CURRICULUM VITAE ABREVIADO (CVA)

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

Part A. PERSONAL INFORMATION

First name	Ausias		
Family name	Garrigós Sirvent		
Gender (*)	Male	Birth date (dd/mm/yyyy)	14/10/1976
Social Security, Passport, ID number	21668588N		
e-mail	augarsir@umh.es	http://www.umh.es	
Open Researcher and Contributor ID (ORCID) (*)	0000-0002-5386-2179		

(*) Mandatory

A.1. Current position

Position	Professor		
Initial date	13/10/2021		
Institution	Miguel Hernandez University of Elche		
Department/Center	Materials Science, Optics and Electronic Technology	Polytechnic School of Engineering of Elche	
Country	Spain	Teleph. number	+34966658892
Key words	Space power electronics, DC-DC power conversion, DC power distribution and protection, microsatellites		

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

Period	Position/Institution/Country/Interruption cause
2001-2004	Graduate teaching assistant – UMH (Spain)
2004-2008	Assistant profesor – UMH (Spain)
2009-2010	Lecturer – UMH (Spain)
2010-2021	Senior Lecturer – UMH (Spain)

A.3. Education

PhD, Licensed, Graduate	University/Country	Year
Master in Electronic engineering	University of Valencia	2000
PhD in Electronic Engineering	Miguel Hernandez University of Elche	2007

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

Currently my research interest is mainly power electronics with special focus in satellite applications. Between 2002-04, I enjoyed a research mobility at the Analog Front-End Section, Microelectronics Group, CERN, where I carried out research and development activities in front-end analog design for a:Si-H detectors in collaboration with the Institute of Microtechnology- University of Neuchatel.

During the years 2004-07, I carried out the doctoral thesis at the Miguel Hernández University of Elche in the field of power conditioning for space applications in the framework of the project "Sequential regulator for solar panel conditioning and battery charging in modular power buses for space platforms of satellites of telecommunications of big capacity", reference ESP2003-08905-C03-01. This work laid the foundations for the realization of the project "Investigation into the advantages of Maximum Power Point Tracking for GEO Telecommunications satellites" within the program ARTES 5.1 of the Space Agency European (ESA).

During 2008, I enjoyed a postdoctoral research mobility in the power electronics section (TEC-EPG / EPC) at ESTEC-ESA, carrying out research activities in power systems for small satellites. In 2015, I enjoyed another research mobility in the Advanced Space Concepts

Laboratory of the University of Strathclyde (Glasgow) with close collaboration with Clyde Space Ltd (Glasgow) leader in power systems for small satellites. During this period, I have carried out research tasks in power systems for low power space platforms.

I became senior lecturer at Miguel Hernandez University of Elche in 2010 and professor in 2021. To date I have supervised three doctoral theses (plus four on-going), focused on the field of power electronics for space applications and I have participated in public and private financing projects, being a principal investigator in some of them. Currently I am the head of the research group in Industrial Electronics at the Miguel Hernández University of Elche.

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

C.1. Publications *(10 most recent and relevant for the project proposal)*

[R1] A. Garrigós, D. Marroquí, C. Orts, C. Torres, J. M. Blanes, "Latching Current Limiter for Space Platform Power Distribution Using a Low-Voltage p-MOSFET and a Normally-ON SiC JFET," IEEE Journal of Emerging and Selected Topics in Power Electronics, vol. 10, no 5, Oct 2022, pp. 5464 – 5473.

[R2] C. Torres, J. M. Blanes, A. Garrigós, D. Marroquí, J. A. Carrasco, "Single Point Failure Free Interleaved Synchronous Buck Converter for Microsatellite Electrolysis Propulsion," IEEE Journal of Emerging and Selected Topics in Power Electronics, vol. 10, no 5, Oct 2022, pp. 5371 – 5380.

[R3] D. Marroquí, A. Garrigós, J. M. Blanes; "LVDC SiC MOSFET analog electronic fuse with self-adjusting tripping time depending on overcurrent condition," IEEE Transactions on Industrial Electronics, vol. 69, no 8, Aug 2022, pp. 8472-8480.

[R4] D. Marroquí, J. M. Blanes, A. Garrigós, R. Gutierrez; "Self-powered 380V DC SiC solid-state circuit breaker and fault current limiter", IEEE Transactions on Power Electronics, vol. 34, no 10, Oct 2019, pp. 9600-9608,

[R5] F. Sobrino-Manzanares, A. Garrigós; "Bidirectional, interleaved, multiphase, multidevice, soft-switching, FPGA-controlled, buck–boost converter with PWM Real-Time reconfiguration", IEEE Transactions on Power Electronics, vol. 33, no 11, Nov 2018, pp. 9710-9721

[R6] R. Gutierrez, J. M. Blanes, D. Marroquí, A. Garrigós, F. J. Toledo; "System-on-Chip for Real-Time Satellite photovoltaic curves telemetry", IEEE Transactions on Industrial Informatics, vol. 14, no 3, March 2018, pp. 951-957.

[R7] J. M. Blanes, R. Gutierrez, A. Garrigós, J. L. Lizán, J. Martínez, "Electric vehicle battery life extension using ultracapacitors and a FPGA controlled interleaved buck-boost converter," IEEE Transactions on Power Electronics, vol. 28, no. 12, Dec 2013.

[R8] E. Sanchis-Kilders, E. Maset, A. Ferreres, J.B. Ejea-Martí, V. Esteve, J. Jordán, J. Calvente, A. Garrigós, J. M. Blanes; "Bidirectional high-efficiency non-isolated step-up battery regulator", IEEE Transactions on Aerospace and Electronic systems, vol. 47, no 3, July 2011.

[R9] J. M. Blanes, A. Garrigós, J. A. Carrasco, A. Weinberg, E. Maset, E. Sanchis-Kilders, J. B. Ejea-Martí, A. Ferreres; "Two-stage MPPT power regulator for satellite electrical propulsion system", IEEE Transactions on Aerospace and Electronic systems, vol. 47, no 3, July 2011.

[R10] J. M. Blanes, A. Garrigós, J. A. Carrasco, J. B. Ejea-Martí, E. Sanchis-Kilders; "High efficiency regulation method for a zero-current and zero-voltage current-fed push-pull converter", IEEE Transactions on Power Electronics, vol. 26, no 2, February 2011.

C.2. Congress, indicating the modality of their participation (invited conference, oral presentation, poster) – *10 most recent and relevant for the proposal*

[C1] A. Garrigós, C. Orts, D. Marroquí, J. M. Blanes, C. Torres, P. Casado, "Solar Array Regulation for High-Voltage Satellite Power Bus," IEEE Energy Conversion Congress and Exposition (ECCE), 2022. ORAL PRESENTATION

[C2] C. Torres; A. Garrigós; J. M. Blanes; P. Casado; D. Marroquí; C. Orts, "Analog MPPT Comparison for Interplanetary Small Satellites Missions," 24th European Conference on Power Electronics and Applications (EPE'22 ECCE Europe), 2022. POSTER

[C3] Cristian Torres; José Manuel Blanes; Ausias Garrigós; David Marroquí; Carlos Orts; José António Carrasco, "High-Reliability Solar Array Regulator Proposal for Harsh Environments," IEEE 21st Mediterranean Electrotechnical Conference (MELECON), 2022. ORAL PRESENTATION

[C4] D. Marroqui; A. Garrigos; J. M. Blanes; R. Gutiérrez; E. Maset, "Circuit proposals for high-voltage latching current limiters", 12th European Space Power Conference (ESPC), 2019. ORAL PRESENTATION

[C5] J. A. Carrasco, *et. al* "Micro-platform power system for scientific deep space exploration," 12th European Space Power Conference (ESPC), 2019, POSTER.

[C6] D. Marroqui; A. Garrigos; JM. Blanes; R. Gutierrez; E. Maset, "SiC Based Latching Current Limiter for High Voltage Space Power Distribution Systems," IEEE Energy Conversion Congress and Exposition (ECCE), 2018, POSTER

[C7] A. Garrigós; D. Marroquí; J. M. Blanes; R. Gutiérrez; M. Compadre; C. Clark, "An Analog Global Maximum Power Point Tracking for photovoltaic systems: Application to nanospacecraft," 19th European Conference on Power Electronics and Applications (EPE'17 ECCE Europe), 2017. POSTER

[C8] J. M. Blanes, *et. al.* "Evaluation of Gallium Nitride Transistors in Electronic Power Conditioners for TWTAs," IEEE Aerospace Conference, 2015. ORAL PRESENTATION

[C9] A. Garrigós, J. L. Lizán, J. M. Blanes, R. Gutierrez, "Exploring the use of the LT3480 (RH3480) circuit as low-power, low-voltage solar array regulator," 10th European Space Power Conference, 2014. ORAL PRESENTATION

[C10] E. Sanchis-Kilders, *et. al.*, "On the design of a multiple-output DC/DC converter for the PHI experiment on-board of solar orbiter," Twenty-Eighth Annual IEEE Applied Power Electronics Conference and Exposition (APEC), 2013 . ORAL PRESENTATION

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

[P1] Title: Desarrollo y validación de modelo de ingeniería del sistema de potencia de un microsatélite de exploración del espacio profundo a temperaturas extremadamente bajas.
Principal investigators: José Manuel Blanes Martínez / Ausias Garrigós Sirvent (Role: power system engineer)
Funding organization: Generalitat Valenciana - conselleria de innovación, universidades, ciencia y sociedad digital
Duration: Apr 2022 – March 2025. Funding: 284050€

[P2] Title: Design and implementation of current-limiting power distribution switches for high-reliability.
Principal investigator: Ausias Garrigos Sirvent (Role: power system engineer)
Funding organization: Ministry of Science, Innovation and Universities.
Duration: Jan 2023 – Dec 2024. Funding: 85445 €

[P3] Title: Power System for a Deep Space Micro Satellite Electrolysis Propulsion Thruster
Principal investigator: José Antonio Carrasco Hernández (Role: power system engineer)

Funding organization: Ministry of Science, Innovation and Universities.
Duration: Jan 2023 – Dec 2024. Funding: 72000€

[P4] Title: Solar Array to High Voltage Power Bus: Power Conversion Techniques.
Principal investigator: Ausias Garrigos Sirvent (Role: power system engineer)
Funding organization: European Space Agency.
Duration: March 2022 – Feb 2025. Funding: 67000 €

[P5] Title: High-voltage, high current latching current limiters and solid-state current breakers.
Principal investigator: Ausias Garrigos Sirvent (Role: power system engineer)
Funding organization: European Space Agency.
Duration: March 2021 – Feb 2022 Funding: 15877 €

[P7] Title: Active battery power conditioning system for space.
Principal investigator: José Antonio Carrasco Hernández (Role: power system engineer)
Funding organization: Regional government – Education, Culture and Sports.
Duration: Jan 2021 – Dec 2023 Funding: 90000 €

[P8] Title: Power system Integration and test for the micro-plattform for deep space exploration.
Number of researchers: 6
Principal investigator: José Antonio Carrasco Hernández (Role: power system engineer)
Funding organization: Ministry of Science, Innovation and Universities.
Duration: Jan 2019 – Dec 2021 Funding: 60300 €

[P9] Title: Power Hardware in the Loop (PHIL) test bench.
Principal investigator: Ausias Garrigos Sirvent (Role: power system engineer)
Funding organization: Ministry of Science, Innovation and Universities.
Duration: Jan 2019 –March 2022 Funding: 110.926,27 €

[P10] Title: High voltage solid state power controller using Silicon Carbide (SiC) devices and magnetoresistive current sensors for ion propulsion.
Role: Principal Investigator (Role: power system engineer)
Principal investigator: Ausias Garrigós Sirvent
Funding organization: Ministry of Economy and Business.
Duration: Jan 2016 – Dec 2018 Funding: 60500 €
Funding organization: Ministry of Science and Innovation.

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

[Co1] Title: Reduction of electromagnetic interference from power converters and filters
Funding organization: European Space Agency (Prime: EMXYS, Subco: UMH and ALTER)
Principal investigator: Ausias Garrigós Sirvent
Duration: May 2021 – Dec 2022 Funding: 119985€

[Co2] Title: WCA and PSA for a FPGA for an space FPGA board
Funding organization: Clyde Space LTD
Principal investigator: Ausias Garrigós Sirvent
Duration: March 2018 – May 2018 Funding: 3600€

[Co3] Title: WCA and PSA for a Power Conditioning Unit
Funding organization: Clyde Space LTD
Principal investigator: Ausias Garrigós Sirvent
Duration: Apr 2017 – Sept 2017 Funding: 12000€