MINISTERIO DE CIENCIA E INNOVACIÓN

CURRICULUM VITAE (maximum 4 pages)

AGENCIA ESTATAL DE INVESTIGACIÓN

CV date	23/09/2024

Part A. PERSONAL INFORMATION

First and Family name	Jon Andreu Larrañaga		
Social Security, Passport, ID number	15394102H	Age	51
Researcher codes	Open Researcher and Contributor ID (ORCID**)	0000-0003-2367-5513	
	SCOPUS Author ID (*)	9334203300	
	WoS Researcher ID (*)	AAJ-9403-2020	

(*) Optional (**) Mandatory

A.1. Current position

Name of University/Institution	University of the Basque Country (UPV/EHU)			
Department	Electronics Technology			
Address and Country	Plaza Ingeniero Torres Quevedo 1, Bilbao, Spain			
Phone number	946014067	E-mail	Jon.andreu@ehu.eus	
Current position	**FULL PROFESSOR**		From	2022/07/15
Key words	Power Electronics, Industrial Electronics, Circuit Design			

A.2. Education

PhD, Licensed, Graduate	University	Year
PhD in Automatics and Industrial Electronics	University of the Basque Country (UPV/EHU)	2008
Engineer in Automatics and Industrial Electronics	University of Mondragon	1997

A.3. General indicators of quality of scientific production *(see instructions)*

1. Research 6-year period recognized: 3 last year included: 2020
2. PhD theses supervised (since 2010): 8 +1 ongoing
3. Total Cites: 2.942 (Scopus), 2.216 (WOS)
4. Papers in Q1 journals: 24
5. h-Index: 22 (Scopus), 20 (WOS).

Part B. CV SUMMARY *(max. 3500 characters, including spaces)*

Jon Andreu is Dr. Engineer in Automatics and Industrial Electronics since 2008. Before joining the UPV/EHU, from 1997 and for three years, he worked in the Control Engineering department of IK4-IDEKO Research Center. Since 2000 he worked for a consumer electronics products manufacturer as Firmware engineer. In 2002 he joined the Electronics Technology Department of the UPV/EHU at full time where he obtained his **PhD**, and he **was granted with the thesis extraordinary prize of that** year (UPV/EHU). Since 2022 he is **full professor** in Electronics Technology (UPV/EHU)**.**

He has participated in **77 public and private funded research projects,** and he was **head researcher** in **16** of them. He obtained his PhD. Degree in 2008, and he obtained the **extraordinary doctorate award** from UPV/EHU. He has directed **8 doctoral thesis** (and 1 more ongoing) and **3 postdoctoral grants**. He coauthored **36 indexed journal papers (24 Q1)**, **14** papers in national publications, **62** international conference papers, **51** national conference papers, **3 patents**, 3 on-line publications and **1 book**. He has assessed 1 **European project** and he has been **ANEP assessor** in 7 national calls. He has **3 *Research 6-year periods recognized*** and **4 Teaching 5-year periods recognized**.

He is a member of the APERT research group, formed by 17 professors from the Electronic Technology Department of the UPV/EHU. The group has a high rating and it is recognized as an A type group by the Basque Government.

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

C.1. Publications *(10)*

1. E. Robles, M. Fernandez, **J. Andreu**, E. Ibarra, J. Zaragoza, U. Ugalde, **Common-mode** voltage mitigation in **multiphase** electric motor drive systems, Renewable & Sustainable Energy Reviews (ISSN 1364-0321), vol. 157 (111971), pp: 1-21, 2022, DOI: https://doi.org/10.1016/j.rser.2021.111971, JCR: 15,900, **Ranking Q1** (8/115)
2. E. Robles, M. Fernandez, **J. Andreu**, E. Ibarra, U. Ugalde, Advanced power inverter topologies and **modulation** techniques for common-mode voltage elimination in **electric motor drive systems**, Renewable & Sustainable Energy Reviews (ISSN 1364-0321), vol: 140 (110746), pp: 1-26, 2021, DOI: https://doi.org/10.1016/j.rser.2021.110746, JCR: 16,799, Q1 (8/119).
3. I. Aretxabaleta, I. Martínez de Alegría, J.I. Garate, A. Matallana, **J. Andreu**, "**Wide Bandgap** semiconductor HF-oscillation attenuation method with tuned gate RLC filter", IEEE Transactions on Power Electronics (ISSN: 0885-8993), Vol 35 (8), pp: 8025-8033, 2020, DOI: 10.1109/TPEL.2020.2964272, JCR (2019): 6,373, **Ranking Q1** (22/266)
4. I. López, E. Ibarra, A. Matallana, **J. Andreu**, I. Kortabarria, "Next generation electric drives for **HEV/EV propulsion systems**: Technology, trends and challenges", Renewable and Sustainable Energy Reviews (ISSN: 1364-0321), Vol 114 (Art. 109336), pp 1-23, 2019, DOI: 10.1016/j.rser.2019.109336, JCR: 12,556, **Ranking Q1** (7/112)
5. A. Matallana, E. Ibarra, I. López, **J. Andreu**, J.I. Garate, X. Jordà, J. Rebollo, "**Power module electronics in HEV/EV** applications: new trends in wide-bandgap semiconductor technologies and design aspects", Renewable and Sustainable Energy Reviews (ISSN: 1364-0321), Vol 113 (Art. 109264), pp 1-33, 2019, DOI: 10.106/j.rser.2019.109264, JCR: 12,556, **Ranking Q1** (7/112)
6. E. Trancho, E. Ibarra, A. Arias, I. Kortabarria, P. Prieto, I. Martínez de Alegría, **J. Andreu**, I. López. "Sensorless **Control** Strategy for Light-duty **EVs and Efficiency** Loss Evaluation of High Frequency Injection under Standardized Urban Driving Cycles". Applied Energy (ISSN: 0306-2619). Vol. 224, pp 647-658, 2018. DOI:10.2016/j.apenergy.2018.05.019. JCR: 7,900, **Ranking Q1** (8/97).
7. O. Oñederra, I. Kortabarria, I. Martínez de Alegría, **J. Andreu**, JI. Garate: "Three Phase VSI **optimal switching loss** reduction using Variable Switching Frequency". IEEE Trans. on Power Electronics. Vol: 32(8), pp. 6570-6576, 2017. DOI: 10.1109/TPEL.2016.2616583. JCR: 6.812, **Ranking Q1**(14/260)
8. I. López, S. Ceballos, J. Pou, J. Zaragoza, **J. Andreu**, E. Ibarra and G. Konstantinou. "**Generalized PWM**-Based Method for **Multiphase** Neutral-Point-Clamped Converters With Capacitor Voltage Balance Capability". IEEE Trans. on Power Electronics. Vol: 32(6), pp. 4878-4890, 2017. DOI: 10.1109/TPEL.2016.2599872. JCR: 6,812, **Ranking Q1** (14/260).
9. I. López, S. Ceballos, J. Pou, J. Zaragoza, **J. Andreu**, I. Kortabarria, V. G. Agelidis. "**Modulation** Strategy for **Multiphase** Neutral-Point-Converters". IEEE Trans. on Power Electronics. Vol: 31(2), pp.: 928-941, 2016. DOI: 10.1109/TPEL.2015.2416911. JCR: 7,151, **Ranking Q1** (13/262).
10. **J. Andreu**, I. Kortabarria, E. Ormaetxea, E. Ibarra, J. L. Martín, S. Apiñaniz. "A Step Forward Towards the Development of **Reliable** Matrix **Converters**". IEEE Trans. on Industrial Electronics. Vol. 59(1), pp. 167-183, 2012. DOI: 10.1109/TIE.2011.2146217. JCR: 5,165, **Ranking Q1** (4/243).

C.2. Research projects

1. MULTIPHASE-WBG: Next generation **wide bandgap** based **multiphase** drive system for **electric vehicle** applications. PID2020-115126RB-I00. Funded by: Ministerio de Ciencia e Innovación (Spanish Program of R & D Oriented towards the Challenges of the Society). September 2021-August 2024. 118.338,00 Euros. HR: **Jon Andreu**.
2. ELECTRICAR-P: **Propulsion system** for hybrid **electric vehicle** based on fuel cell, battery and ultracapacitors. DPI2014-53685-C2-2-R. Funded by: Ministerio de Economía y Competitividad (Spanish Program of R & D Oriented towards the Challenges of the Society). January 2014-December 2017. 96.800,00 Euros. HR: **Jon Andreu**.
3. KT4eTRANS: Key technologies for new concepts of **urban electric transport**. KK-2015/00047 (phase 1), KK-2016/00061 (phase 2). Funded by: Basque Government (ELKARTEK program). October 2015-December 2017. 61.889,00 Euros. HR: **Jon Andreu**.
4. CITY-CHARGE: Recharge infrastructures for **electric vehicles** in urban areas. IPT-370000-2010-28. Funded by: Ministerio de Ciencia e Innovación (INNPACTO subprogram). June 2010-December 2012. 174.760 Euros. HR: J. L. Martín. Type of participation: researcher.
5. ENSOL: Development of Advanced Photovoltaic Technologies. KK-2018/00040. Funded by: Basque Government (ELKARTEK program). January 2018-December 2019. 95.843,00 Euros. HR: **Jon Andreu**.
6. FUTUREGRIDS-2020: New technological offer for the 2020 Smart Grid. Offshore. HVDC and low voltage networks operation. IE14-389. Funded by: Government (ETORTEK program), January 2014-March 2016, 35.136,00 Euros. HR: **Jon Andreu**
7. SARECONPA: **Parallelization of power converters** in electric microgrids. Funded by: Basque Government and Euroregion Aquitaine (Cooperation Projects Euroregion Aquitaine Euskadi 2012), January 2012 - December 2012, 8.163 Euros, **HR: Jon Andreu**
8. Architectures of transmission systems in direct current of marine generation parks (ENE2010-19187-C03-01). Funded by the Ministry of Economy and Competitiveness. January 2011 - December 2013. 193.600 Euros. HR: J. L. Martín. Type of participation: researcher.

C.3. Contracts, technological or transfer merits

1. Collaboration in the Study of Power Converter Topologies for Inner Triplet magnets with **Energy Recovery** in the framework of the High Luminosity upgrade for the LHC at CERN. **Client: CERN** HR: I. Martínez de Alegría. 2019 to 2021. 135.000 Euros
2. Accelerator for protontherapy", Client: JEMA Energy S.A. HR: Iñigo Martínez de Alegría (UPV/EHU). December 2018 - December 2020. 223.435,00 Euros.
3. Design and development of **integrated power modules** (POWINMOD). **Client: Fagor Electronics**. HR: **Jon Andreu** (UPV/EHU). December 2015-May 2018. 241.998 Euros.
4. Design of an inverter for a **switched reluctance machine in automotive applications** (VENUS). **Client: Fagor Electronics**. HR: **Jon Andreu** (UPV/EHU). June 2015-February 2016. 50.000,00 Euros.
5. Integration of **electric machine control** algorithms in XilinX FPGA (FPGAmc). Client: Tecnalia Research & Innovation. HR: Iñigo Kortabarria (UPV/EHU). June 2015-December 2015. 25.000 Euros
6. Design and development of position **control for an electromechanical actuator** in aviation applications. Client: Tecnalia R&I foundation. HR: Iñigo Kortabarria (UPV/EHU). June 2014 – November 2014. 30.000 Euros.
7. **Design and development of an inverter** for permanent magnet synchronous machines in **automotive** applications (EVIN). **Client: Fagor Electronics**. HR: Iñigo Martínez de Alegría (UPV/EHU). February 2013 - April 2014. 98.000 Euros.
8. Research on new **control and power circuits** for power converters. Client: ROBOTIKER. HR: J. L. Martín (UPV/EHU). May 2010 - April 2013. 87.442,37 Euros.

C.4. Patents

1. I. Martínez de Alegría, S. Ceballos, P. Ibañez, J. L. Martín, I. Gabiola, **J. Andreu**, I. Kortabarria. Electrical Transmission Module in Resonant DC with High Frequency Transformer. Patent No. WO2011/135108. Spain. April 27th, 2010 (Publication in the B.O.P.I. on November 3rd, 2011). Owner: UPV/EHU and Robotiker Foundation. Exploited by: Robotiker Foundation
2. **J. Andreu**, J. L. Martin, I. Kortabarria, E. Ibarra, U. Bidarte, I. Martínez de Alegría, P. Ibañez. Matrix Converter. Patent No. 2341693. Spain. October 8th, 2008 (Publication in the B.O.P.I. on June 24th, 2010). Owner: UPV/EHU and Robotiker Foundation. Exploited by: Robotiker Foundation.

C.5. Supervised PhD Theses

1. E. Robles, "New power converter for reducing common mode voltage problems in the drive train of electric vehicles", 2020. Maximum grade cum laude (**thesis extraordinary prize** (UPV/EHU)).
2. D. Cabezuelo, "Improved performance of power converters for switched reluctance machines applied to **electric vehicles**", 2020. Maximum grade cum laude.
3. A. Matallana, "Contributions to the design of power modules for **electric and hybrid vehicles**: trends, design aspects and simulation techniques". 2020. Maximum grade cum laude.
4. I. López. "Modulation Techniques for three-level **multiphase** NPC converters and efficient control of wave energy capture devices". 2015. Maximum grade cum laude.
5. I. Kortabarria. "**Optimizing Power** Extraction in Small Wind Turbines". 2013. Maximum grade cum laude.
6. E. Planas. "Contributions to **hierarchical control** of electrical microgrids". 2013. Maximum grade cum laude
7. E. Ormaetxea. "Exploiting the features of the new generation **FPGAs to improve control** of the power matrix converter and to perform real-time simulations".2011. Maximum grade cum laude.
8. E. Ibarra. "New solutions for the design process and the **fault tolerance** for power matrix converter". 2011. Maximum grade cum laude.

C.6. Direction of Post Doctoral work

1. Power and control circuits for power converters dedicated to **electric vehicle propulsion** (ESPDOC16/25). I. López. Program Call: Specialization of doctor research staff at the UPV / EHU. Data: 2017/3/1
2. Multi-level and **multiphase** NPC converter: applications and development. I. López. Program: Call for hiring recent doctors until their integration in postdoctoral training programs (UPV/EHU). Data: 2015/4/20
3. **Control** and tuning of **power converters** in parallel in micro-grids. E. Planas. Program Call: Call for hiring recent doctors until their integration in postdoctoral training programs (UPV/EHU). Data: 2013/4/16

C.7. Other

1. Doctoral Extraordinary Prize from UPV/EHU 2008.
2. Director of 3 Master Thesis (PFC) awarded best ETSIB de Bilbao of the year.
3. Head researcher of R&D projects: 7 private funded, 9 public funded
4. Assessor of the European Project Marie Curie Actions-People; COFUND- INCOMING. Project evaluator (Incoming researcher to TIFER). Data: 2015
5. ANEP assessor: Predoctoral formative contracts (2016, 2018), State Program of R & D Oriented towards the Challenges of Society (2016, 2021, 2022, 2023); Scientific and Technical Infrastructures and Equipment (2015).

Fecha del CVA	23/09/2024

Parte A. DATOS PERSONALES

Nombre	Roberto		
Apellidos	Giral Castillón		
Sexo	Hombre	Fecha de Nacimiento	23/11/1968
DNI/NIE/Pasaporte	73194007A		
URL Web	http://scholar.google.es/citations?user=sPga5SoAAAAJ		
Dirección Email	roberto.giral@urv.cat		
Open Researcher and Contributor ID (ORCID)	0000-0001-6582-6741		

A.1. Situación profesional actual

Puesto	Catedrático de Universidad		
Fecha inicio	2019		
Organismo / Institución	Universitat Rovira i Virgili		
Departamento / Centro	Escuela Técnica Superior de Ingeniería / Departamento de Ingeniería Electrónica, Eléctrica y Automática		
País		Teléfono	
Palabras clave	330700 - Tecnología electrónica		

Parte B. RESUMEN DEL CV

Roberto Giral received the B.S. degree in Ingenieria Técnica de Telecomunicación, the M.S. degree in Ingenieria de Telecomunicación, and the Ph.D. (with honors) degree from the Universitat Politècnica de Catalunya, Barcelona, Spain, in 1991, 1994, and 1999, respectively.

From 1992 to 2000 he was Assistant Professor and from 2000 to 2019 Associate Professor with the Departament d'Enginyeria Electrònica, Elèctrica i Automàtica (DEEEA), Escola Tècnica Superior d'Enginyeria (ETSE), Universitat Rovira i Virgili (URV), Tarragona, Spain, where he is Full Professor since 2019. From 2000 to 2003 he was secretary of the DEEEA. He was academic coordinator of the doctoral program in Technologies for Nanosystems, Bioengineering and Energy of the URV from Oct 2012 to Jan 2015. From Jan 2015 to Jun 2018 he was the URV Rector's Delegate for ICTs. Since Feb 2020 he is the academic coordinator of the Master's degree in Industrial Engineering of the URV. He has co-supervised five doctoral thesis, (3 since 2012) and is currently co-supervising two more. Four of the five doctors he has co-supervised are currently employed at Colombian (2, UNAL), Chilean (U. de Talca) and Mexican (UPAEP) universities. There are on-going postdoctoral collaborations with the three doctors having more significant research activity, in particular with the researcher at U.Talca, including a 3-month research stay at his laboratory in 2019.

From 2019 to 2023 he collaborated with the Spanish "Agencia Estatal de Investigación (División de Coordinación, Evaluación y Seguimiento Científico y Técnico), gestor del área: PIN, subárea: Ingeniería eléctrica, electrónica y automática (IEA)".

Recognized with 4 CNAI six-year research terms/sexenios (last in 2019), his research focuses in the field of power electronics and, in particular, in the design and control of AC/DC and DC/DC converters in DC power buses for automotive applications and for distributed renewable generation systems. He is investigating solutions to seamlessly integrate power supplies such as the grid, PV modules with MPPT and current-slope-limited PEMFCs, storage devices like batteries and large capacitors, and pulsating loads. Other important subjects in his research are the parallel-interleaved connection of current-controlled converters, the integrated design of switching power stages and their controllers to achieve the desired closed loop dynamics without subharmonic or chaotic instabilities, and the power regulators design by means of sliding mode and input-output linearization techniques and the subsequent implementation of their controllers either in analog, digital or hybrid ways.

As a researcher of the GAEI (Automatic Control and Industrial Electronics consolidated Group of the URV) he has participated in 17 private and 19 public R&D projects, being the main researcher at three of the projects supported by the Spanish Government and the last four of

the private. He is also coinventor of 3 patents: ES2356548 (B1) in 2012, IT1401606 (B1) in 2013 and US11271473B2 in 2022, being the last one a result of a research and transference collaboration with Lear Corporation Holding Spain. He is actually the Director of the GAEI with 13 doctors (12 researchers and 1 permanent research technician), and a variable number of postdocs (1) and Ph.D students (8). Some of the most relevant projects acting as IP were:

(PID2021-124229NB-I00) Plataforma de Cargadores de Baterías Embarcados para Vehículos Eléctricos Universal. Funded by AEI/FEDER.

(TEC2012-30952) Convertidor versátil buck-boost no inversor: aplicaciones y control (BBVersaConv).

(T18154S) Stability Study of an On-Board Battery Charger in 2018 and (T19172S) Stability Measurements of an On-Board Battery Charger in 2019, both for Lear Corporation Holding Spain.

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**. Restrepo, C.; Barrueto, B.; Murillo-Yarce, D.; Muñoz, J.; Vidal-Idiarte, E.; (6/6) Giral, R.2022. Improved Model Predictive Current Control of the Versatile Buck-Boost Converter for a Photovoltaic Application. IEEE Transactions on Energy Conversion. IEEE. 37-3, pp.1505-1519. ISSN 0885-8969. https://doi.org/10.1109/TEC.2022.3183986

2 **Artículo científico**. El Aroudi, A.; Haroun, R.; Al-Numay, M.S.; Calvente, J.; (5/5) Giral, R.2021. A Large-Signal Model for a Peak Current Mode Controlled Boost Converter With Constant Power Loads. IEEE Journal of Emerging and Selected Topics in Power Electronics. IEEE. 9-1, pp.559-568. ISSN 2168-6777. https://doi.org/10.1109/JESTPE.2019.2960696

3 **Artículo científico**. Restrepo, C.;; González-Castaño, C.;; Muñoz, J.;; Chub, A.;; Vidal-Idiarte, E.;; (6/6) Giral, R.; (AC). 2021. An MPPT algorithm for PV systems based on a simplified photo-diode model. IEEE Access. IEEE. 9, pp.33189-33202. ISSN 2169-3536. https://doi.org/10.1109/ACCESS.2021.3061340

4 **Artículo científico**. El Aroudi, A.; Haroun, R.; Al-Numay, M.S.; Calvente, J.; (5/5) Giral, R.2021. Fast-Scale Stability Analysis of a DC–DC Boost Converter With a Constant Power Load. IEEE Journal of Emerging and Selected Topics in Power Electronics. IEEE. 9-1, pp.548-558. ISSN 2168-6777. https://doi.org/10.1109/JESTPE.2019.2960564

5 **Artículo científico**. González-Castaño, C.; Restrepo, C.; (3/6) Giral, R.; García-Amoros, J.; Vidal-Idiarte, E.; Calvente, J.2020. Coupled inductors design of the bidirectional non-inverting buck–boost converter for high-voltage applications. IET Power Electronics. IET. 13-14, pp.3188-3198. ISSN 1755-4535. https://doi.org/10.1049/iet-pel.2019.1479

6 **Artículo científico**. González-Castaño, C.; Restrepo, C.; (3/5) Giral, R.; Vidal-Idiarte, E.; Calvente, J.2020. ADC Quantization Effects in Two-Loop Digital Current Controlled DC-DC Power Converters: Analysis and Design Guidelines. Applied Sciences. MDPI. 10-20, pp.7179. ISSN 2076-3417. https://doi.org/10.3390/app10207179

7 **Artículo científico**. Enric Vidal Idiarte; Carlos Restrepo; Abdelali El Aroudi; Javier Calvente; (5/5) Roberto Giral (AC). 2019. Digital Control of a Buck Converter Based on Input-Output Linearization. An Interpretation Using Discrete-Time Sliding Control Theory. Energies. MDPI. 12-14, pp.2738. ISSN 0885-8993. https://doi.org/10.3390/en12142738

8 **Artículo científico**. Restrepo, C.; Konjedic, T.; Flores-Bahamonde, F.; Vidal-Idiarte, E.; Calvente J.; (6/6) Giral, R.2019. Multisampled Digital Average Current Controls of the Versatile Buck-Boost Converter. IEEE Journal of Emerging and Selected Topics in Power Electronics. IEEE. 7-2, pp.879-890. ISSN 2168-6777. https://doi.org/10.1109/JESTPE.2018.2888980

9 **Artículo científico**. Mendez-Diaz, F.; Pico, B.; Vidal-Idiarte, E.; Calvente J.; (5/5) Giral, R. (AC). 2019. HM/PWM Seamless Control of a Bidirectional Buck-Boost Converter for a Photovoltaic Application. IEEE Transactions on Power Electronics. IEEE. 34-3, pp.2887-2899. ISSN 0885-8993. https://doi.org/10.1109/TPEL.2018.2843393

10 **Artículo científico**. Lopez-Santos, O.; Garcia, G.; Martinez-Salamero, L.; (4/7) Giral, R.; Vidal-Idiarte, E.; Merchan-Riveros, M.; Moreno-Guzman, Y.2019. Analysis, Design, and Implementation of a Static Conductance-Based MPPT Method. IEEE Transactions on Power Electronics. IEEE. 34-2, pp.1960-1979. ISSN 0885-8993. https://doi.org/10.1109/TPEL.2018.2835814

11 **Artículo científico**. Restrepo, C.; González-Castaño, C.; (3/3) Giral, R. (AC). 2023. The Versatile Buck-Boost Converter as Power Electronics Building Block: Changes, Techniques, and Applications. IEEE Industrial Electronics Magazine. IEEE. 17-1, pp.36-45. ISSN 1932-4529. https://doi.org/10.1109/MIE.2022.3153280

12 **Artículo científico**. Madrid, E.; Murillo-Yarce, D.; Restrepo, C.; Muñoz, J.; (5/5) Giral, R.2021. Modelling of SEPIC, Ćuk and Zeta Converters in Discontinuous Conduction Mode and Performance Evaluation. Sensors. MDPI. 21-22, pp.7434. ISSN 1424-8220. https://doi.org/10.3390/s21227434

13 **Artículo científico**. González-Castaño, C.; Restrepo, C.; Sanz, F.; Chub, A.; (5/5) Giral, R.2021. DC Voltage Sensorless Predictive Control of a High-Efficiency PFC Single-Phase Rectifier Based on the Versatile Buck-Boost Converter. Sensors. MDPI. 21-15, pp.5107. ISSN 1424-8220. https://doi.org/10.3390/s21155107

14 **Artículo científico**. Díaz Martínez, D.;; Trujillo Codorniu, R.;; (3/4) Giral, R.; (AC); Vázquez Seisdedos, L.;. 2021. Evaluation of Particle Swarm Optimization Techniques Applied to Maximum Power Point Tracking in PV systems. Internacional Journal of Circuit Theory and Applications. Wiley. 49-7, pp.1849-1867. ISSN 0098-9886. https://doi.org/10.1002/cta.2978

15 **Artículo científico**. Alsmadi, Y.M.;; Alqahtani, A.;; (3/8) Giral, R.;; Vidal-Idiarte, E.;; Martinez-Salamero, L.;; Utkin, V.;; Xu, L.;; Abdelaziz, A.Y.;. 2021. Sliding mode control of photovoltaic based power generation systems for microgrid applications. International Journal of Control. Taylor & Francis. 94-6, pp.1704-1715. ISSN 0020-7179. https://doi.org/10.1080/00207179.2019.1664762

16 **Artículo científico**. Ramos-Paja, C.E.;; González-Motoya, D.;; Villegas-Ceballos, J.P.;; Serna-Garcés, S.I.;; (5/5) Giral, R.;. 2021. Sliding-mode controller for a photovoltaic system based on a Cuk converter. International Journal of Electrical and Computer Engineering (IJECE). Institute of Advanced Engineering and Science (IAES). 11-3, pp.2027-2044. ISSN 2088-8708. https://doi.org/10.11591/ijece.v11i3.pp2027-2044

C.3. Proyectos o líneas de investigación

1 **Proyecto**. PID2021-124229NB-I00, Plataforma de Cargadores de Baterías Embarcados para Vehículos Eléctricos Universal. FEDER Una manera de hacer Europa; MCIN/AEI/ 10.13039/501100011033. Javier Calvente Calvo. (Universitat Rovira i Virgili). 01/09/2022-31/08/2026. 121.000 €. Miembro de equipo.

2 **Proyecto**. DPI2017-84572-C2-1-R, Herramientas para la estandarización en análisis y diseño de la interconexión de convertidores electrónicos de potencia.. Agencia Estatal de Investigación/ FEDER. Angel Cid Pastor. (Universitat Rovira i Virgili). 01/01/2018-31/12/2020. 110.000 €. Miembro de equipo.

3 **Proyecto**. DPI2016-80491-R, Diseño y control digital de convertidores conmutados del sistema de tracción del vehículo eléctrico e híbrido con modificación dinámica de la tensión de inversor. Agencia Estatal de Investigación, FEDER. Enric Vidal Idiarte. (Universitat Rovira i Virgili). 30/12/2016-29/12/2019. 116.600 €. Miembro de equipo.

4 **Proyecto**. TEC2012-30952, Convertidor versátil buck-boost no inversor, aplicaciones y control. Ministerio de Economía y Competitividad. Roberto Giral Castillon. (Universitat Rovira i Virgili). 01/01/2013-31/12/2015. 86.000 €.

5 **Contrato**. Stability Measurements of an On-Board Battery Charger Lear Corporation Holding Spain, SLU. Roberto Giral. 14/02/2019-15/02/2019. 360 €.

6 **Contrato**. Stability Study of an On-Board Battery Charger Lear Corporation Holding Spain, SLU. Roberto Giral. 01/06/2018-01/08/2018. 16.128 €.

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

Patente de invención. Antonio Martinez Perez; Adria Marcos Pastor; Antonio Leon Masich; Roberto Giral Castillon; Javier Calvente Calvo; Enric Vidal Idiarte; Hugo Valderrama Blavi. US11271473B2. On-board charger (OBC) having grid frequency rejecter Estados Unidos de América. 08/03/2022. Lear Corporation.

Fecha del CVA	17/01/2024

Parte A. DATOS PERSONALES

Nombre	MARÍA PILAR		
Apellidos	MOLINA GAUDÓ		
Sexo	Mujer	Fecha de Nacimiento	04/11/1974
DNI/NIE/Pasaporte	25161966N		
URL Web			
Dirección Email	pimolina@epicpower.es		
Open Researcher and Contributor ID (ORCID)	0000-0002-4592-769X		

A.1. Situación profesional actual

Puesto	Prof. Titular Univ.		
Fecha inicio	2019		
Organismo / Institución	Universidad de Zaragoza		
Departamento / Centro	Departamento de Ingeniería Electrónica y Comunicaciones. Área: Tecnología Electrónica. Área de conocimiento (Macroárea): Ingeniería y Arquitectura / Escuela de Ingeniería y Arquitectura		
País		Teléfono	
Palabras clave			

A.3. Formación académica

Grado/Master/Tesis	Universidad / País	Año
Ingeniería de telecomunicación	Universidad de Zaragoza / España	2004
Ingeniero de Telecomunicación Especialidad Electrónica	Universidad de Zaragoza / España	1997

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**. Schubert, Christina; Hassen, Wiem Fekih; Poisl, Barbara; Seitz, Stephanie; Schubert, Jonathan; Usabiaga, Estanis Oyarbide; Molina Gaudo, Pilar; Pettinger, Karl-Heinz. 2023. Hybrid Energy Storage Systems Based on Redox-Flow Batteries: Recent Developments, Challenges, and Future Perspectives. BATTERIES. 9-4, pp.211 [29 pp.]. ISSN 2313-0105. https://doi.org/10.3390/batteries9040211

2 **Artículo científico**. Sanz, Alberto; Oyarbide, Estanis; Gálvez, Rubén; Bernal, Carlos; Molina, Pilar; San Vicente, Igor. 2019. Analytical maximum torque per volt control strategy of an interior permanent magnet synchronous motor with very low battery voltage. IET ELECTRIC POWER APPLICATIONS. 13-7, pp.1042-1050. ISSN 1751-8660. https://doi.org/10.1049/iet-epa.2018.5469

3 **Artículo científico**. Oyarbide, Estanis; Bernal, Carlos; Molina Gaudó, Pilar. 2017. New current measurement procedure using conventional Rogowski transducers for the analysis of switching transients in transistors. IEEE TRANSACTIONS ON POWER ELECTRONICS. 32-4, pp.2490-2492. ISSN 0885-8993. https://doi.org/10.1109/TPEL.2016.2624502

4 **Artículo científico**. Oyarbide, E.; Bernal, C.; Molina, P.; Jiménez, L.A.; Gálvez, R.; Martínez, A.2016. Voltage equalization of an ultracapacitor module by cell grouping using number partitioning algorithm. JOURNAL OF POWER SOURCES. 301-, pp.113-121. ISSN 0378-7753. https://doi.org/10.1016/j.jpowsour.2015.09.122

5 **Capítulo de libro**. Pilar Molina Gaudó. 2020. Pilar, ingeniera feliz. 10001 AMIGAS INGENIERAS: DESCUBRE A 17 INGENIERAS Y DIVÉRTETE CON SUS EXPERIMENTOS. Prensas de la Universidad de Zaragoza. pp.P. 14-19.. ISBN 9788413402345.

6 **Libro o monografía científica**. María Villarroya Gaudó; Sandra Baldassarri; Pilar Molina Gaudó (editoras). 2013. El mundo necesita ingenieras: ¿quieres ser una?. Prensas de la Universidad de Zaragoza, 2013.. pp.129, [4] p. : gráf.. ISBN 9788415770800.

C.2. Congresos

1 Ayuso, N.; Baldassarri, S.; Trillo, R.; et al; Villarroya, M.. International Conference on Emerging Technologies and Factory Automation. IEEE International Conference on Emerging Technologies and Factory Automation (ETFA), 2019. 2019. España. Participativo - Ponencia oral (comunicación oral).

2 Montañés Espinosa, Antonio Joaquín. Tutorización con perspectiva de género para alumnas de la Escuela de Ingeniería y Arquitectura de la Universidad de Zaragoza. Congreso Internacional de Orientación Universitaria (CIOU2018). 2018. España. Participativo - Ponencia oral (comunicación oral).

3 J.M.Sanz; C.Bernal; E.Oyarbide; R.Galvez; P.Molina. Optimización de los parámetros de diseño de un DAB-SRC para un rango extendido de operación. Seminario Anual de Automática y Electrónica Industrial (SAAEI 2016). 2016. España. Participativo - Ponencia oral (comunicación oral).

4 Oyarbide, Estanis; Jimenez, Luis Angel; Molina Gaudó, María Pilar; Bernal, Carlos. Challenges of Low-Voltage Energy Storage for Lifts. Symposium on Lift & EScalator Technologies LIFTSYMPOSIUM 2015. 2015. Reino Unido. Participativo - Ponencia oral (comunicación oral).

5 Pacheco, Vicente; Molina Gaudó, María Pilar; Jimenez, Luis Angel; Oyarbide, Estanis. Improving the Energy Efficiency of Lifts. Symposium on Lift & EScalator Technologies LIFTSYMPOSIUM 2015. 2015. Reino Unido. Participativo - Ponencia oral (comunicación oral).

6 Oyarbide Usabiaga, Estanislao; Bernal Ruiz, Carlos; Molina Gaudó, Pilar; Jiménez Alonso, Luis; Gálvez Anguas, Rubén. Equilibrado intrínseco de tensión de un módulo de supercondensadores por agrupamiento óptimo utilizando algoritmos de particionado. SAAEI15 Seminario Anual de Automática, Electrónica industrial e Instrumentación. 2015. España. Participativo - Ponencia oral (comunicación oral).

7 Bernal Ruiz, Carlos; Avellaned, J.; Leon, J.; Molina, P.. SiC single switch resonant inverters performance dependence on induction load. 16-TH Conference on Power Electronics and Applications (EPE'14-ECCE). 2014. Finlandia. Participativo - Ponencia oral (comunicación oral).

8 María Villarroya-Gaudó, Mayte Lozano, Raquel Trillo, Sandra Baldassarri, Ana Cristina Murillo, Pilar Molina-Gaudó. “Enseñar ingeniería, también a chicas…”. Jornadas Virtual USATIC 2014, Ubicuo y Social: Aprendizaje con TIC. 2014. España. Participativo - Ponencia oral (comunicación oral).

9 María Villarroya-Gaudó, Mayte Lozano, Raquel Trillo, Sandra Baldassarri, Ana Cristina Murillo, Pilar Molina-Gaudó. Enseñar ingeniería, también a chicas…. Jornadas Virtuales "Virtual USATIC, Ubicuo y Social: Aprendizaje con TIC". 2013. España. Participativo - Ponencia oral (comunicación oral).

C.3. Proyectos o líneas de investigación

1 **Proyecto**. T23_23R: Electrónica de Potencia y Microelectrónica. GOBIERNO DE ARAGÓN. José Miguel Burdio Pinilla. (Escuela de Ingeniería y Arquitectura - Universidad de Zaragoza). 01/01/2023-31/12/2025. 54.899,81 €.

2 **Proyecto**. CARDHIN – CARGA DINÁMICA INDUCTIVA PARA VES EN ENTORNOS URBANOS E INTERURBANOS (MIG-20201042). CENTRO PARA EL DESARROLLO TECNOLÓGICO INDUSTRIAL - CDTI; SOCIEDAD IBERICA DE CONSTRUCCIONES ELECTRICAS S.A.. Carlos Bernal Ruiz. (Escuela de Ingeniería y Arquitectura - Universidad de Zaragoza). 01/09/2020-31/12/2023. 327.174,51 €.

3 **Proyecto**. T23_20R: Electrónica De Potencia Y Microelectrónica. GOBIERNO DE ARAGÓN. José Miguel Burdio Pinilla. (Escuela de Ingeniería y Arquitectura - Universidad de Zaragoza). 01/01/2020-31/12/2022. 28.192 €.

4 **Proyecto**. FCT-18-13481: MUJERES E INGENIERÍA: FOMENTO DE VOCACIONES, ACOMPAÑAMIENTO A ESTUDIANTES Y CREACIÓN DE REDES PROFESIONALES.. FUNDACION ESPAÑOLA PARA LA CIENCIA Y LA TECNOLOGIA; OTROS INGRESOS. María Villarroya Gaudó. (Escuela de Ingeniería y Arquitectura - Universidad de Zaragoza). 01/04/2019-31/12/2020. 15.000 €.

5 **Proyecto**. DESARROLLO DE SISTEMAS DE ALMACENAMIENTO HÍBRIDOS E INTELIGENTES (SAHI). D.G.A.. Carlos Bernal Ruiz. (Escuela de Ingeniería y Arquitectura - Universidad de Zaragoza). 10/01/2019-30/11/2020. 73.749,39 €.

6 **Proyecto**. GRUPO DE REFERENCIA ELECTRÓNICA DE POTENCIA Y MICROELECTRÓNICA. GOBIERNO DE ARAGÓN. José Miguel Burdio Pinilla. (Escuela de Ingeniería y Arquitectura - Universidad de Zaragoza). 01/01/2017-31/12/2019. 45.610 €.

7 **Proyecto**. CONVERSIÓN DC/DC BIDIRECCIONAL CON AISLAMIENTO GALVÁNICO Y ALTO RANGO DE TENSIONES DE ENTRADA/SALIDA. UNIVERSIDAD DE ZARAGOZA. Estanislao Oyarbide Usabiaga. (Escuela de Ingeniería y Arquitectura - Universidad de Zaragoza). 05/09/2016-04/09/2019. 20.000 €.

8 **Proyecto**. BATT-EX. DESARROLLO DE EXTENSORES DE VIDA ÚTIL DE BATERÍAS PARA SISTEMAS AUTÓNOMOS ALIMENTADOS POR PLACAS FOTOVOLTÁICAS. REF. RTC-2015-3358-5. MINISTERIO DE ECONOMÍA Y COMPETITIVIDAD. Carlos Bernal Ruiz. (Escuela de Ingeniería y Arquitectura - Universidad de Zaragoza). 01/10/2015-28/02/2019. 176.636,13 €.

9 **Proyecto**. GRUPO CONSOLIDADO T38 ELECTRÓNICA DE POTENCIA Y MICROELECTRÓNICA. DIPUTACIÓN GENERAL DE ARAGÓN. José Miguel Burdio Pinilla. (Escuela de Ingeniería y Arquitectura - Universidad de Zaragoza). 01/01/2016-31/12/2016. 14.497 €.

10 **Proyecto**. GRUPO CONSOLIDADO T38 ELECTRÓNICA DE POTENCIA Y MICROELECTRÓNICA. DIPUTACIÓN GENERAL DE ARAGÓN. José Miguel Burdio Pinilla. (Escuela de Ingeniería y Arquitectura - Universidad de Zaragoza). 01/01/2015-31/12/2015. 12.617 €.

11 **Proyecto**. GRUPO CONSOLIDADO T38 ELECTRÓNICA DE POTENCIA Y MICROELECTRÓNICA. DIPUTACIÓN GENERAL DE ARAGÓN. José Miguel Burdio Pinilla. (Escuela de Ingeniería y Arquitectura - Universidad de Zaragoza). 01/01/2014-31/12/2014. 12.728 €.

12 **Contrato**. ASESORÍA EN EL DESARROLLO DE CONVERTIDORES DC/DC 2023 EPIC POWER CONVERTERS, S.L.. Estanislao Oyarbide Usabiaga. (Escuela de Ingeniería y Arquitectura - Universidad de Zaragoza). 01/01/2024-16/01/2024.

13 **Contrato**. ASESORÍA EN EL DESARROLLO DE CONVERTIDORES DC/DC EPIC POWER CONVERTERS, S.L.. Estanislao Oyarbide Usabiaga. (Escuela de Ingeniería y Arquitectura - Universidad de Zaragoza). 15/04/2023-01/05/2023.

14 **Contrato**. ESTUDIO DE ENVEJECIMIENTO DE BATERÍAS Y ESTRATEGIAS SOC/SOH EN SISTEMAS DE ALMACENAMIENTO PARA ASCENSORES EPIC POWER CONVERTERS, S.L.. Estanislao Oyarbide Usabiaga. (Escuela de Ingeniería y Arquitectura - Universidad de Zaragoza). 07/02/2022-07/07/2022.

15 **Contrato**. LICENCIA KNOW-HOW, EVOLUCIÓN DE CONVERTIDORES ELECTRÓNICOS DE POTENCIA RESONANTES BIDIRECCIONALES APLICADOS AL AHORRO ENERGÉTICO EN ASCENSORES CON VARIADOR EPIC POWER CONVERTERS, S.L.. Otri Otri. (Escuela de Ingeniería y Arquitectura - Universidad de Zaragoza). 20/09/2021-20/09/2036.

16 **Contrato**. INVESTIGACIÓN EN SISTEMAS AVANZADOS DE ALMACENAMIENTO DE ENERGÍA (ESS) VARIAS EMPRESAS. Carlos Bernal Ruiz. (Escuela de Ingeniería y Arquitectura - Universidad de Zaragoza). 20/11/2020-20/11/2025.

17 **Contrato**. ASESORÍA EN EL DESARROLLO DE CONTROLES AVANZADOS PARA CONVERTIDORES DC/DC EPIC POWER CONVERTERS, S.L.. Estanislao Oyarbide Usabiaga. (Escuela de Ingeniería y Arquitectura - Universidad de Zaragoza). 19/11/2019-20/12/2019.

18 **Contrato**. DESARROLLO DE INVERSOR MODULAR Y ESCALABLE EN POTENCIA PARA EL CONTROL DE MOTORES SÍNCRONOS DE IMANES PERMANENTES FAGOR ELECTRÓNICA, S. COOP.. Estanislao Oyarbide Usabiaga. (Escuela de Ingeniería y Arquitectura - Universidad de Zaragoza). 07/12/2018-07/12/2021.

19 **Contrato**. DESARROLLO DE VARIADOR DE 90KW PARA EL CONTROL DE UN MOTOR SÍNCRONO DE IMANES PERMANENTES DE ALTA VELOCIDAD FAGOR ELECTRÓNICA, S. COOP.. Estanislao Oyarbide Usabiaga. (Universidad de Zaragoza). 07/12/2017-07/10/2019.

20 **Contrato**. ASESORÍA EN DISEÑO DE UN CONVERTIDOR DC/DC POLIVALENTE, ALTA EFICIENCIA Y BAJO COSTE PARA APLICACIONES INDUSTRIALES EPIC POWER CONVERTERS, S.L.. Estanislao Oyarbide Usabiaga. (Escuela de Ingeniería y Arquitectura - Universidad de Zaragoza). 22/05/2017-22/05/2018.

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

1 **Patente de invención**. Oyarbide Usabiaga Estanislao; Bernal Ruiz Carlos; Molina Gaudo Pilar; Jimenez Alonso Luis; Galvez Anguas Rubén. ES 2547583 B1. Estructura y método de fabricación de módulos de celdas de baja tensión para mejora de la vida útil de las mismas 2015. Epic Power Converters S.L..

2 **Acuerdo Know How**. OYARBIDE USABIAGA, ESTANISLAO; MOLINA GAUDÓ, MARÍA PILAR; BERNAL RUIZ, CARLOS; GALVEZ ANGUAS, RUBÉN. Energy Recovery System 2nd Generation. ERS 2G Evolución de convertidores electrónicos de potencia resonantes bidireccionales aplicados al ahorro energético en ascensores con variador EPIC POWER CONVERTERS, S.L. (65%) - UNIVERSIDAD DE ZARAGOZA (35%).

3 **Acuerdo Know How**. OYARBIDE USABIAGA, ESTANISLAO; MOLINA GAUDÓ, MARÍA PILAR; BERNAL RUIZ, CARLOS. Desarrollo de convertidores electrónicos de potencia resonantes bidireccionales aplicados al ahorro energético en ascensores con variador UNIVERSIDAD DE ZARAGOZA.

Parte A. DATOS PERSONALES

Fecha del CVA	30/04/2024

Nombre y Apellidos	Marta María Hernando Álvarez	
Núm. Identificación del investigador	Researcher ID	L-9602-2014
	Scopus Author ID	35596320100
	Código ORCID	0000-0003-0790-235X

A.1. Situación profesional actual

Organismo	Universidad de Oviedo			
Dpto./Centro	Departamento de Ingeniería Eléctrica, Electrónica, de Computadores y Sistemas (DIEECS) / Universidad de Oviedo			
Dirección	Campus de Viesques s/n. Edificio Departamental 3. 33204. Gijón. Asturias			
Teléfono	985182073	correo electrónico	mmhernando@uniovi.es	
Categoría profesional	Catedrática de Universidad		Fecha inicio	Noviembre 2010
Espec. Cód. UNESCO	3306, 3307			
Palabras clave	Electrónica industrial, electrónica de potencia, conversión de energía, corrección del factor de potencia, convertidores CA/CC, convertidores CC/CC			

A.2. Formación académica

Licenciatura/Grado/Doctorado	Universidad	Año
Ingeniera Industrial	Universidad de Oviedo	1988
Doctora Ingeniera Industrial	Universidad de Oviedo	1992

A.3. Indicadores generales de calidad de la producción científica

5 sexenios de investigación (1989-1994, 1995-2000, 2001-2006, 2007-2012 y 2013-2018).

1 sexenio de transferencia (1996-2001)

6 tesis dirigidas (julio 2000, septiembre 2000, febrero 2010, julio 2013, enero 2016 y julio 2018).

Parte B. RESUMEN LIBRE DEL CURRÍCULUM

Soy Ingeniera Industrial desde 1988 y Doctora Ingeniera Industrial desde 1992, ambos títulos por la Universidad de Oviedo.

Desde 1988 pertenezco al Área de Tecnología Electrónica de la Universidad de Oviedo, donde he desempeñado distintos puestos docentes, siendo Catedrática de Universidad desde noviembre de 2010.

He impartido docencia en las titulaciones de Ingeniería Industrial, Ingeniería de Telecomunicación, Ingeniería Técnica Industrial, Ingeniería Técnica Informática e Ingeniería de Telecomunicación especialidad Telemática, así como en el Programa de Doctorado del Departamento de Ingeniería Eléctrica, Electrónica, de Computadores y de Sistemas de la Universidad de Oviedo. En la actualidad doy clase en el Grado de Ingeniería en Tecnologías y Servicios de Telecomunicación.

Mi actividad investigadora se desarrolló en el Grupo de Electrónica Industrial de la Universidad de Oviedo - GEI (Grupo de Excelencia del Principado de Asturias en 2002, única convocatoria de estas características), y posteriormente en el Grupo de Sistemas Electrónicos de Alimentación – SEA (grupo de investigación acreditado de la Universidad de Oviedo). Como miembro de estos dos grupos de investigación, realicé mi tesis doctoral y posteriormente he co-dirigido seis tesis doctorales, tres de ellas con Premio Extraordinario de Doctorado.

A lo largo de mi trayectoria investigadora, colaboré inicialmente en la línea de investigación en Sistemas de Iluminación y también en la línea de Electrónica Industrial, con participación en proyectos de investigación y publicación de artículos científicos. No obstante, la mayor parte de mi actividad se ha desarrollado en la línea de Sistemas Electrónicos de Alimentación, especialmente en el ámbito de los convertidores CA/CC, correctores del factor de potencia, sistemas de alimentación ininterrumpida y, más recientemente, convertidores bidireccionales. Como resumen de mi actividad investigadora, he participado en 4 proyectos financiados por la Unión Europea, 17 proyectos financiados por el Plan Nacional (Investigadora Principal de 4), 12 proyectos financiados por el Plan Regional de Investigación del Principado de Asturias (IP de 6), 6 proyectos financiados por la Universidad de Oviedo (IP de 2) y 26 proyectos financiados por empresas (IP de 18). Como resultado de las actividades de investigación en estos proyectos se derivan además dos patentes (una nacional y otra internacional), 60 publicaciones en revistas especializadas (45 en revistas internacionales indexadas en SCI) y 158 ponencias en congresos (91 en congresos internacionales).

Participo con regularidad en actividades de revisión de artículos para revistas especializadas, tales como IEEE Transactions on Power Electronics, Transactions on Industrial Electronics y Transactions on Industry Applications, así como para congresos especializados.

Soy evaluadora de ANEP y experta de ANECA; he participado en paneles de evaluación de convocatorias de proyectos del Plan Nacional, convocatorias Ramón y Cajal y Juan de la Cierva, proyectos Cenit y soy gestora del área PIN-IEA de la Agencia Estatal de Investigación (desde enero de 2024); pertenezco a la Comisión de Acreditación Nacional para el cuerpo de Titulares de Universidad de la rama Ingeniería y Arquitectura (desde octubre de 2012 hasta febrero de 2015 y desde enero de 2024 en la comisión c13), así como al Comité Asesor 6.2 de la CNEAI (desde febrero de 2016 hasta noviembre de 2017 y en la comisión de reclamaciones de las convocatorias de 2021, 2022 y 2023). Evaluadora en el proceso de preselección en la convocatoria de 2021 del “Postgraduate Fellowships Abroad programme” de la Fundación La Caixa.

Vicerrectora de Recursos Materiales y Tecnológicos de la Universidad de Oviedo entre junio de 2016 y febrero de 2021.

Parte C. MÉRITOS MÁS RELEVANTES

C.1. Publicaciones

- Rodríguez, J., García-Meré, J. R., G. Lamar, D., Hernando, M. M., Sebastián, J. (2023) High Step-Down Isolated PWM DC–DC Converter Based on Combining a Forward Converter with the Series-Capacitor Structure. IEEE Access, 11, 131045-131063. https://doi.org/10.1109/ACCESS.2023.3334794

- Rodríguez, A., Sebastián, J., Lamar, D. G., Hernando, M. M., Ayarzaguena, I., Larrazabal, I., Ortega, D., Bermejo, J. M., Vázquez, F. (2022). An Overall Analysis of the Static Characteristics of the Single Active Bridge Converter. *Electronics (Switzerland)*, *11*(4). https://doi.org/10.3390/ELECTRONICS11040601

- Murillo-Yarce, D., Restrepo, C., Lamar, D. G., Hernando, M. M., Sebastián, J. (2022). Study of Multiple Discontinuous Conduction Modes in SEPIC, Ćuk, and Zeta Converters. *Electronics (Switzerland)*, *11*(22). https://doi.org/10.3390/ELECTRONICS11223744

- Rogina, M. R., Rodríguez, A., Vázquez, A., Lamar, D. G., Hernando, M. M. (2020). Event-focused digital control to keep high efficiency in a wide power range in a SiC-based synchronous dc/dc boost converter. *Electronics (Switzerland)*, *9*(12), 1-13. https://doi.org/10.3390/ELECTRONICS9122154

- Castro, I., Vázquez, A., Arias, M., Lamar, D. G., Hernando, M. M., Sebastián, J. (2019). A Review on Flicker-Free AC-DC LED Drivers for Single-Phase and Three-Phase AC Power Grids. *IEEE Transactions on Power Electronics*, *34*(10), 10035-10057. https://doi.org/10.1109/TPEL.2018.2890716

- Castro, I., Vázquez, A., Lamar, D. G., Arias, M., Hernando, M. M., Sebastián, J. (2019). An Electrolytic Capacitorless Modular Three-Phase AC-DC LED Driver Based on Summing the Light Output of Each Phase. *IEEE Journal of Emerging and Selected Topics in Power Electronics*, *7*(4), 2255-2270. https://doi.org/10.1109/JESTPE.2018.2868950

- Vázquez, A., Rodríguez, A., Lamar, D. G., Hernando, M. M. (2018). Advanced Control Techniques to Improve the Efficiency of IPOP Modular QSW-ZVS Converters. *IEEE Transactions on Power Electronics*, *33*(1), 73-86. https://doi.org/10.1109/TPEL.2017.2705803

- Castro, I., Lamar, D. G., Arias, M., Hernando, M. M., Sebastián, J. (2017). Multicell Three-Phase AC-DC Driver for HB-LED Lighting Applications. *IEEE Transactions on Industry Applications*, *53*(4), 3803-3813. https://doi.org/10.1109/TIA.2017.2686802

- Zúmel, P., Ortega, L., Lázaro, A., Fernández, C., Barrado, A., Rodríguez, A., Hernando, M. M. (2016). Modular Dual-Active Bridge Converter Architecture. *IEEE Transactions on Industry Applications*, *52*(3), 2444-2455. https://doi.org/10.1109/TIA.2016.2527723

- Rodríguez, A., Vázquez, A., Lamar, D. G., Hernando, M. M., Sebastián, J. (2015). Different purpose design strategies and techniques to improve the performance of a dual active bridge with phase-shift control. *IEEE Transactions on Power Electronics*, *30*(2), 790-804. https://doi.org/10.1109/TPEL.2014.2309853

- Arias, M., Sebastián, J., Hernando, M. M., Viscarret, U., Gil, I. (2015). Practical Application of the Wave-Trap Concept in Battery - Cell Equalizers. *IEEE Transactions on Power Electronics*, *30*(10), 5616-5631. https://doi.org/10.1109/TPEL.2014.2373435

- Lamar, D. G., Arias, M., Hernando, M. M., Sebastián, J. (2015). Using the Loss-Free Resistor Concept to Design a Simple AC-DC HB-LED Driver for Retrofit Lamp Applications. *IEEE Transactions on Industry Applications*, *51*(3), 2300-2311. https://doi.org/10.1109/TIA.2014.2360957

C.2. Proyectos

- Referencia: UE-23-POWERIZED-101096387. Título: *Digitalization of Power Electronic Applications within Key Technology Value Chains (Powerized)*. Entidad financiadora: EU- Programa marco Horizonte 2020. Investigador principal UO: Fernando Briz. Fecha de inicio – fin: 01/01/2023-31/12/2025. Tipo de participación: investigador. Concedido

- Referencia: UE-18-POWER2POWER-826417. Título: *The next-generation silicon-based power solutions in mobility, industry and grid for sustainable decarbonisation in the next decade. (Power2power*). Entidad financiadora: EU- Programa marco Horizonte 2020. Investigador principal UO: Fernando Briz. Fecha de inicio – fin: 01/06/2019-31/05/2022. Cuantía: 297.133,75€. Tipo de participación: investigador. Concedido

- Referencia: FP7-NMP3-LA-2013-604057. Título: *Silicon carbide power electronics technology for efficient devices (SPEED).* Entidad financiadora: EU en el contexto de proyecto tipo “Large Scale Integrating Collaborative Research Project” financiado por la Unión Europea en el 7º Programa Marco. Investigador principal: Daniel Fernández (INAEL) y Fernando Briz (Universidad de Oviedo). Fecha de inicio - fin: 01/01/2014 - 31/12/2017. Cuantía: 12.297.780 € (total) y 531.820,8 (UO). Tipo de participación: investigador. Concedido.

- Referencia: CSD2009-00046. Título: *Advanced wide band gap semiconductor devices for rational use of energy (RUE)*. Entidad financiadora: MINECO proyecto de la convocatoria CONSOLIDER-INGENIO. Investigador principal: José Millán (CNM) y Javier Sebastián (UO). Fecha de inicio - fin: 01/12/2009-31/12/2014. Cuantía: 4.560.000€ (total) y 338.022 € (UO). Tipo de participación: investigador. Concedido.

- Referencia: SV-PA-21-AYUD/2021/51931. Título: A*yudas para grupos de investigación de organismos del Principado de Asturias durante el periodo 2021-2023.* Entidad financiadora: Fundación para la Investigación Científica y Técnica (FICYT). Investigador principal: Marta M.

Hernando. Fecha inicio - fin: 01/01/2021-31/12/2023. Cuantía: 165.600€. Tipo de participación: investigador principal. Concedido.

- Referencia: PID2022-136969OB-I00. Título: *Isolated Hybrid Switched-Capacitor DC-DC Converters for Future Bus Providers (IsoCap)*. Entidad financiadora: Agencia Estatal de Investigación. Investigador principal: Juan Rodríguez y Diego G. Lamar. Fecha inicio – fin: 01/09/2023-30/08/2026. Cuantía: 116.500€. Tipo de participación: Investigador. Concedido.

- Referencia: MCINN-22-TED2021-130939B-I00. Título: C*onvertidores modulares para sistemas de baterías modulares y distribución de 800V en vehículos eléctricos. (Modubat800)*. Investigador principal: Alberto Rodríguez y Aitor Vázquez. Fecha inicio – fin: 01/12/2022 - 30/11/2024. Cuantía: 115.920 €. Tipo de participación: Investigador. Concedido.

- Referencia: PDC2021-121242-I00. Título: *Diseño y desarrollo de lámparas PLC-VLC con capacidad de transmitir información por luz visible desde la tecnología PLC (Line2Light)*. Entidad financiadora: Agencia Estatal de Investigación. Investigador principal: Diego G. Lamar. Fecha inicio – fin: 01/12/2021-30/11/2023. Cuantía: 80.500€. Tipo de participación: Investigador. Concedido.

- Referencia: PID2019-110483RB-I00. Título: *Diseño de transmisores eficientes de Comunicación por Luz Visible (VLC) mediante el uso de técnicas de conmutación (LEDfast)* Entidad financiadora: Agencia Estatal de Investigación. Investigador principal: Diego G. Lamar. Fecha inicio – fin: 01/06/2020-31/05/2023. Cuantía: 104.907€. Tipo de participación: Investigador. Concedido.

C.3. Contratos

- *Desarrollo y validación de un prototipo demostrador para el sistema de gestión de energía de un vehículo eléctrico*. Financiación: Ecoeficiencia e Ingeniería, S. L. Investigador Principal: Aitor Vázquez Ardura. Fecha de inicio – fin: 15/07/2021 y 30/09/2022. Cuantía: 30.000 €. Tipo de participación: Investigador. Concedido.

- *Estudio y desarrollo de un filtro activo para la compensación de potencia reactiva en una instalación doméstica monofásica*. Financiación: Efibat Servicios Técnicos, S. A. Investigador Principal: Marta Hernando. Fecha de inicio – fin: 11/12/2015 y 11/6/2016. Cuantía: 26.925 €. Tipo de participación: Investigador principal. Concedido.

- *Estudio teórico de acciones de mejora del accionador de los motores lineales de un pasillo de aceleración*. Financiación: Thyssenkupp Elevator Innovation Center, S. A.. Investigador principal: Marta Hernando. Fecha de inicio – fin: 01/01/2015 y 31/12/2015. Cuantía: 25.500 €. Tipo de participación: Investigador principal. Concedido.

C.4. Patentes

- Título: Dispositivo convertidor de corriente alterna/continua. Inventores: J. Sebastián, P. Villegas, M. M. Hernando, S. Ollero y E. de la Cruz. N. de publicación: ES 2 117 946 A1. País de prioridad: España. Fecha de prioridad: 20/06/96. Entidad titular: Alcatel Standar Eléctrica S.A.

- Título: Switched Series Regulator. Inventores: A. Fontán, E. de la Cruz, J. Sebastián, P. Villegas y M. M. Hernando. N. de publicación: EP 0 907 236 A2. País de prioridad: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LI, LU, MC, NL, PT, SE. Países a los que se ha extendido: AL, LT, LV, MK, RO, SI. Fecha de prioridad: 2/10/97. Entidad titular: Alcatel Alsthom Compagnie Generale d'Electricite.

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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	30/03/2024

First name	Lluis F.		
Family name	Marsal		
Gender (*)	Male	Birth date (dd/mm/yyyy)	21/08/1968
Social Security, Passport, ID number	39688257D		
e-mail	Lluis.marsal@urv.cat	URL Web	
Open Researcher and Contributor ID (ORCID) (*)		0000-0002-5976-1408	

(*) Mandatory

A.1. Current position

Position	Full professor			
Initial date	01/08/2009			
Institution	Universitat Rovira i Virgili			
Department/Center	Ingeniería Electrónica, Eléctrica y Automática	Escuela Técnica Superior de Ingeniería		
Country	Spain		Teleph. number	977559625
Key words	Nanoporous alumina, porous silicon, photonic nanostructures, biosensors, nanotechnology, organic and hybrid solar cells			

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

Period	Position/Institution/Country/Interruption cause
2009 – Present	Full professor (URV)
2016 – 2018	Vice-Rector Teaching and Research (URV)
2015 – 2015	Visitor Professor (University of South Australia, Australia)
2008 – 2014	Head of Dept Electronic Eng. (URV)
2000 – 2009	Associate Professor (URV)
2001 – 2006	Chair PhD prog. Electronic Eng (URV)
1998 – 1999	Postdoctoral Researcher (University Waterloo, Canada)
1992 – 2000	Assistant Professor (URV)

A.3. Education

PhD, Licensed, Graduate	University/Country	Year
Licenciado Ciencias Físicas	Universidad de Barcelona / Spain	01/06/1991
Doctorado Ciencias Físicas	Universidad Politécnica de Cataluña / Spain	28/11/1997

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

Prof. Lluis F. Marsal is Distinguished Professor at the University Rovira i Virgili since 2017. He received the Ph.D. degree in physics from the University Politecnica de Cataluña, Spain in 1997. Since 2009, he

is full professor at the University Rovira i Virgili, Spain. Between 1998 and 1999, he was a postdoctoral researcher at the Department of Electrical and Computer Engineering, University of Waterloo, Canada. He has more than 25 years' experience in research and teaching in optoelectronics, photonics and nanotechnology. In the last 15 years, he has successfully created and led NEPHOS, an interdisciplinary research group in nanotechnology, photonic devices based on silicon and micro-nanoporous materials and organic and hybrid materials for biotechnological applications. He has supervised 10 MEng students and 20 Ph.D. students and participated in several Ph.D. committees at other universities. He is currently supervising 2 PhD students, 2 Master students and has organized 6 courses of the URV Summer School on nanophotonics and nanotechnology.
He has carried out research in the field of organic solar cells, and nanoporous materials for photonic and optical sensor applications. He has obtained remarkable results in the technological field of structural engineering of macro- and nanoporous silicon and nanoporous alumina, creating new organic and hybrid nanostructures to enhance light-matter interactions for optoelectronic devices and energy applications. This technology was also successfully applied to fabrication of nanostructured organic solar cells, optical biosensors and photoluminescent conductive polymer nanorod arrays and nanowires. He has co-authored more than 270 publications in international refereed journals and conferences (Scopus), 2 books, 5 book chapters and holds three patents. He has presented over 30 invited lectures in international conferences and has participated in over than 80 national and international projects.
In 2008, he is awarded with one Research Grant from the URV for the research intensification and in 2009, obtained a Grant for Consolidated Research Groups from the Research Management Agency. In 2012, he received a research award in recognition for the high quality of the scientific career of outstanding researchers from the URV. Since 2007, he is a visiting research fellow at the CINVESTAV - Instituto Politécnico Nacional, Mexico. Prof. Marsal was the organizer and General Chairman of the 1st Spanish Nanophotonics Conference in 2008. He is a recipient of the 2014 UniSA Distinguished Researcher Award from the University of South Australia (UniSA) and the ICREA Academia Award 2014. Prof. Marsal serves as member of the Distinguished Lecturer program of the Electron Devices Society (EDS-IEEE) since 2008 and as a member of Advisory or Technical Committees in several international and national conferences (ECS, PSST, ICOOPMA). He is senior member of the IEEE (Electron Devices Society and Photonics Society) and Fellow of the Optical Society of America (OSA). He is also an active member of the Electrochemical Society (ECS). Chair of Spain Chapter of the IEEE Electron Devices Society (2013-2019 and 2023-present). He was the Chair of the Subcommittee for Regions/Chapters (SRC) – Regions 8, Electron Devices Society - Institute of Electrical and Electronics Engineers (2019-2022). Since 2023, he is a EDS BoG Members-at-Large. He is also co-Founder of the Spin-Off Company MATCH BioSystems SL.

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

C.1. Most important publications in books and journals with "peer review" and in conferences *(see instructions)*

1. Thermal Activation of PEDOT:PSS/PM6:Y7 Based Films Leads to Unprecedent High Short-Circuit Current Density in Nonfullerene Organic Photovoltaics, Moustafa, E., Méndez, M., Sánchez, J.G., Pallarès, J., Palomares, E., Marsal, L.F., (2023) Advanced Energy Materials, 13 (4), art. no. 2203241,
2. Stability Enhancement of High-Performance Inverted Polymer Solar Cells Using ZnO Electron Interfacial Layer Deposited by Intermittent Spray Pyrolysis Approach, Moustafa, E., Sánchez, J.G., Marsal, L.F., Pallarès, J., (2021) ACS Applied Energy Materials, 4 (4), pp. 4099-4111.
3. Emerging nanomaterials for targeting peroxisomes, Bachhuka, A., Chand Yadav, T., Santos, A., Marsal, L.F., Ergün, S., Karnati, S., (2022) Materials Today Advances, 15, art. no. 100265,
4. Shelf Lifetime Analysis of Organic Solar Cells Combining Frequency and Time Resolved Techniques, Torimtubun, A.A.A., Méndez, M., Sánchez, J.G., Pallares, J., Palomares, E., Marsal L.F., (2021), Sustainable Energy Fuels, 5, pp. 6498-6508.
5. Low temperature based PDINO cathode interlayer for high operational photostable inverted non-fullerene organic solar cells, Moustafa, E., Méndez, M., Pallarès, J., Marsal, L.F., (2022) Solar Energy Materials and Solar Cells, 248, art. no. 111985, .

6. Effect of Additives and Annealing on the Performance of Nonfullerene-Based Binary and Ternary Organic Photovoltaics, Moustafa, E., Torimtubun, A.A.A., Pallarès, J., Marsal, L.F., (2022) Solar RRL, 6 (5), art. no. 2100480, .
7. Oligonucleotic Probes and Immunosensors Based on Nanoporous Anodic Alumina for Screening of Diseases, Xifre-Perez, E., Ferre-Borrull, J., Marsal, L.F., (2022) Advanced Materials Technologies, 7 (9), art. no. 2101591,.
8. Significant Stability Improvement of Fullerene Organic Photovoltaics via ZnO Film Modification through the Intermittent Spray Pyrolysis Technique, Moustafa, E., Torimtubun, A.A.A., Pallarv®s, J., Marsal, L.F., (2022) ACS Applied Energy Materials, 5 (4), pp. 4390-4403.
9. Small molecule organic solar cells toward improved stability and performance for Indoor Light Harvesting Application, Ramírez-Como, M., Sacramento, A., Sánchez, J.G., Estrada, M., Pallarès, J., Balderrama, V.S., Marsal, L.F., (2021) Solar Energy Materials and Solar Cells, 230, art. no. 111265,
10. Recent advances in nanoporous anodic alumina: principles, engineering, and applications, JT Domagalski, J.T., Xifre-Perez, E., Marsal, L.F. , (2021) Nanomaterials 11 (2), pp.430
11. Fluorinated Zinc and Copper Phthalocyanines as Efficient Third Components in Ternary Bulk Heterojunction Solar Cells, Torimtubun, A.A.A., Follana-Berná, J., Sánchez, J.G., Pallarès, J., Sastre-Santos, Á., Marsal, L.F., (2021) ACS Applied Energy Materials, 4 (5), pp. 5201-5211.
12. Magnetic Nanoparticle Decorated Anodic Alumina Nanotubes for Fluorescent Detection of Cathepsin B, Domagalski, J.T., Xifre-Perez, E., Amouzadeh Tabrizi, M., Ferre-Borrull, J., Marsal, L.F., (2021) Journal of Colloid and Interface Science, 584, pp. 236-245.
13. Photostability Study of Inverted Polymer Solar Cells under AM 1.5G and LED Illumination via Impedance Spectroscopy, Torimtubun, A.A.A., Sanchez, J.G., Pallares, J., Marsal, L.F., (2021) IEEE Journal of the Electron Devices Society, 9, art. no. 9328497, pp. 484-491.
14. Tunable Nanoporous Anodic Alumina Photonic Crystals by Gaussian Pulse Anodization, Acosta, L.K., Bertó-Roselló, F., Xifre-Perez, E., Law, C.S., Santos, A., Ferré-Borrull, J., Marsal, L.F., (2020) ACS Applied Materials and Interfaces, 12 (17), pp. 19778-19787.
15. Highly sensitive IRS based biosensor for the determination of cytochrome c as a cancer marker by using nanoporous anodic alumina modified with trypsin, Amouzadeh Tabrizi, M., Ferré-Borrull, J., Marsal, L.F., (2020) Biosensors and Bioelectronics, 149, art. no. 111828, .

C.2. Congress

1. Marsal L.F "Electrochemically engineered nanoporous structures for health and energy applications", Congreso Internacional de Metalurgia y Materiales (SAM-CONAMET), Córdoba, (Argentina), 2016. **Keynote**.
2. Marsal L:F. "Tunable optical properties of nanoporous anodic alumina structures by pulse anodisation", Nanospain, San Sebastian (Spain), 2017. **Invited**
3. Marsal L.F. "Recent advances in nanoporous anodic alumina for sensing and drug delivery applications", NanoPT, Lisboa (Portugal), 2018. **Keynote.**
4. Marsal L.F. "Engineering of Nanoporous Anodic Alumina as a Versatile Platform for Biomedical Applications", 19th edition of Trends in Nanotechnology International Conference (TNT2018), Lecce, (Italy), 2018. **Keynote**
5. Marsal L.F., "Progress in nanoporous anodic alumina-based optical biosensors", 5th edition of Nanotech France 2019 International Conference and Exhibition (NANOTECH), Paris (France), 2019. **Keynote.**
6. Marsal L.F., "Optical Detection of Streptavidin-Biotin Binding on Nanoporous Anodic Alumina Pore Surface" 235th Electrochemical Society Meeting (ECS) Meeting, H02-Solid-state Electronics and Photonics in Biology and Medicine 6 Dallas, TX, (USA), 2019. **Invited**
7. Marsal L.F. "Tunable Multispectral Photonic Stopbands Based on Structurally Engineered Nanoporous Anodic Alumina" 20th edition of Trends in Nanotechnology International Conference (TNT2019), San Sebastian (Spain) 2019. **Keynote**.

8. Marsal L.F., "Efficient Non-Fullerene Polymer Solar Cells", 235th Electrochemical Society Meeting (ECS) Meeting, G03-Organic Semiconductor Materials, Devices, and Processing 7, Dallas, TX, (USA), 2019. **Invited.**
9. Marsal L.F., "Recent Advances in Structural Engineering of Nanoporous Anodic Alumina and Applications" 238th Electrochemical Society Meeting (ECS) Meeting, PRIME, C03 - Pits and Pores 9: Nanomaterials - Fabrication, Properties, and Applications, Honolulu, Hawaii, (USA), 2020. **Invited**
10. Marsal L.F. "Fine-tuning of the nanoporous alumina photonic stopbands by using non-conventional pulse anodization" Imaginenano2021, Bilbao (Spain) 2021. **Keynote**

C.3. Projects or research lines in which you have participated

1. Project title: "Network for research, innovation and product development on porous semiconductors and oxides (NETPORE)" (CA20126)
Funding entity: European Cooperation in Science and Technology
Project leader: Lluís F. Marsal, Duration, from: 2021 to: 2025
2. Project title: "Advanced engineering of nanoporous structures for harnessing light-matter interactions in optoelectronic devices" (APOLIGHT) (PID2021-128342OB-I00)
Funding entity: Ministry of Science, Innovation and Universities
Project leader: Lluís F. Marsal/Josep Ferre-Borrull, Duration from 2022 to 2025
3. Project title: "Development of new technologies for applications in energy and health"
Funding entity: Institució Catalana de Recerca i Estudis Avançats (ICREA)
Project leader: Lluís F. Marsal, Duration, from: 2021to: 2026
4. Project title: "Consolidated research group" (2021 SGR 00739 GRC)
Funding entity: Agency for Management of University and Research Grants (AGAUR)
Project leader: Lluís F. Marsal, Duration, from: 2021 to: 2025
5. Project title: "Structures for sensing devices and polymer solar cells (MINASENSOL)" (RTI2018-094040-B-I00)
Funding entity: Ministry of Science, Innovation and Universities
Project leader: Lluís F. Marsal, Duration, from: 2019 to: 2021

C.4. Participation in technology/knowledge transfer activities and exploitation of results

- Co-Founder of the Spin-Off Company *MATCH BioSystems*, specialized on research, development of processes, products and applications within the field of biotechnology, animal health and biomedicine.
- Codeveloper of an OTFT model implemented in the commercial version of the SmartSpice circuit simulator (tool developed by Silvaco International).

Patents:
1. Santos, A.; Pallares, J.; Ferré, J.; Marsal L.F., (2008): Procedimiento para disolver in situ la capa-barrera de óxido de aluminio en el procedimiento de fabricación de alúminia porosa, Spanish Patent, (Patent No 200801448).
2. Alvarez-Puebla, R.; Marsal L.F.; Alba M.; Formentin P.; Granero P.; Ferré-Borrull, J.; Pallares. J.; Vaz B.; Álvarez R.; de Lera A.; .et al., (2013): Macroscaled nanocolloidal stamping for reversible optical biosensor mimics, Spanish – European Patent, (Patent No P26763ES00-27032013).
3. Ribes, A; Aznar, E.; Martínez-Mañez, R.; Sancenón, F; Marcos, M.D,; Tormo, M.A.; Pemán, J.; Marsal, L.F.; Xifré Pérez, E. (2017): Porous material for the detection of Candida albicans, diagnostic method using same and preparation method thereof. International Patent, (Patent No WO/2019/048722). *Exploited patent.*

CURRICULUM VITAE (CVA)

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

CV date	28/12/2023

Part A. PERSONAL INFORMATION

First name	Sònia		
Family name	Estradé Albiol		
Gender (*)	Female	Birth date (dd/mm/yyyy)	13/02/1982
Social Security, Passport, ID number	ID Number 47650995D		
e-mail	sestrade@ub.edu		
Open Research and Contributor ID (ORCID)(*)		0000-0002-3340-877X	

(*) Mandatory

A.1. Current position

Position	Full professor		
Initial date	01/02/2024		
Institution	Universitat de Barcelona		
Departament/Center	Electronic and Biomedical Engineering Department		
Country	Spain	Teleph. number	60058014
Key words			

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

Period	Position/Institution/Country/Interruption cause
2019-2024	Tenured Professor, UB, Spain
2014-2019	Lecturer, UB, Spain
2009-2014	Research Assistant and Assistant Professor, UB, Spain
2009	Postdoctoral Researcher, SuperSTEM UK
2005-2009	Predoctoral Researcher, UB, Spain

A.3. Education

PhD, Licensed, Graduate	University/Country	Year
PhD in Nanosciences	Universitat de Barcelona, Spain	2009
Licensed in Physics	Universitat de Barcelona, Spain	2005

Part B. CV SUMMARY

Degree in Physics (2005), Master in Nanoscience and Nanotechnology (2007) and PhD in Nanosciences (2009) from the University of Barcelona, Tenured Professor in the Department of Electronics at the UB since 2019.

A prominent researcher in the field of Nanosciences, I am a specialist in big data applied to solid state physics. I have published more than 150 papers in prestigious international indexed journals (factor h 37), and given over 50 invited talks in national and international congresses. I have been principal investigator of 8 competitive research projects and I have directed 6 doctoral theses. I have received numerous recognitions in the press for my research work, for example as one of the 25 scientists to be known in Catalonia (https://www.nuvol.com/noticies/25-cientifiques-que-has-de-coneixer/).

I teach in the Physics, the Electronic Engineering and the Chemical Engineering Degrees and in the Official Master Degree in Nanoscience and Nanotechnology at the UB, with a long teaching experience (uninterrupted since 2006), and I am part of the e-Lindo teaching innovation group. I have chaired the outreach committee of the UB Institute of Nanoscience and Nanotechnology in the years 2019-2020, and I have participated in and led several science outreach projects.

Since 2015 I have chaired the Equality Commission of the UB Faculty of Physics. I am also a member of the Interuniversity Institute for Women and Gender Studies. In 2020 I was elected president of the Association of Women Researchers and Technologists of Catalonia (AMIT-Cat). I organized a course on research and gender (2016) and was part of the organizing committee of a gender congress (2019), I also gave lectures, seminars and workshops on gender at various conferences.

I have been a principal investigator of a grant from the State Pact against Gender Violence to introduce the gender perspective in the teaching of Electronic Telecommunication Engineering (2019) and principal investigator of the European project on Physics and Gender "Diversity in the cultures of physics "(2017-2019).

I am a feminist activist in various fields, and a founding member of the Feminist Assembly of the UB, and I work to incorporate the gender perspective in the so-called STEM disciplines (science, technology, engineering and mathematics). I am also co-responsible for Support and Visibility at the PRISMA LGTBI+ Association for Affective-Sexual and Gender Diversity in Science, Technology and Innovation.

I have carried out and carry out various dissemination actions to make visible the work of women scientists and provide references for pre-university students, or for the general public, sometimes for free, sometimes under the umbrella of “La UB divulga”, from the activities of AMIT-Cat, or from the European project" Diversity in the cultures of physics ".

Relevantly, I am promoting the introduction of the gender perspective in the UB STEM degrees, with the design of a new cross-curricular subject on gender in science and technology for the studies of experimental sciences and engineering at the UB, and with the implementation of a pilot plan for the introduction of the gender perspective in the degree of Electronic Engineering at the UB from 2018. The goal is for this pilot plan to serve as a model for other STEM grades. In this line, I also recently published the Guide for Gender Perspective in Electronic Engineering of the Xarxa Vives d’Universitats.

With the financing of the European project "Diversity in the cultures of physics", it was possible to carry out the design of the curriculum, the organization and the evaluation of international

summer schools for women who are in their final year of the Degree in Physics, or pursuing a master's degree related to Physics. The contents focused both on top-level research topics in Physics, as well as on gender issues, as well as on learning useful knowledge to develop an academic or professional career in Physics. International summer schools were held from 2017 to 2019 and their impact was very positive, compared to 13% of participants who claimed to be aware of gender biases in Physics before school, 93% he claimed to be so when he finished it; and compared to 46% who said they felt capable of doing a PhD in Physics before school, 80% said they felt capable of completing a doctorate. With the completion of the European project, I have promoted the creation of the Catalan Summer School of Gender and Physics (University of Barcelona - Autonomous University of Barcelona - Universitat Politècnica de Catalunya, with the participation of the Catalan Society of Physics and AMIT-Cat) that was scheduled to be launched in 2020, but due to the Covid-19 crisis will begin in 2022.

The Government of the Generalitat granted me the M. Encarna Sanahuja Yll award for excellence in the inclusion of the gender perspective in university teaching practice in 2020.

Part C. RELEVANT MERITS

C.1. Highlighted Publications

- Blanco-Portals, J., Torruella, P., Baiutti, F., Anelli, S., Torrell, M., Tarancón, A., Peiró, F. and **Estradé, S.** (2022). WhatEELS. A python-based interactive software solution for ELNES analysis combining clustering and NLLS. Ultramicroscopy, 232, 113403.
- Blanco-Portals, J., Peiró, F. and **Estradé, S.** (2021). Strategies for EELS Data Analysis. Introducing UMAP and HDBSCAN for Dimensionality Reduction and Clustering. Microscopy and Microanalysis, 1-14.
- Del-Pozo-Bueno, D., Varela, M., Estrader, M., López-Ortega, A., Roca, A.G., Nogués, J., Peiró, F. and **Estradé, S.** (2021). Direct Evidence of a Graded Magnetic Interface in Bimagnetic Core/Shell Nanoparticles Using Electron Magnetic Circular Dichroism (EMCD). Nano Letters, 21(16), 6923-6930.
- Del-Pozo-Bueno, D., F. Peiró, and **S. Estradé**. "Support vector machine for EELS oxidation state determination." (2021) Ultramicroscopy 221, 113190.
- Torruella, P., Ruiz-Caridad, A., Walls, M., Roca, A.G., López-Ortega, A., Blanco-Portals, J., López-Conesa, L., Nogués, J., Peiró, F. and **Estradé, S.** (2018). Atomic-scale determination of cation inversion in spinel-based oxide nanoparticles. Nano letters, 18(9), 5854-5861.
- Torruella, P., Estrader, M., López-Ortega, A., Baró, M. D., Varela, M., Peiró, F., & **Estradé, S.** (2018). Clustering analysis strategies for electron energy loss spectroscopy (EELS). Ultramicroscopy, 185, 42-48.
- Torruella, P., Coll, C., Martín, G., López-Conesa, L., Vila, M., Díaz-Guerra, C., Varela, M., Ruiz-González, M.L., Piqueras, J., Peiró, F. and **Estradé, S**. Assessing oxygen vacancies in bismuth oxide through EELS measurements and DFT simulations. The Journal of Physical Chemistry C, 121(44), 24809-24815.
- Torruella, P.; Arenal, R.; de la Peña, F.; Saghi, Z.; Yedra, L.; Eljarrat, A.; López-Conesa, L.; Estrader, M,: López-Ortega, A.; Salazar-Alvarez, G.; Nogués, J.; Ducati, C.; Midgley, P.; Peiró, F.; **Estradé, S**. (2016). 3D visualization of the iron oxidation state in FeO/Fe3O4 core–shell nanocubes from electron energy loss tomography. Nano letters, 16(8), 5068-5073.
- Eljarrat, A., López-Conesa, L., Magén, C., García-Lepetit, N., Gačević, Ž., Calleja, E., Peiró, F. and **Estradé, S**. Quantitative parameters for the examination of InGaN QW multilayers by low-loss EELS. Physical Chemistry Chemical Physics, 18(33), 23264-23276.

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C.2. Patent

- **Estradé, S.;** Portillo, J.; Peiro, F.; Rebled, J.M.; Yedra, Ll.; Nicolopoulos, S.; Kim, S.; Weiss, J.K. Title: Method and system for improving characteristic peak signals in analytical electron microscopy Application No.: 12160112.4-2217 Priority Country: EUROPEAN UNION Priority Date: 2012. Holder Entity: EPAO - European Patent Office Application PCT / EUR / USA Patent Code: 001546. Exploited by the Nanomegas company

C.3. Highlighted Research Projects

- HERMES, MCIUN Proyectos I+D+i Pruebas de Concepto 2021. Amount: 87.600,00. Duration 2022-2023. **PI: Sònia Estradé Albiol**, Francisca Peiró Martínez
- Towards new methods in transmission and scanning electron microscopy (TOME) MCIUN PID2019-106165GB-C21. Amount: 169.400,00. Duration: 2020-2023. **PI: Sònia Estradé Albiol**, Francisca Peiró Martínez
- New in-line optical methodologies for advanced assessment of high efficiency CIGS industrial processes. Solar-Era Net Cofund. European Union. Amount: 693.277,00. Duration, from: 2019 to: 2022 **PI: Sònia Estradé Albiol**
- Introduction of the gender perspective in the degree of electronic communication engineering. MDII - Ministerio de Igualdad. Amount: 1500 euros. Duration: 2019. **PI: Sonia Estrade Albiol**
- Diversity in the Cultures of Physics. Erasmus +. European Union. 2016-1-DE01-KA203-002918. Amount: 411,153.00. Duration: 2017-2019**. PI: Sònia Estradé Albiol**.
- Development of methods of Electronic Precession, Tomography and Analytical Techniques in TEM for the elucidation of advanced materials. MEC. MAT2016-79455-P. Amount: 181,500.00. Duration: 2017- 2019 **PI: Sonia Estrade Albiol**, Francisca Peiro Martinez.

C4. Other merits

- Reviewer of 17 prestigious indexed journals, among which: Scientific Reports, Nanoscale, Environmental Science & Technology, Nanotechnology, Ultramicrosocpy, Physical Chemistry Chemical Physics, Journal of Alloys and Compuonds, Sensors and Actuators B.
- Evaluator of competitive public research projects in Spain, Argentina and the Netherlands.
- Organizer of the congresses JEELS 2016, ICECMP 2017, TCM2021.