

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

**CV date** 05.06.2023

## Part A. PERSONAL INFORMATION

First name	Javier		
Family name	Vázquez del Real		
Gender (*)	Male	Birth date	-
Social Security, Passport, ID number	-		
e-mail	Javier.Vazquez@uclm.es	URL Web	
Open Research and Contributor ID (ORCID)(*)		0000-0001-9194-790X	

(\*) Mandatory

### A.1. Current position

Position	Associate Professor, civil servant (Profesor Titular de Universidad)		
Initial date	16.11.2020		
Institution	University of Castilla – La Mancha (UCLM)		
Departament/Center	Electrical, Electronic, Control and Communications Engineering		
Country	Spain	Teleph. number	-
Key words	Wireless Power Transfer, Energy Storage, Microgrids, Power Electronics, Power Quality, Optoelectronics, Sensors, MEMS		
Sexenios	3 research terms (2004-09), (2010-15), (2016-21)		
Quinquenios	4 teaching terms 2001-06), (2006-11), (2011-2016), (2016-21)		

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

Period	Position/Institution/Country/Interruption cause
04.12.2009 - 15.11.2020	Associate Professor (Profesor Contratado Doctor) UCLM
18.12.2001 - 03.12.2009	Full-time instructor (Profesor Asociado) UCLM

### A.3. Education

Academic doctorate (Ph.D. degree)	University of Castilla – La Mancha	2006
Certificate in Advanced Studies (DEA)	School of Telecommunications Engineering (Polytechnic University of Madrid)	2004
Master's degree in Communication Systems and Networks (620 hours)	School of Telecommunications Engineering (Polytechnic University of Madrid)	2002
Postgraduate course in Electronic Eng. (400 hours)	School of Technical Industrial Engineering (Polytechnic University of Valencia)	1994
Higher degree in Physics (5 years)	Faculty of Physics (University of Valencia)	1992

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

**1. Scientific contributions.** Multidisciplinary research carried out with public funding on a wide range of fields and with different groups, mainly as non-principal investigator so far, both in Spain and abroad. Results presented at conferences and published in prestigious journals.

### Quality indicators of scientific production

- h-index: 11 (WoS); 12 (Scopus)
- Citations: 343 (WoS); 403 (Scopus)
- Average number of citations during the past five years: 41.6 (WoS); 47.0 (Scopus)
- JCR publications (all from Q1 to Q3): 21 (WoS - JCR)
- JCR publications in the first quartile (Q1): 10 (WoS - JCR)

- Research books (chapters): 2 (one in English and one in Spanish)
- Contributions to conferences, workshops & forums: 48 (27 in English, 21 in Spanish)
- Given seminars: 2 (1 in English, 1 in Spanish)

#### Current research lines at UCLM (2011 - present)

Research on Industrial Electronics and Power Quality with the LEICE Group.

- *Wireless power transfer for contactless charging of electric vehicle batteries.*
- *Grid integration of energy storage systems based on batteries and supercapacitors.*
- *Development of control schemes for active filters based on power electronic converters to improve the power quality in microgrids.*

#### Previous research lines at UCLM (2002 - 2015)

Research on sensor systems with the Microsystems, Actuators and Sensors Group.

- *Electrical and optical characterization of DNA biosensors based on microstructures.*
- *Development of electronics systems based on MEMS for sensing applications in liquids.*
- *Development of optoelectronic systems for monitoring the grape must fermentation.*

#### Postdoctoral visits (1 year and 2 months)

- Research Alliance IK4-TEKNIKER. (Éibar, Basque Country, Spain). Micro- and Nanofabrication Unit. June 2014 – July 2014. *Electronic control of electromagnets applied to the shaking of magnetic beads for the development of immunosensors.*
- Newcastle University (Newcastle, United Kingdom). Nanotechnology, MEMS and Smart Materials Group. July 2007 – Dec. 2007 & July 2008 – Dec. 2008. *Development of a microsystem for the real-time characterization of cells under external stimuli.*

#### Predocutorial research contracts (1 year and 8 months)

- Laboratory for Automation in Agriculture. Valencian Institute for Agricultural Research (IVIA), Valencia (Spain) April 1995 - April 1996. *Machine vision for the detection of defects in fruits and vegetables.*
- Research Center for Optoelectronic Devices at ALCATEL-SEL, Stuttgart (Germany), November 1992 – July 1993. *Development of a computer-controlled test bench for the characterization of laser diodes used in optical fiber communications.*

**2. Contributions to society as researcher:** collaboration with companies: (1) INDRA SISTEMAS (Madrid) on wireless power transfer (see ENERGOS project); (2) DESINTECH (Ciudad Real) on automation of the grape must fermentation process (see patent).

**3. Supervised doctoral theses:** 1 (defended in 2017); 2 theses currently in progress.

#### 4. Non-academic positions in industry (4 years and 5 months)

- Product Specialist at Fundación García Muñoz (Valencia), Sept. 1999 – Sept. 2000
- Quality Engineer at Valeo Sistemas de Seguridad (Barcelona), April 1999 – August 1999.
- Test Engineer at Robert Bosch España Fábrica Madrid (Madrid), April 1996 – April 1999.

#### 5. Language proficiency (Council of Europe levels)

- C1 level in German: *Zentrale Mittelstufenprüfung* (Goethe Institut)
- C1 level in English: *Certificate in Advanced English* (Cambridge English, British Council)

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

#### C.1. Publications (see instructions)

**1. Journal paper.** F.J. López-Alcolea, E.J. Molina Martínez, A. Parreño Torres, J. Vázquez, P. Roncero-Sánchez. *2DOF-based current controller for single-phase grid-connected voltage source inverter applications*. **Applied Energy**, Elsevier, Vol. 342, Art. N° 121179, pp. 1-11, **2023**. doi: 10.1016/j.apenergy.2023.121179.

**2. Journal paper.** J. Tobajas, F. García-Torres, P. Roncero-Sánchez, J. Vázquez, L. Bellatreche, E. Nieto. *Resilience-oriented schedule of microgrids with hybrid energy storage system using model predictive control*. **Applied Energy**, Elsevier, Vol. 306, Art. N° 118092, pp. 1-11, **2022**. doi: 10.1016/j.apenergy.2021.118092.

**3. Journal paper.** P. Roncero-Sánchez, A. Parreño Torres, J. Vázquez, F.J. López-Alcolea, E.J. Molina Martínez, F. García-Torres. *Multiterminal HVDC System with Power Quality*



*Enhancement*. **Energies**, MDPI, Vol. 14, Issue 5, Art. N° 1306, pp. 1-22, **2021**. doi: 10.3390/electronics9101724

**4. Journal paper.** E.J. Molina Martínez, P. Roncero-Sánchez, F.J. López-Alcolea, J. Vázquez, A. Parreño Torres. *Control scheme of a bidirectional inductive power transfer system for electric vehicles integrated into the grid*. **Electronics**, MDPI, Vol. 9 (10), Art. N° 1724, pp. 1-32, **2020**. doi: 10.3390/electronics9101724.

**5. Journal paper.** F.J. López-Alcolea, J. Vázquez, E.J. Molina Martínez, P. Roncero-Sánchez, A. Parreño Torres. *Monte-Carlo analysis of the influence of the electrical component tolerances on the behavior of series-series- and LCC-compensated IPT systems*. **Energies**, MDPI, Vol. 13 (14), Art. N° 3663, pp. 1-28, **2020**. doi: 10.3390/en13143663.

**6. Journal paper.** F.J. López-Alcolea, J. Vázquez, P. Roncero-Sánchez, A. Parreño Torres, *Modeling of a magnetic coupler based on single and double-layered rectangular planar coils with in-plane misalignment for wireless power transfer*. **IEEE Transactions on Power Electronics**. Vol. 35 (5), pp. 5102-21, **2020**. doi: 10.1109/TPEL.2019.2944194.

**7. Journal paper.** A. Parreño Torres, P. Roncero-Sánchez, J. Vázquez, F.J. López-Alcolea, E.J. Molina-Martínez. *A discrete-time control method for fast transient voltage-sag compensation in DVR*. **IEEE Access**, Vol. 7 (1), pp. 170564-77, **2019**. doi: 10.1109/ACCESS.2019.2955177.

**8. Journal paper.** J. Arkhangelski, P. Roncero-Sánchez, M. Abdou-Tankari, J. Vázquez, G. Lefebvre, *Control and restrictions of a hybrid renewable energy system connected to the grid. A battery and supercapacitor storage case*. **Energies**, MDPI, Vol. 12 (14), Art. N° 2766, pp. 1-23, **2019**. doi: 10.3390/en12142776.

**9. Journal paper.** J. Vázquez, P. Roncero-Sánchez, A. Parreño Torres, *Simulation model of a 2-kW IPT charger with phase-shift control: validation through the tuning of the coupling factor*. **Electronics**, MDPI, Vol. 7 (10), Art. N° 255, pp. 1-19, **2018**. doi: 10.3390/electronics7100255.

**10. Journal paper.** X. del Toro, J. Vázquez, P. Roncero-Sánchez, *Design, implementation issues and performance of an inductive power transfer system for electric vehicle chargers with series-series compensation*. **IET Power Electronics**, Vol. 8 (10), pp. 1920-1930, **2015**. doi: 10.1049/iet-pel.2014.0877.

**C.2. Congress**, indicating the modality of their participation (invited conference, oral presentation, poster)

- F.J. López-Alcolea, E.J. Molina-Martínez, A. Parreño Torres, J. Vázquez, P. Roncero-Sánchez, *Vehicle-driven control scheme for a misalignment-tolerant bidirectional inductive power transfer system*. 4th International Conference IEEE Advances in Magnetism AIM2023, Moena (Italy) 15-18.01.23, Oral presentation.
- F.J. López-Alcolea, E. J. Molina-Martínez, J. Vázquez, P. Roncero-Sánchez, A. Parreño Torres, I. Payo. *Use of resonant terms in a 2DOF control scheme for the current control of an active power filter*. 48th Annual Conference of the IEEE Industrial Electronics Society (IECON 2022), Brussels (Belgium), 17-20.10.22, Oral presentation.
- F.J. López-Alcolea, E.J. Molina-Martínez, A. Parreño Torres, J. Vázquez, P. Roncero-Sánchez, J. Garrido-Zafra, A. Moreno-Muñoz. *Detection and compensation of current harmonics in a microgrid using an active power filter supported by an IoT sensor network*. 21<sup>st</sup> IEEE International Conference on Environment and Electrical Engineering, Bari (Italy), 07-10.09.21, Oral presentation. ISBN: 978-1-6654-3613-7.

**C.3. Research projects**, indicating your personal contribution. In the case of young researchers, indicate lines of research for which they have been responsible.

1. *Grid Integration of Electric Vehicles Connected to a DC Bus by means of Bidirectional Wireless Power Transfer Systems*. Ref.: TED2021-132233B-I00

Funding body: Ministry of Science and Innovation (Spain). NextGenerationEU funding

Principal investigators: Pedro Roncero-Sánchez Elípe and Javier Vázquez del Real, UCLM

Start: 01.12.2022. End: 30.11.2024. Budget: 103.500,00 €

2. *Integration of combined cooling, heating and power microgrids in zero-energy public buildings under high power quality and continuity of service requirements*.

Ref.: IMPROVEMENT – SOE3/P3/E0901

Funding body: FEDER (INTERREG SUDOE - European Commission)

Principal investigator: Pedro Roncero-Sánchez Elípe, UCLM

Start: 01.10.2019. End: 30.09.2022. Budget: 253.975,00 € Participation: Researcher  
3. [Microgrid Emulator with Integration of Energy Storage Systems and Electric Vehicles](#).  
Ref.: EQC2018-004632-P (Infrastructures)

Funding body: Ministry of Science, Innovation and Universities (Spain)

Principal investigator: Pedro Roncero-Sánchez Elípe, UCLM

Start: 01.01.2018. End: 31.12.2019. Budget: 162.220 € Participation: Researcher

4. [Bidirectional Wireless Energy Transfer System for Electric Vehicles Integrated into the Grid](#).  
Ref.: ENE2015-71417-R

Funding body: Ministry of Economy and Competitiveness (Spain).

Principal investigator: Pedro Roncero-Sánchez Elípe, UCLM

Start: 01.01.2016. End: 31.12.2018. Budget: 84.700 € Participation: Researcher

5. [Implementation of miniaturized systems for on-line monitoring of liquid properties: Application to wine and oil](#). Ref.: DPI2012-31203

Funding body: Ministry of Economy and Competitiveness (Spain).

Principal investigator: J.L. Sánchez Rojas, UCLM

Start: 01.01.2013. End: 31.12.2015. Budget: 110.000 € Participation: Researcher

6. [The innovation of plants and models of concentrating photovoltaic systems in Spain \(Sigmaplantillas\)](#). Ref.: IPT-2011-1468-920000

Funding body: Ministry of Science and Innovation (Spain)

Principal Investigator: Pedro Roncero-Sánchez, UCLM

Start: 01.01.2012. End: 28.02.2014. Budget: 317.186,00 € Participation: Researcher

7. [Development of an instrument for real-time monitoring of key parameters involved in the fermentation process of wine](#). Ref.: PL20112177

Funding body: UCLM

Principal investigator: Javier Vázquez del Real, UCLM

Start: 01.01.2011. End: 31.12.2011. Budget: 2.700 €

8. [Design and characterization of resonant microsensors operated in liquid environments](#).  
Ref.: DPI2009-07497

Funding body: Ministry of Science and Innovation (Spain)

Principal investigator: J.L. Sánchez Rojas, UCLM

Start: 01.01.2010. End: 31.12.2012. Budget: 120.000 € Participation: Researcher

**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

1. [\(Art. 83\) Proof of principle and validation of theoretical calculations vs. physical realization of coils to verify the performance of the Inprotect system..](#) Ref: 230013UCTR

Funding body: Inprotect Loss Prevention Technologies, S.L.

Principal investigator: Pedro Luis Roncero Sánchez-Elípe, UCLM

Start: 01.12.2022. End: 20.02.2022. Budget: 7.643,03 EUR. Participation: Researcher

2. [\(Art. 83\) Novel approach aimed at the post-fire regeneration of non-resilient ecosystems: reinventing the praxis based on local generation of atmospheric water](#). Ref: PP/0002/2019

Funding body: Castilla – La Mancha Regional Government of Agriculture, Environment and Rural Development

Principal investigator: Francisco Ramón López Serrano, UCLM

Start: 12.03.2019. End: 31.12.2020. Budget: 49.943,82 EUR. Participation: Researcher

3. [\(Art. 83\) ENERGOS: Technologies for the intelligent and automatic management of future energy distribution networks](#). Ref.: CEN-20091048

Funding body: Centre for the Development of Industrial Technology (CDTI, Spain)

Principal investigator: Pedro Luis Roncero Sánchez-Elípe, UCLM

Start: 11.09.2009. End: 31.12.2012. Budget: 273.900 EUR. Participation: Researcher

4. **Patent**. Ref.: ES2402952; F. Jiménez, J. Vázquez, J.L. Sánchez-Rojas, H. Leal, [Dispositivo para el seguimiento del proceso de fermentación del mosto y sistema de seguimiento del proceso de fermentación que incorpora dicho dispositivo](#).

Principal investigator: Javier Vázquez del Real (subsidy granted by UCLM, ref. PA20112577).

Patent granted on 04.03.2014 by Oficina Española de Patentes y Marcas. No patent exploitation agreement was signed with the company Desintech S.L.