CURRICULUM VITAE (CVA)

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

CV date	11/04/2024

Part A. PERSONAL INFORMATION

First name	Alberto		
Family name	Rodríguez Alonso		
Gender (*)		Birth date (dd/mm/yyyy)	
Social Security, Passport, ID number			
e-mail		URL Web	
Open Research and Contributor ID (ORCID)(*)		0000-0002-6541-4509	

(*) Mandatory

A.1. Current position

Position	Associate professor		
Initial date	02/07/2018		
Institution	University of Oviedo		
Department/Center	DIEECS		
Country	Spain	Teleph. number	
Key words			

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

Period	Position/Institution/Country/Interruption cause
04/09/2015-01/07/2018	Assistant professor/University of Oviedo/Spain
21/12/2006-03/09/2015	Researcher and teaching assistant/University of Oviedo/Spain

A.3. Education

PhD, Licensed, Graduate	University/Country	Year
Telecommunications engineer	University of Oviedo/Spain	2006
PhD	University of Oviedo/Spain	2013

Part B. CV SUMMARY

I received the M.S. degree in telecommunication engineering in 2006 from the University of Oviedo, Gijón, Spain, and the PhD. degree in the same University in 2013. Since 2007, I have been enrolled in the “Sistemas Electrónicos de Alimentación” Research group, headed by Prof. Javier Sebastián. I started as an assistant professor and, later, I went through different positions (granted PhD. student, contracted staff and PhD. assistant professor). Since 2018 to the present, I am an associate professor at the University of Oviedo and I still work in the same research group.

My research activity has been focused on different topics since 2007, being the most representative ones: Bidirectional DC/DC power converters, multiple ports power supply systems, power converter for E-mobility, Solid State Transformers and wide band gap semiconductors.

The principal topic of my research activity is the analysis and design of electronic power supply systems. My research CV can be summarized with the following results:

- Participation as a researcher in more than 35 public and private research projects. 3 public European projects, 11 public national projects, 6 public regional projects, 10 private international projects and 9 private national projects. All of them in the last ten years.
- I have been the main researcher (IP) of 3 public national projects (in the last ten years).
- 34 international journal papers. 23 in the last ten years. Most of them Q1.
- More than 60 international conference papers. More than 40 in the last ten years.
- More than 50 national conference papers. More than 30 in the last ten years.
- Director of 3 presented PhD. Thesis (presented in 2019 and 2020). Director of another 5 PhD. Thesis currently under development.
- Director of more than 20 final degree/master projects in the last ten years.

A summary of the previously mentioned CV and some of the references to this work can be seen in the following platforms:

- Google Scholar (h-index=27 and 20 since 2019): https://scholar.google.es/citations?user=arSAn5IAAAAJ&hl=es
- Thomson Reuters-Publons: https://publons.com/researcher/2218417/alberto-rodriguez/
- ORCID ID: https://orcid.org/0000-0002-6541-4509

Part C. RELEVANT MERITS

C.1. Publications

1	**An insight into the switching process of power MOSFETs: an improved analytical losses model** M. Rodríguez, A. Rodríguez, P. F. Miaja, D. G. Lamar, J. Sebastián. IEEE Transactions on Power Electronics. Vol. 25-6, p. 1626-1640. June 2010. DOI: 10.1109/TPEL.2010.2040852.
2	**Switching Performance Comparison of the SiC JFET and the SiC JFET/Si MOSFET Cascode Configuration** A. Rodríguez, M. Fernández, M. M. Hernando, D.G. Lamar, M. Arias, J. Sebastián IEEE Transactions on Power Electronics Vol. 29-5, p. 2428-2440. May 2014. DOI: 10.1109/TPEL.2013.2283144.
3	**On the Use of Front-End Cascode Rectifiers Based on Normally-on SiC JFET and Si MOSFET** A. Vázquez, A. Rodríguez, M. Fernández, M. M. Hernando, E. Masset, J. Sebastián IEEE Transactions on Power Electronics Vol. 29-5, p. 2418-2427. May 2014. DOI: 10.1109/TPEL.2013.2273274.
4	**Different purpose design strategies and techniques to improve the performance of a Dual Active Bridge with phase-shift control** A. Rodríguez, A. Vázquez, D.G. Lamar, M. M. Hernando, J. Sebastián IEEE Transactions on Power Electronics Vol. 30-2, p. 790-804. February 2015. DOI: 10.1109/TPEL.2014.2309853.
5	**Modular Power Electronic: Modular Multilevel Converter Versus Cascaded H-Bridge Solutions**

F. Briz, M. López, A. Rodríguez, M. Arias
IEEE Industrial Electronics Magazine.
Vol. 10-4, p. 6-19. December 2016. DOI: 10.1109/MIE.2016.2611648.

6	**Different modular techniques applied in a synchronous boost converter with SiC MOSFETs to obtain high efficiency at light load and low current ripple**

A. Vázquez, A. Rodríguez, M. R. Rogina, D. G. Lamar.
IEEE Transaction on Industrial Electronics.
Vol. 64-10, p. 8373-8382. October 2017. DOI: 10.1109/TIE.2017.2711521.

7	**Advanced control techniques to improve the efficiency of IPOP modular QSW-ZVS converters**

A. Vázquez, A. Rodríguez, D. G. Lamar, M. M. Hernando.
IEEE Transaction on Power Electronics.
Vol. 33-1, p. 73-86. January 2018. DOI: 10.1109/TPEL.2017.2705803.

8	**Synchronous Boost Converter with High Efficiency at Light Load using QSW-ZVS and SiC MOSFETs**

A. Rodríguez, A. Vázquez, M. R. Rogina, F. Briz.
IEEE Transaction on Industrial Electronics.
Vol. 65-1, p. 386-393. January 2018. DOI: 10.1109/TIE.2017.2716864.

9	**Future of Electrical Aircraft Energy Power Systems: An architecture review**

Tania C. Cano, Alberto Rodríguez, Diego G. Lamar, Ignacio Castro, Laura Albiol-Tendillo, Yehia F. Khalil, Parag Kshirsagar.
IEEE Transactions on Transportation Electrification.
Vol. 7-3, p. 1915-1929, Septembe 2021. DOI: 10.1109/TTE.2021.3052106.

10	**Distributed input multi-port MMC based power converter for AC and DC loads**

Cano, T.C.; Rodriguez, A.; Castro, I.; Lamar, D. G.
IEEE Transactions on Power Electronics.
Vol. 38-7, p. 7971-7975, Jul 2023, DOI: 10.1109/TPEL.2023.3260719

C.3. Research projects

1. ***Convertidores modulares para sistemas de baterías modulares y distribución de 800V en vehículos eléctricos.*** (Reference: MCINN-22-TED2021-130939B-I00). Principal researcher (IP): Alberto Rodríguez y Aitor Vázquez. Period: 01/12/2022 - 30/11/2024. Fundings: MEC - 115.920 €. Principal researcher
2. ***Digitalization of Power Electronic Applications within Key Technology Value Chains.*** (Reference: UE-23-POWERIZED-101096387). Principal researcher: Fernando Briz. Period: 01/01/2023 – 31/12/2025. Fundings: European Union Marco program– 292.196 €. Researcher.
3. ***The next-generation silicon-based power solutions in mobility, industry and grid for sustainable decarbonisation in the next decade.*** (Reference: UE-18-POWER2POWER-826417). Principal researcher: Fernando Briz. Period: 01/06/2019-31/05/2022. Fundings: European Union Marco program– 150.000 €. Researcher.
4. ***"Convertidores de alto rendimiento para la integración de sistemas de almacenamiento energético distribuido"*** (CARISA, reference: DPI2014-56358-JIN). Principal researcher (IP): Alberto Rodríguez. Period: 01/08/2015 - 01/08/2018. Fundings: MEC - 124.100 €. Principal researcher.
5. ***"Silicon carbide power electronics technology for efficient devices"*** (SPEED, reference FP7-NMP3-LA-2013-604057). Principal researcher: Daniel Fernández (INAEL) and Fernando Briz (UO). Period: 01/01/2014 - 31/12/2017. Fundings European Union "*Large Scale Integrating Collaborative Research Project*" - 12.297.780 € (total) and 531.820,8 € (UO). Researcher.

6. **"*Desarrollo de un sistema eficiente de generación de energía eléctrica de alta potencia para plataformas terrestres de ruedas*"** (reference: RTC-2015-3538-8). Principal researcher: Alberto Rodríguez, Juan Manuel Guerrero and David Díaz. Period: 28/09/2015 - 31/03/2017. Fundings: MEC - 94.016 €. Principal researcher.
7. ***"Advanced wide band gap semiconductor devices for rational use of energy"*** (RUE, reference CSD2009-00046. Principal researcher: José Millán (CNM) and Javier Sebastián (UO). Period: 01/12/2009 - 31/12/2015. Fundings: MINECO CONSOLIDER-INGENIO - 4.560.000€ (total) and 338.022 € (UO). Researcher.
8. ***"Sistemas flexibles de alimentación con múltiples flujos de energía"*** (FLAME, reference: DPI2010-21110-C02-01). Principal researcher: Marta Hernando. Period: 01/12/2011 - 31/12/2013. Fundings: MINECO - 87.120 €. Researcher.
9. ***"Análisis de arquitecturas multipuerto para la alimentación de sistemas electrónicos con múltiples flujos de energía"*** (MULTIPUF, reference IB09-038). Principal researcher: Marta Hernando. Period: 01/09/2009 - 31/12/2010. Fundings: FICYT - 48.395,20 €. Researcher.

C.4. Contracts, technological or transfer merits

1 Investigación de Tecnologías para Elevación NET-ZERO (NET0LIFT)
Fundings: 150.000 € - ORONA S. Coop. (FUO-EM-119-07)
Period: 01/03/2007 – 31/12/2010

2 Convertidores para accionamiento de ascensor monofásico (MASLIFT)
Fundings: 15.000 € - Orona S. Coop. (FUO-EM-123-11)
Period: 01/04/2011 – 31/12/2011

3 Convertidores para accionamiento de ascensor monofásico II (MASLIFT 2)
Fundings: 20.000 € - Orona S. Coop. (FUO-EM-098-12)
Period: 02/03/2012 – 31/12/2012

4 Estudio teórico de acciones de mejora del accionador de los motores lineales de un pasillo de aceleración (ACCIOLIN)
Fundings: 25.500 € - Thyssenkrupp (FUO-EM-066-15)
Period: 02/01/2015 – 01/03/2015

5 Desarrollo y validación de un prototipo demostrador para el sistema de gestión de energía de un vehículo eléctrico
Fundings: 30.000 € - ECOEFICIENCIA e INGENIERÍA, S.L. (FUO-21-136)
Period: 14/07/2021 – 30/09/2022

6 PhD Sponsorship - Research Team 2019-2021
Fundings: 60.000 € United Technologies Research Center (FUO-19-327)
Period: 01/10/2019 - 30/09/2020

Director of the following PhD. Thesis

1 Diseño y optimización de convertidores aislados DC/DC de alta frecuencia basados en Carburo de Silicio para transformadores electrónicos de potencia modulares multinivel
PhD Student: Mariam Saeed Hazkial Gerges
Codirector: Manuel Arias Pérez de Azpeitia

2 Diseño optimo y modular de convertidores para una nano-red de continua
PhD Student: Maria Rodríguez Rogina
Codirector: Manuel Arias Pérez de Azpeitia

3 Convertidores avanzados de potencia basados en semiconductores de GaN
PhD Student: Ander Ávila del Pozo
Codirector: Asier García Bediaga