MINISTERIO DE CIENCIA E INNOVACIÓN

Cofinanciado por la Unión Europea

AGENCIA ESTATAL DE INVESTIGACIÓN

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	Dec. 12/22

First name	MANUEL		
Family name	BARRAGÁN VILLAREJO		
e-mail	manuelbarragan@us.es	URL Web	
Open Researcher and Contributor ID (ORCID) (*)		0000-0003-0017-9162	

(*) Mandatory

A.1. Current position

Position	Profesor Titular		
Initial date	1 April 2022		
Institution	University of Seville		
Department/Center	Power Engineering	Higher Technical School of Engineering	
Country	Spain	Teleph. number	+34954481281
Key words	Smart grids, distributed energy resources, active distribution networks, power electronics, experimental validation		

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

Period	Position/Institution/Country/**Interruption cause**

A.3. Education

PhD, Licensed, Graduate	University/Country	Year
Licensed in Industrial Engineering	University of Sevilla/Spain	2008
PhD. Power Engineering	University of Sevilla/Spain	2014

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

Industrial Engineer (2008) and PhD in Electric Power Systems (2014) from the Universidad de Sevilla where he currently works as a Professor Contratado Doctor attached to the Department of Electrical Engineering of the Universidad de Sevilla. In addition, I have participated as ERASMUS mobility coordinator at the Escuela Superior de Ingenieros of the University of Seville.

My research career focuses since my beginnings within the TEP-196 group "Electrical Energy Systems" in the field of power electronics application to the distribution networks networks to favor the distributed energy resources integration, with a notable emphasis on the experimental validation. I have participated in more than 15 R&D projects with public funding and several private R&D contracts with companies in the electrical and industrial sectors, including one project funded by the European Union. As an indicator of the quality of research activity, he has published 14 papers in international journals indexed in the Journal Citation Reports (JCR and 17 papers at international conferences. In addition, he has carried out several research stays in International Universities (University of Wisconsin, INESC-TEC Porto and Universidad Loyola Andalucía). In addition, I am a regular reviewer of

numerous international journals in the area. Regarding the technological development and innovation activities contributed to society, it is worth mentioning 1 patent to control electronic On-Load-Tap-Changer in distribution transformer and participating in contracts with companies in the sector: field of the DC-link into the distribution system (Endesa), energy Audit and advice for an energy management system in a mining industry (DVA) or Power control of an electrolyzer in isolated electrical systems (H2B2 ELECTROLYSIS TECHNOLOGIES SL). In terms of dissemination activities, I have participated as a speaker in international workshops within the EASY-RES project (2021) and courses about the experimental validation of power converters in Tec de Monterrey Campus Queretaro (2017).

In relation to my contributions to the training of young researchers, I have directed and codirected 8 Master's final thesis. Among these stand out the students Francisco Jesus Matas, Dario Gavira and Javier Trujilo who have actively worked within the research group. The first continues to carry out the doctoral thesis co-directed by me and the last two have moved to the business sector working on the integration of renewable energies to the electricity sector. In the same way, it is worth mentioning the supervision of Pablo Heredia through a start-up research grant awarded by the University of Seville (2020).
Finally, my teaching activity has been developed between the years 2009-2012, 2016-Present with exclusive dedication to the University of Seville. He has taught subjects of the Master's Degree in Electric Power Systems, Master's Degree in Industrial Engineering, Degree in Industrial Technologies Engineering, Degree in Telecommunications Engineering, Degree in Energy Engineering or Industrial Engineering.

General indicators of quality of scientific production:
Number of times cited: 165 (Scopus) and 204 (Google Scholar).
Average citations per year (2017-2021): 25.2 (Scopus) and 28.6 (Google Scholar).
Publications quartile (2012-2021): 4 Q1, 1 Q2, 4 Q3, 0 Q4
H-Index: 7

Part C. RELEVANT MERITS *(sorted by typology)*
C.1. Publications *(see instructions)*

1. Kyriaki-Nefeli D Malamaki, Francisco Casado-Machado, Manuel Barragán-Villarejo, Andrei Mihai Gross, Georgios C Kryonidis, Jose Luis Martinez-Ramos, Charis S Demoulias. 2022. Ramp-Rate Limitation Control of Distributed Renewable Energy Sources via Supercapacitors. IEEE Transactions on Industry Applications. 10.1109/TIA.2022.3195975
2. Francisco Jesús Matas-Díaz, Manuel Barragán-Villarejo, Juan Carlos Olives-Camps, Juan Manuel Mauricio, José María Maza-Ortega. 2022. Virtual Conductance Based Cascade Voltage Controller for VSCs in Islanded Operation Mode. Journal of Modern Power Systems and Clean Energy. 10.35833/MPCE.2021.000121
3. Andrei Mihai Gross, Kyriaki-Nefeli Malamaki, Manuel Barragán-Villarejo, Georgios C. Kryonidis, Francisco Jesús Matas-Díaz, Spyros I. Gkavanoudis, Juan Manuel Mauricio, José María Maza-Ortega, Charis S. Demoulias. 2022. Energy management in Converter-Interfaced Renewable Energy Sources through ultracapacitors for provision of ancillary services. Sustainable Energy, Grids and Networks. https://doi.org/10.1016/j.segan.2022.100911
4. Agredano, Manuel, Doyle, Scott, Garcia Muñoz, Manuel, Ayllon Guerola, J., Barragán Villarejo, Manuel, et. al.: Coils and power supplies design for the SMART tokamak. *En: Fusion Engineering And Design*. 2021. Vol. 168. Núm. 112683.
5. Barragán Villarejo, Manuel; Maza Ortega, José M.; Mancilla David, Fernando; García López, Francisco de Paula. 2020. Experimental realisation of an AC-link shunt-series power flow controller IET POWER ELECTRONICS. INST ENGINEERING TECHNOLOGY-IET. 13-12, pp.2450-2460. ISSN 1755-4535, ISSN 1755-4543.
6. García-López, Francisco de Paula; Barragán-Villarejo, Manuel; Maza-Ortega, José María. (2/3). 2020. Grid-friendly integration of electric vehicle fast charging station based on multiterminal DC link

INTERNATIONAL JOURNAL OF ELECTRICAL POWER & ENERGY SYSTEMS. ELSEVIER SCI LTD. 114. ISSN 0142-0615, ISSN 1879-3517.
7. Barragan-Villarejo, M (AC); Garcia-Lopez, FD; Marano-Marcolini, A; Maza-Ortega, JM. (1/4). 2020. Power System Hardware in the Loop (PSHIL): A Holistic Testing Approach for Smart Grid Technologies ENERGIES. MDPI. 13-15. ISSN 1996-1073.
8. Casado Machado, Francisco; Martínez Ramos, José Luis; Barragán Villarejo, Manuel; Maza Ortega, José María; Rosendo Macías, José Antonio. (3/5). 2020. Reduced reference frame transform: deconstructing three-phase four-wire systems IEEE ACCESS. IEEE-INST ELECTRICAL ELECTRONICS ENGINEERS INC. 8, pp.143021-143032. ISSN 2169-3536.
9. Maza Ortega, Jose Maria, Mauricio, Juan Manuel, Barragán Villarejo, Manuel, Demoulias, Charis, Gomez Exposito, Antonio: Ancillary Services in Hybrid AC/DC Low Voltage Distribution Networks. *En: Energies*. 2019. Vol. 12. Núm. 19. https://doi.org/10.3390/en12193591.
10. Olives-Camps, Juan Carlos; Mauricio, Juan Manuel; Barragán-Villarejo, Manuel; Matas-Díaz, Francisco Jesús. (3/4). 2020. Voltage control of four-leg VSC for power system applications with nonlinear and unbalanced loads IEEE TRANSACTIONS ON ENERGY CONVERSION. IEEE-INST ELECTRICAL ELECTRONICS ENGINEERS INC. 35-2, pp.640-650. ISSN 0885-8969, ISSN 1558-0059.
11. De Paula García-López, Francisco; Barragán-Villarejo, Manuel (AC); Marano-Marcolini, Alejandro; Maza-Ortega, José María; Martínez-Ramos, José Luis. (2/ 5). 2018. Experimental Assessment of a Centralised Controller for High-RES Active Distribution Networks ENERGIES. MDPI. 11-12, pp.3364. ISSN 1996-1073.
12. Maza-Ortega, Jose Maria; Barragan-Villarejo, Manuel; De Paula Garcia-Lopez, Francisco; Jimenez, Juan; Mauricio, Juan Manuel; Alvarado-Barrios, Lazaro; Gomez-Exposito, Antonio. (2/7). 2017. A Multi-Platform Lab for Teaching and Research in Active Distribution Networks IEEE TRANSACTIONS ON POWER SYSTEMS. IEEE-INST ELECTRICAL ELECTRONICS ENGINEERS INC. 32-6, pp.4861-4870. ISSN 0885-8950, ISSN 1558-0679.
13. Marano-Marcolini, Alejandro; Barragan Villarejo, Manuel (AC); Fragkioudaki, Anna; Maza-Ortega, Jose Maria; Romero Ramos, Esther; De La Villa Jaén, Antonio; Carmona Delgado, Cristina. (2/7). 2016. DC Link Operation in Smart Distribution Systems With Communication Interruptions IEEE TRANSACTIONS ON SMART GRID. IEEE-INST ELECTRICAL ELECTRONICS ENGINEERS INC. 7-6, pp.2962-2970. ISSN 1949-3053, ISSN 1949-3061.
14. Barragán Villarejo, Manuel, Marano Marcolini, Alejandro, Maza Ortega, Jose Maria, Gomez Exposito, Antonio: Steady-state model for the three-leg shunt-series ac-link power flow controller. *En: IET Generation, Transmission and Distribution*. 2015. Vol. 9. Núm. 16. Pag. 2534-2543. 10.1049/iet-gtd.2015.0068
15. Barragán-Villarejo, M. (AC); Venkataramanan, G.; Mancilla-David, F.; Maza-Ortega, J. M.; Gómez-Expósito, A.(1/5). 2012. Dynamic modelling and control of a shunt-series power flow controller based on AC-link IET GENERATION TRANSMISSION & DISTRIBUTION. INST ENGINEERING TECHNOLOGY-IET. 6-8, pp.792-802. ISSN 1751-8687, ISSN 1751-8695.
16. Maza-Ortega, J. M.; Gómez-Expósito, A.; Barragán-Villarejo, M.; Romero-Ramos, E.; Marano-Marcolini, A.(3/5). 2012. Voltage source converter-based topologies to further integrate renewable energy sources in distribution systems IET RENEWABLE POWER GENERATION. INST ENGINEERING TECHNOLOGY-IET. 6-6, pp.435-445. ISSN 1752-1416, ISSN 1752-1424.
17. Maza Ortega, Jose Maria, Rosendo Macias, Jose Antonio, Gomez Exposito, Antonio, Ceballos Mannozzi, Sergio Javier, Barragán Villarejo, Manuel: Reference Current Computation for Active Power Filters by Running DFT Techniques. *En: IEEE Transactions on Power Delivery*. 2010. Vol. 25. Núm. 3. Pag. 1986-1995

C.2. Congress

1. Matas-Díaz, Francisco Jesús; Mushtaq, Umer; Gross, Andrei Mihai; Rodríguez del Nozal, Álvaro; Cvetkovic, Milos; Malamaki, Kyriaki Nefeli D.; Kryonidis, Georgios C.; Mauricio, Juan Manuel; Maza-Ortega, José María; Barragán-Villarejo, Manuel. "DC-bus energy management of a converter-interfaced renewable energy source comprising an energy storage system". En: 2021 IEEE Madrid PowerTech, PowerTech 2021 - Conference Proceedings. 2021.

2. Gross, Andrei Mihai; Malamaki, Kyriaki Nefeli; Barragán-Villarejo, Manuel; Kryonidis, Georgios C.; Matas-Díaz, Francisco Jesús; Gkavanoudis, Spyros I.; Mauricio, Juan Manuel; Maza-Ortega, José María; Demoulias, Charis S."Energy management in converter-interfaced renewable energy sources through ultracapacitors for provision of ancillary services". En: SEST 2021 - 4th International Conference on Smart Energy Systems and Technologies. 2021.
3. Malamaki, Kyriaki-Nefeli D.; Tzouvaras, Christos; Barragán-Villarejo, Manuel; Kryonidis, Georgios C.; Demoulias, Charis S."Evaluation of decentralized voltage harmonic mitigation through DRES converter active filtering capability". En: The 9th Renewable Power Generation Conference (RPG Dublin Online 2021). 2021 - CP783, pp. 359 - 365. Institution of Engineering and Technology, 2021.
4. Ramp-rate control of DRES employing supercapacitors in distribution systems Malamaki, Kyriaki Nefeli D.; Casado-Machado, Francisco; Barragán-Villarejo, Manuel; Gross, Andrei Mihai; Kryonidis, Georgios C.; Martínez-Ramos, José L.; Demoulias, Charis S."Ramp-rate control of DRES employing supercapacitors in distribution systems". En: SEST 2021 - 4th International Conference on Smart Energy Systems and Technologies. 2021.
5. Mauricio, Juan Manuel; Malamaki, Kyriaki Nefeli; Maza-Ortega, José María; Kryonidis, Georgios C.; Barragán-Villarejo, Manuel; Gkavanoudis, Spyros I.; Demoulias, Charis S."Short-term energy recovery control for virtual inertia provision by renewable energy sources". En: IEEE International Symposium on Industrial Electronics. 2021-June, 2021.
6. Barragan-Villarejo, Manuel; Mauricio, Juan Manuel; Olives-Camps, Juan Carlos; Matas-Diaz, Francisco Jesus; De Paula Garcia-Lopez, Francisco; Maza-Ortega, Jose Maria. "Harmonic and imbalance compensation in grid-forming VSC". En: Proceedings of the IEEE International Conference on Industrial Technology. 2020-February, pp. 757 – 762.
7. Barragan-Villarejo, M; Martinez-Ramos, JL; Garcia-Lopez, FP; Marano-Marcolini, A; Maza-Ortega, JM. "Improving the Controllability of Microgrids through DC links". En: 2018 IEEE INTERNATIONAL ENERGY CONFERENCE (ENERGYCON). pp. 1 - 6. IEEE, 2018.
8. Marano-Marcolini, A; Villarejo, MB; Fragkioudaki, A; Maza-Ortega, JM; Romero-Ramos, E; Jaen, AD. "DC Link Operation in Smart Distribution Systems with Communication Interruptions". En: 2017 IEEE MANCHESTER POWERTECH. IEEE, 2017.
9. Barragán-Villarejo, M.; Marano, A.; García-López, F. P.; Mauricio, J. M.; Maza-Ortega, J. M."Coordinated control of distributed energy resources and flexible links in active distribution networks". En: IET Conference Publications. 2015 - CP679, 2015.
10. Garcia-Lopez, FP; Barragan-Villarejo, M; Maza-Ortega, JM; Gomez-Exposito, A. "Multiterminal electrical charging station for LV networks". En: 2015 IEEE EINDHOVEN POWERTECH. IEEE, 2015.
11. Nieves Portana, Manuel, Barragán Villarejo, Manuel, Maza Ortega, Jose Maria, Mauricio, Juan Manuel: Reduction of Zero Sequence Components in Three-Phase Transformerless Multiterminal DC-link based on Voltage Source Converters. Comunicación en congreso. International Conference on Renewable Energies and Power Quality. Bilbao. 2013
12. Barragán Villarejo, Manuel, Mauricio, Juan Manuel, Marano Marcolini, Alejandro, Nieves Portana, Manuel, Churio Barboza, Julio Cesar, et. al.: Operational benefits of multiterminal dc-links in active distribution networks. Comunicación en congreso. Power and Energy Society General Meeting, 2012 IEEE. San Diego (Estados Unidos). 2012

C.3. Research projects

1. Centros de transformación flexibles para la gestión óptima de plantas renovables (FLEX-REN). Junta de Andalucía (Consejería de Economía y Conocimiento). Maza Ortega, José María. 01/01/2020-31/12/2022. 99.800 €.
2. Development of a prototype for the power supply of the seville spherical tokamak. Junta de Andalucía (Consejería de Economía y Conocimiento). Garcia Muñoz, Manuel. 01/02/2020-30/04/2022. 80.000 €.
3. Distribución Eficiente de Energía Eléctrica en Baja Tensión Mediante Redes Mixtas AC/DC. Ministerio de Economía y Competitividad. Maza Ortega, José María. 01/01/2018-30/09/2021. 193.600 €.
4. EASY-RES:Enabling Ancillary Services by Renewable Energy Sources. Comisión Europea. Mauricio Ferramola, Juan Manuel. 01/01/2018- 31/03/2021. 685.437 €.

5. Integración Efectiva de Recursos en la Gestión Distribuida de Redes MT/Bt. Ministerio de Economía y Competitividad. Romero Ramos, Esther. 01/01/2015- 31/12/2018. 193.600 €.
6. Cambiadores de Tomas Estáticos para Transformadores de Potencia (Catest). Junta de Andalucía - Consejería de Innovación, Ciencia y Empresas. Gómez Expósito, Antonio. 26/03/2013-31/03/2018. 205.160 €.
7. Operación Flexible de Redes de Distribución Mediante Convertidores Electrónicos Flexilink. Ministerio de Ciencia e Innovación. Maza Ortega, José María. 01/01/2012-30/06/2015. 108.900 €.

C.4. Contracts, technological or transfer merits

1. Patent. Gómez Expósito, Antonio; Barragán Villarejo, Manuel; García López, Francisco De Paula; Maza Ortega, José María. DISPOSITIVO CAMBIADOR ESTÁTICO DE TOMAS EN CARGA PARA TRANSFORMADORES CON DEVANADOS DE REGULACIÓN DISCONTINUOS 01/07/2020. Universidad de Sevilla (100.0%).

1. Cost-benefit analysis of distribution digitalization technologies for reduction of technical losses Enel Iberia, S.R.L.. Gómez Expósito, Antonio. 01/12/2018- 30/06/2019. 24.750 €.
2. Pastora: Análisis Preventivo de Redes Inteligentes en Tiempo Real e Integración de Recursos Renovables Ingelectus. Romero Ramos, Esther. 07/06/2018-30/12/2020. 90.000 €.
3. Auditoría energética y asesoramiento para sistema de gestión energética en una minera DVA Global Energy Services. Maza Ortega, José María. 01/02/2018-30/06/2018. 12.000 €.
4. Control de potencia de un electrolizador en sistemas de eléctricos aislados H2B2 ELECTROLYSIS TECHNOLOGIES S.L.. Maza Ortega, José María. 01/01/2018-31/12/2018. 40.000 €.
5. STM: Desarrollo de sistema integrado para instalaciones renovables multitecnología con sistemas avanzados de control para la integración en red y regulación secundaria Isotrol. Riquelme Santos, Jesús Manuel. 01/01/2018-31/12/2019. 69.907 €.
6. Análisis de Viabilidad Técnica y Económica de Diferentes Soluciones de Integraciones de Red ABENGOA Solar New Technologies. Gómez Expósito, Antonio. 31/05/2012-31/05/2013. 63.271,97 €.
7. AKO COMPOSOL Ako Electromecánica. Riquelme Santos, Jesús Manuel. 01/01/2012-31/12/2014. 150.000 €.
8. E3MEL "Soluciones Avanzadas de Eficiencia Energética y Económica en el Mercado Eléctrico" Sadiel, S.A.. Romero Ramos, Esther. 01/01/2012- 31/12/2014. 150.700 €.