financiación: 290.400 EUR
Investigador principal: Juan Manuel Corchado Rodríguez

Título: Realization of Monte Carlo simulations and delivery of designs for the fabrication of devices within the GaNGUN project: definition of the first technological process (expdte nº 3985)
Entidad financiadora: IEMN (Institut d'Electronique, Microélectronique et Nanotechnologies) (Francia)
Periodo: 2019 – 2020 Financiación: 10.000 EUR
Investigador principal: Tomás González Sánchez

Título: Realization of Monte Carlo simulations and delivery of designs for the fabrication of devices within the GaNGUN project: optimization of the devices (expdte nº 3984)
Entidad financiadora: IEMN (Institut d'Electronique, Microélectronique et Nanotechnologies) (Francia)
Periodo: 2019 – 2020 Financiación: 10.000 EUR
Investigador principal: Javier Mateos López

C.5 Tesis dirigidas

Título: Monte Carlo analysis of Gunn oscillations and thermal effects in GaN-based devices
Doctorando: Sergio García Sánchez, Universidad de Salamnca, Dpto. de Física Aplicada
Director: Mª Susana Pérez Santos and Ignacio Iñiguez de la Torre Mulas
Universidad: University of Salamanca Fecha de la Defensa: 25 September 2015
Calificación: Sobresaliente "Cum Laude"

Título: Analysis and design of multiplier and mixers via Monte Carlo modelling at THz bands
Doctorando: Diego Pardo Santos, Universidad Politécnica de Madrid, Escuela Técnica Superior de Ingenieros de Telecomunicación
Director: Jesús Grajal de la Fuente and Mª Susana Pérez Santos
Universidad: Politécnica de Madrid Fecha de la Defensa: 10 Diciembre 2014
Calificación:Sobresaliente "Cum Laude"

C.6 Miembro de comités internacionales

Miembro del Comité Organizador del *Trends in Nanotechnology Conference* (TNT2003, Salamanca).

Miembro del Comité Organizador y del Comité del Programa Científico de la *18th International Conference on Noise and Fluctuations* (ICNF 2005, Salamanca).

Miembro del Comité Organizador del *19th International Conference on Electron Dynamics in Semiconductors, Optoelectronics and Nanostructures* (EDISON'19), 29 June - 2 July 2015, Salamanca, Spain.

C.7 Participación en tareas de evaluación

Revisora de las revistas: IEEE Transactions on Electron Devices, Journal of Applied Physics, Applied Physics Letters, Solid State Electronics, Semiconductor Science and Technology, Journal of Computational Electronics.

Evaluadora de proyectos para la Agencia Estatal de Investigación.

Date	04/11/2024

Section A. PERSONAL DATA

Name/Family name	Xabier Quintana Arregui		
Personal ID	15958021T	Age	62
Researcher Identification Number	Researcher ID	AAA-6803-2019	
	Orcid Code	0000-0003-4315-2701	

A.1.Current position

Organism	Universidad Politécnica de Madrid			
Dptment./Center	CEMDATIC - TFB/ ETSI-Telecomunicación,			
Address	Av. Complutense Nº 30, 28040 Madrid, España			
Telephone	629102574	e_mail	x.quintana@upm.es	
Professional Category	Full Professor		Start Date	27/02/2023
UNESCO code	221093			
Keywords	Micro Electronics, Liquid Crystal, Displays, Antiferroelectric Liquid Crystal, Ferroelectric CL, Passive Matrix, Modulators, Routers, Phase Control Devices, Flat Lenses, Filters, Programmable Optical Devices, Photonic Integrated Circuits			

A.2. Academic education

Degrees	University	Year
Ms. Telecom Engineer	ETS.I.T. - Universidad Politécnica de Madrid	17/Nov/1992
Ph.D. Telecom Engineer	ETS.I.T. - Universidad Politécnica de Madrid	29/Jul/1997

A.3. Research quality

Sexenial research periods: 5, last: 2018-2023; date: June 2024.
Supervised Ph.D. in the last 10 years: 5
Published works (articles WOS): 82
Citations: 702 (WOS)
Average citations/year in the last 5 years: 60 (WOS)
Works in 1st quartile (Q1): 23 (WOS)
H index: 14 (WOS core)

Section B. CV SUMMARY

He has developed his research activity in ETSI Telecommunication of UPM since 1993. His research interest has focused on Guided Optical Communications (anisotropic guides, unconventional fibers) and non-guided transmission (atmospheric transmission, space), as well as Photonic Applications of Liquid Crystals (displays, microdisplays, phase devices, tuneable filters, modal lenses) and organic electronics (OLEDs and organic photodetectors).

He is a member of the Applied Photonics Group, a consolidated research group at UPM, since his formation in 2005. He has been secretary of the Center for Advanced Materials and Devices for ICT (CEMDATIC), a Center for R & D & I of the UPM, since its formation in 2011 until 2022 and directs the technological processes of the clean-room of the Group.

He has directed 7 projects of competitive public participation in national and regional calls and one in EU Programs, has participated in 12 projects corresponding to EU Programs, and has participated in 20 other national or regional projects. He has also participated in 16 projects with companies of which he has been PI in three of them.

He is co-author of 14 publications in national journals and in more than 80 international publications in scientific journals with an impact index (thirteen of them in the first quartile). He has made more than 150 communications to international conferences. He is also co-author of 8 national and international patents. Three of them were licensed.

He has directed six Doctoral Theses and is currently directing one more. He is in possession of five six-year research periods.

Teaching activities

He has developed graduate and postgraduate teaching activities, mainly at the Higher Polytechnic School of the Carlos III University of Madrid (1997-98) and since then at the Higher Technical School of Telecommunications Engineers of the UPM and at the Higher Technical School of Civil Engineers of the UPM (Graduate in Materials Engineering). He has taught about 10 undergraduate subjects of different Study Plans, and as many postgraduate degrees in Doctorate and Masters. He is co-author of several Handbooks of Laboratory Practices. He has participated in several educational innovation projects.

He has given lectures, courses and seminars, mainly on optical communications and liquid crystal devices.

He is the coordinator of the Cosumer Electronics course, which is project oriented teaching centred on microprocessors

He has directed more than 15 Final Degree Projects in the degree of Telecommunications Engineer. He is in possession of five five-year teaching periods.

Section C. MOST RELEVANT MERITS

C.1. Publications (top 10 of the last 5 years)

1. De la Rosa, Pablo; Pereiro-García, Javier; Caño-García, Manuel; Otón, José Manuel; Quintana, Xabier and Geday, Morten A. “Generation of integer and fractional vortex beams based on liquid crystal electronically reconfigurable spiral phase plates” Optics Express, 2023, 31 (19), 31212-31220 Doi: 10.1364/OE.494676
2. Paz, Luis Felipe; Cano-García Manuel; Geday, Morten Andreas; Otón, José Manuel; Quintana, Xabier; “Identification of dyes and matrices for dye doped polymer waveguide emitters covering the visible spectrum” *Scientific Reports,* 2022, **12**(1), 6142 Doi: 10.1038/s41598-022-10145-8.
3. García de Blas, Mario; García Pereiro, Javier;Vera Andreu, Sergio; Quintana Arregui X.; Cano-García, Manuel; Geday Morten A.; “High resolution 2D beam steerer made from cascaded 1D liquid crystal phase gratings” *Scientific Reports,* 2022, **12**(1), 5145 Doi: 10.1038/s41598-022-09201-0.
4. García de Blas M; Geday MA; Otón JM; Quintana Arregui X.; “Two-dimensional digital beam steering based on liquid crystal phase gratings” Applied Sciences-Basel, 2021, **11** (8) DOI: 10.3390/app11083632
5. Rodriguez-Cortina, Monica; Adamiec, Pawel; Barbero, Juan; Quintana, Xabier; Andreas Geday, Morten; “Emulation Technique of Multiple Overlapped Return Echoes of a Spatial LIDAR with 100-dB Dynamic Resolution” IEEE Transactions on Instrumentation and Measurement, 2021, **70**, Doi: 10.1109/TIM.2021.3092778
6. Geday, M.; Caño-García, M.; Otón, J.M.; Quintana, X.; “Adaptive Spiral Diffractive Lenses - Lenses With a Twist”, *Adv. Opt. Mat.*. **8** (2001199); (2020); DOI: 10.1002/adom.202001199
7. Vega-Colado, C.; Arredondo, B.; Torres, J.C.; Lopez-Fraguas, E.; Vergaz, R.; Martin-Martin, D.; del Pozo, G.; Romero, B.; Apilo, P.; Quintana, X.; Geday, M.A.; deDios, C.; Sanchez-Pena, J.M. “An All-Organic Flexible Visible Light Communication System”, Sensors 2019 **18**(9)3045, Doi: 10.3390/s18093045
8. Cano-Garcia, M. ;Poudereux, D.; Gordo, F.J.;Geday, M.A.;Oton, J.M.;Quintana, X. “Integrated Mach-Zehnder Interferometer Based on Liquid Crystal Evanescent Field Tuning”, 2019, *Crystals,* **9**(5)225 Doi.: 10.3390/cryst9050225
9. Otón J.M.; Otón, E.; Quintana X., Geday, M.A., “Liquid-crystal phase-only devices”, J. Mol. Liq. 2018, **267**(1), 469-483
10. Caño-García M.; Quintana, X; Otón, J.M.; Geday, M.A. “Dynamic multilevel spiral phase plate generator”, *Sci. Rep.* 2018, **8**(1) 15804

C.2. Participation in R & D & I projects

C.2.a Projects as PI

1. ITT 10245, ESA, “Smart Heaters”, PI: X. Quintana, 01/12/2020-30/11/2022,120.000€
2. IND2020/TIC-17424, Comunidad Autónoma de Madrid, Lasing S.A., “Doctorado Industrial”, PI: X. Quintana 10/06/2021-09/06/2024, 88.200 €
3. PEJD-2018-PRE/IND-8910, Comunidad Autónoma de Madrid, “Contratación de investigador predoctoral”, PI: X. Quintana 2019-2020, 25.000€
4. IND2017/TIC-7835, Comunidad Autónoma de Madrid, Alter Technology TUV. “Doctorado Industrial”, PI: X. Quintana 2018-2020, 105.000 €
5. P2018/NMT-4326: Comunidad Autónoma de Madrid “Sensores e Instrumentación en Tecnologías Fotónicas2 (SINFOTON2-CM)”, PI: X. Quintana ,227.700€
6. TEC2013-47342-C2-1-R, *"Una Nueva Generación de Dispositivos Fotónicos basada en Materiales Autoorganizados: Fabricación (UNDOMATOR)"*. Entidad financiadora: Ministerio de Economía y Competitividad. Convocatoria: - Programa Estatal de Investigación, Desarrollo e Innovación Orientada a los Retos de la Sociedad, Convocatoria 2013. Investigador principal: José M. Otón, Xabier Quintana, CEMDATIC, Universidad Politécnica de Madrid, Period: 2014-2017, Budget: 250.591 €
7. TSI-020110-2009-363. “Sistema de Accesibilidad al Cine y a Otros Eventos Culturales para Personas Sordas (SACEC)” (Oct. 2009- Dec 2011). Acción Estratégica de Telecomunicaciones y Sociedad de la Información. Budget 192.039,20€. Budget UPM: 65.599€. Ministerio de Industria Turismo y Comercio.
8. CENIT VISION 2007-1007 Ministerio de Industria Turismo y Comercio. “VISION” (Jan. 2007-Dec 2010) Project CENIT. Presupuesto UPM: 237.811 €.

C.2.b Projects as researcher

9. EU-Attract/ALL “Adaptive Liquid Crystal Lens”, Union Europeo, Coordinador Europeo y PI: M.A. Geday, Subvencion UPM 70.000€.
10. TEC2016-77242-C3-2-R: MINECO: “Estructuras sublongitud de onda de capa delgada para circuitos fotonicos (II) guiaondas activas y chips fotonicos”, PI: M.A. Geday y J.M. Otón. 2017-2019, 168.069 €
11. :EU-FP7:304814, *“RaptaDiag: Rapid Aptamer based diagnostics for bacterial meningitis”*. Entidad financiadora: Unión Europea. Convocatoria: Call FP7-HEALTH-2012-INNOVATION-2. Investigador principal: Morten A. Geday, Centro de Materiales y Dispositivos Avanzados paras Tecnología de la Información y Comunicaciones, Universidad Politécnica de Madrid, Periodo: Oct. 2012– Dec. 2015, Budget: 1.035.418€, Participación: Investigador
12. S2013/MIT/2790/SINFOTON/CM, "Sensores e Instrumentación en Tecnologías Fotónicas: SINFOTON". Entidad financiadora: Comunidad de Madrid. Convocatoria: PI: José M. Otón, CEMDATIC, Universidad Politécnica de Madrid, Period: Jan. 2015 – Dec. 2018, Budget: 154.000 €.,
13. Project reference: IC1208, “Integrating devices and materials: a challenge for new instrumentation in ICT ". Entidad financiadora: Unión Europea. Convocatoria: Acción COST. Investigador principal: José M. Otón, Centro de Materiales y Dispositivos Avanzados paras Tecnología de la Información y Comunicaciones, Universidad Politécnica de Madrid, Periodo: Jun. 2013 – May. 2017, Budget: 600.000 €, para toda la acción,
14. S2009/ESP-1781 FACTOTEM2-CM, "Fotónica Aplicada a la Creación de Tecnologías Ópticas y su Transferencia a Empresas Madrileñas: FACTOTEM2". Entidad financiadora: Comunidad de Madrid. Convocatoria: Creación de Tecnologías Ópticas y su Transferencia a Empresas Madrileñas II. Investigador principal: José M. Otón, Centro de Materiales y Dispositivos Avanzados paras Tecnología de la Información y Comunicaciones, Universidad Politécnica de Madrid, Periodo: Jan. 2010 – Dec. 2013, Budget: 352.921 €.

C.3. Participation in R & D & I contracts

1. "Design of a tunable reflectarray antenna at 100 GHz based on liquid crystal" Huawei. Budget 191.725 €. Period: Nov. 2017 Jun. 2018. PI: Xabier Quintana.
2. "Liquid Crystal Optical Retarders", *Visual Display, S.L.* PI: X. Quintana, Universidad Politécnica de Madrid (01/01/2008-01/06/2010) €8.000
3. "Nuevos Tipos de Retardadores Ópticos de Cristal Líquido", *Visual Display, S.L.* PI: X. Quintana, Universidad Politécnica de Madrid (01/01/2012-31/12/2012) €10.000
4. "Prototipo de estación óptica de seguimiento dotada de un retromodulador en el subsistema de vuelo" *Ingeniería y Servicios Aeroespaciales, S.A. (INSA)*, PI: F.J. López Hernández, Universidad Politécnica de Madrid (01/10/2006-01/07/2007) €23.448

C.4. Patents

1. Cano Garcia Manuel, Oton Sanchez Jose Manuel, Geday Morten Andreas, Quintana Arregui Patxi Xabier, Elmogi Ahmed, Mattelin Marie-Aline, Missinne Jeroen, VanSteenberge Geert; "Metodo y dispositivo reconfigurable para el guiado de una señal óptica con dos polarizaciones perpendiculars"; es2671218 (a1); es2671218 (b2); 2018-06-05
2. Cerrolaza Martínez Beatriz , Carrasco Vela Carlos , Geday Morten Andreas , Otón Sánchez José Manuel , Quintana Arregui Patxi Xabier ; Method for manufacturing personalised optical document security elements and the element obtained; wo2019086726 (a1); 2019-05-09
3. Encinar Garcinuno Jose Antonio , Perez Palomino Gerardo , Barba Gea Mariano , Quintana Arregui Xavier , Geday Morten Andreas , Oton Sanchez Jose Manuel , Broquetas Ibars Antoni , Abril Aguilera Jordi , Nova Lavado Enrique ; "Reconfigurable beam reflectarray antenna for frequencies in the terahertz and millimeter-wave range"; es2388213 (a1); es2388213 (b2); 2012-10-10
4. Geday Morten Andreas, Cano Garcia Manuel, Oton Sanchez Jose Manuel, Quintana Arregui Patxi Xabier, Geday Jacob Andreas; "Dispositivo optico configurable"; es2711456 (a1); 2019-05-03
5. Geday Morten Andreas , Oton Martinez Eva , Escolano Moyano José Miguel , Oton Sanchez José Manuel , Quintana Arregui Xabier ; "Method for amplifying the detection of targets in an aligned liquid crystal matrix"; es2499790 (a1); es2499790 (b2); wo2015193525 (a1); 2014-09-29
6. Geday Morten Andreas , Quintana Arregui Patxi Xabier , Otón Sánchez Jose Manuel , Cerrolaza Martínez Beatriz , Carrasco Vela Carlos ; "Optical device and method for achieving multiple latent images for document security"; us2018290479 (a1); 2018-10-11
7. Quintana Arregui Patxi Xabier , Andreas Geday Morten , Otón Sánchez José Manuel , Cerrolaza Martinez Beatriz , Carrasco Vela Carlos ; "Method and device for document security by generating multiple reflective and transmissive latent images"; us2019070888 (a1); 2019-03-07

C.5. Other Merits

Responsible de Doctorate administration at the Department (7 years)

Secretary of CEMDATIC Center since 2011 to 2022.

Reviewer of Official Agency for Research Funding of Spanish Government.

AENOR Expert (Spanish Agency of Standards)