



Part A. PERSONAL INFORMATION

CV date 09/09/2023

First name	Esteban		
Family name	SANCHIS KILDERS		
Gender (*)	male	Birth date (dd/mm/yyyy)	02/01/1967
National ID number	52743165W		
e-mail	esteban.sanchis@uv.es	URL Web	
Open Researcher and Contributor ID (ORCID) (*)		0000-0002-4208-3575	

(*) Mandatory

A.1. Current position

Position	Catedrático de Universidad		
Initial date	7/DIC/2016		
Institution	Universitat de València		
Department / Centre	Ingeniería Electrónica / Escuela Técnica Superior de Ingeniería		
Country	Spain	Teleph. number	+34 9635 44029
Key words	space power electronics, magnetic components, WBG devices		

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

Period	Position/Institution/Country/Interruption cause
20/AUG/1999 – 6/DIC/2016	Associate Professor / Universitat de Valencia / Spain / -
11/OCT/1994 – 19/AUG/1999	Assistant Professor / Universitat de Valencia / Spain / -

A.3. Education

PhD, Licensed, Graduate	University/Country	Year
Doctor Engineer in Electronics	Universitat de València / Spain	1997
Licenciado en Física	Universitat de València / Spain	1990

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

The most important papers, conference contributions and projects, both public and private funded, of my latest research are focused on space power conversion. On the one side focused on the development of the Power Converter Module (PCM) of the Polarimetric and Helioseismic Imager (PHI) which is flying towards the sun onboard the Solar Orbiter satellite and on the other hand participating in the development of advanced testing procedures for the use of GaN and SiC devices in space power applications. In addition, the development of the PCM has brought new lines of research like the coupled magnetic parts that have been investigated in depth in the PhD thesis of Dr. David Gilabert, under my supervision, and the characterization of GaN parts to be used in power electronics investigated in the thesis of Dr. Pedro J. Martinez, under the supervision of Prof. Maset, member of the research group, LEII, which I led right now.

All the research projects have been mostly funded by the Spanish Government and European Regional Development Funds and have been developed mainly being part of an international consortium. In fact, the development of the PCM was part of the international project of the PHI instrument, led by the Max-Planck Institut für Sonnensystemforschung in Göttingen (Germany) and with whom further projects are being developed. My team includes a solar physicist, responsible for the scientific part of the project and developing the simulator of the instrument among other tasks. Also, the mechanical enclosure of PHI, including structural analysis and assembly, integration and verification (AIV) was under our responsibility.

The mentioned research lines have also facilitated the close contact with industry and other research institutes and several projects funded by private enterprises and public organisms have been developed.

The international team of PHI is now developing several new scientific solar instruments like the ones to be flown on board a stratospheric balloon, the Sunrise III mission. Our team is responsible for the enclosure and the Power Converter Module, as well as part of the solar physics and the data analysis software of two instruments, TuMag, developed completely by a Spanish consortium and SCIP, a Spanish-Japanese collaboration. A future contribution with a new instrument to be flown on board the Lagrange space mission is also under study, this time again as part of an international consortium. In all these projects, past, present and future, my team is responsible mainly for the power converter, the mechanical enclosure, including the structural analysis and the AIV phase, and plays a key role in the solar physics research, data analysis and the scientific simulation of the instrument. In addition, we have also taken part in two research contracts, among others, with the European Space Agency not related to the above-mentioned instruments, but because our expertise in Power Electronics and Electromagnetic Compatibility.

Our small research group has trained several engineers. One of the engineers that helped us with the electronic system of the PCM is now working in a local start-up (SicTech). And as mentioned before, two PhD thesis have been finished recently within our research group (LEII), one led by Prof. Maset and the other by me, and another one is under development. We hope to receive funding to continue our research with new PhD students.

Finally, it has to be mentioned too that the research group I lead, develops other research lines, like high power resonant converters, focused on induction heating, sensors and instrumentation, and finally advanced control techniques, focused on renewable energy systems.

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

C.1. Publications (*see instructions*)

1. F. Kahil, J. Hirzberger, S.K. Solanki, et alt.; "The magnetic drivers of campfires seen by the Polarimetric and Helioseismic Imager (PHI) on Solar Orbiter", *Astronomy & Astrophysics*, Vol. 660, A143, Abril 2022, doi: 10.1051/0004-6361/202142873, ISSN 1432-0746.
2. E. Maset, P. Martin-Holgado, Y. Morilla, D. Gilabert, E. Sanchis-Kilders, P. J. Martínez; "Temperature-Dependent Dynamic on Resistance in Gamma-Irradiated AlGaIn/GaN Power HEMTs", *Applied Sciences - Basel*, Vol. 12, Issue 22, No11578, Noviembre 2022, doi: 10.3390/app122211578, ISSN 2076-3417.
3. V. Esteve, J. Jordán, E.J. Dede, E. Sanchis Kilders, P. J. Martínez, E. Maset, D. Gilabert; "Optimal LLC Inverter Design With SiC MOSFETs and Phase Shift Control for Induction Heating Applications", *IEEE Transactions on Industrial Electronics*, Vol. 69, No11, Noviembre 2022, pp.11100 - 11111, doi: 10.1109/TIE.2021.3121730, ISSN 0278-0046.
4. D. Gilabert Palmer; E. Sanchis Kilders; P.J. Martinez; E. Maset Sancho; A. Ferreres; V. Esteve Gómez. (2/6). 2021. Design of Zero-Ripple-Current Coupled Inductors with PWM signals in Continuous Conduction Mode - IEEE Transactions on Industrial Electronics. 68-1, pp.304-311. ISSN 0278-0046.
5. I. Torralbo; I. Pérez-Grande; J.L. Gasent-Blesa; J. Piqueras; E. Sanchis-Kilders; Pedro Rodríguez; Antonio López. (5/7). 2020. Thermal Analysis of the Solar Orbiter PHI Electronics Unit - IEEE Transactions on Aerospace and Electronic Systems. 56-1, pp.186-195. ISSN 0018-9251.
6. S.K. Solanki; J.C. del Toro Iniesta; J. Woch; A. Gandorfer; J. Hirzberger; A. Alvarez-Herrero; et al. (10/121). 2020. The Polarimetric and Helioseismic Imager on Solar Orbiter - *Astronomy & Astrophysics*. 642, pp.1-35. ISSN 0004-6361.

7. D. Gilabert; E. Sanchis-Kilders; P.J. Martínez; E. Maset; A. Ferreres; V. Esteve. (2/6). 2020. Zero Ripple Current with Coupled Inductors in Continuous Conduction Mode under PWM Signals - IEEE Journal of Emerging and Selected Topics in Power Electronics. 8-4, pp.4260-4269. ISSN 2168-6777.
8. P.J. Martínez; E. Maset; D. Gilabert; E. Sanchis-Kilders. (4/4). 2019. Multi-pulse characterization of trapping / detrapping mechanisms in AlGaIn/GaN high electromobility transistors - Semiconductor Science and Technology. 34-10. ISSN 0268-1242.
9. P.J. Martínez; E. Maset; P. Martín-Holgado; Y. Morilla, D. Gilabert; E. Sanchis-Kilders. (6/6). 2019. Impact of Gamma Radiation on Dynamic RDSON Characteristics in AlGaIn/GaN Power HEMTs - Materials. 12-7. ISSN 1996-1944.
7. D. Gilabert; E. Sanchis-Kilders; V. Esteve; A. Ferreres; J.B. Ejea; E. Maset; J. Jordán; E. Dede. (2/8). 2018. Measuring Coupling Coefficient of Windings with Dissimilar Turns' Number or Tight Coupling Using Resonance - IEEE Transactions on Power Electronics, 33-11 pp.9790-9802. ISSN 0885-8993.
8. P.J. Martínez; E. Maset; D. Gilabert; E. Sanchis-Kilders; J.B. Ejea. (4/ 5). 2018. Evidence of dynamic-R on degradation on low-dose 60Co gamma radiation AlGaIn/GaN HEMTs - Semiconductor Science and Technology, 33-11, pp.1-7. ISSN 0268-1242.
9. P. J. Martínez; E. Maset; D. Gilabert; E. Sanchis-Kilders; V. Esteve; J. Jordán; J.B. Ejea; A. Ferreres. (4/8). 2018. Unstable behaviour of normally-off GaN E-HEMT under short-circuit - Semiconductor Science and Technology, 33-4, pp.1-8. ISSN 0268-1242.
10. E. Sanchis-Kilders; A. Ferreres; J. L. Gasent-Blesa; E. Maset; V. Esteve; J. Jordán; J.B. Ejea. (1/7). 2016. Stability Improvement of Isolated Multiple-Output DC/DC Converters Using Coupled Inductors - IEEE Transactions on Aerospace and Electronic Systems. 52-4, pp.1644-1653. ISSN 0018-9251.

C.2. Conferences

1. D. Gilabert, E. Sanchis-Kilders, P.J. Martínez, E. Maset, A. Ferreres, J.L. Gasent, "Optimum Design of Coupled Inductors for PWM signals and Continuous Conduction Mode", 12th European Space Power Conference 2019, Juan-les-Pins, France, 30 Sep. - 4 Oct. 2019, ISBN: 978-1-7281-2126-0
2. E. Sanchis Kilders, R. Meller, A. López Jiménez, J. Hirzberger, Ph. Laget, J.L. Gasent Blesa, M. Herranz de la Revilla, D. Osorno Caudet, A. Ferreres Sabater, M. Balaguer Jiménez, J. Jordán Martínez, V. Esteve Gómez, E. Maset Sancho, J.B. Ejea Martí, "Radiated emissions of the power converter module of the Polarimetric and Helioseismic Imager instrument on board of Solar Orbiter: a case study", 2016 ESA Workshop on Aerospace EMC, Valencia, Spain, 23-25 May 2016, SP-738, ISBN: 978-92-9092-303-9.
3. E. Sanchis Kilders, A. Ferreres, J.L. Gasent Blesa, D. Osorno, D. Gilabert, E. Maset, J. Jordán, V. Esteve, J.B. Ejea, "Output Impedance Improvement Using Coupled Inductors", 11th European Space Power Conference 2016, Thessaloniki, Greece, 3-7 Oct. 2016, ISBN: 978-2-7598-9017-0.

4. E. Sanchis-Kilders, A. Ferreres, J.L. Gasent-Blesa, D. Osorno, D. Gilabert, E. Maset, J.B. Ejea, V. Esteve, J. Jordán, A. Garrigos, J.M. Blanes, "Power Converter Module of the PHI experiment on board of Solar Orbiter", 10th European Space Power Conference 2014, Noordwijkerhout, The Netherlands, 14-17 Apr. 2014, SP-719, ISBN: 978-92-9221-283-4, ISSN: 1609-042X.

C.3. Research projects

1. PCI2022-135029-2, Space Solar Physics and Space Weather PMI Instrument. MICINN and ERDF. PI: Esteban Sanchis Kilders. (Universitat de València). 01/11/2022-31/10/2015. 642.060 €
2. PID2021-125325OB-C54, Física Solar Espacial y Tiempo Espacial. MICINN and ERDF. 01/09/2022-31/08/2025. 726.000 €; PI: Esteban Sanchis Kilders. (Universitat de València).
3. RTI2018-096886-B-C54, Space Solar Physics MICINN and ERDF. PI: Esteban Sanchis Kilders. (Universitat de València). 01/01/2019-31/12/2021. 726.000 €.
4. ESP2016-77548-C5-5-R, Space Solar Physics: PHI for Solar Orbiter and IMAx and SP for Sunrise. MINECO and ERDF. PI: Esteban Sanchis Kilders. (Universitat de València). 01/01/2017-31/12/2018. 240.000 €.
5. ESP2014-56169-C6-4-R, Fabricación e integración de los modelos QM, FM y FS de SO/PHI (Polarimetric and Helioseismic Imager for Solar Orbiter). MINECO and ERDF. PI: Vicente Domingo Codoñer, I: Esteban Sanchis Kilders. (Universitat de València). 01/01/2015- 31/12/2016. 500.000 €.
6. ESP2103-47349-C6-5-R, Fabricación e integración de SO/PHI (Polarimetric and Helioseismic Imager for Solar Orbiter). MINECO and ERDF. PI: Vicente Domingo Codoñer, I: Esteban Sanchis Kilders. (Universitat de València). 01/01/2014-31/12/2014. 423.500 €.

C.4. Contracts, technological or transfer merits

1. Reduction of Electromagnetic Interference from Power Converters and Filters, AO/1-10608/20/NL/FE (ESA). EMXYS, ATN, Universitat Miguel-Hernández / Universitat de València. Pls: Dr. José A. Carrasco, Prof. Ausias Garrigós Sirvent / Prof. Esteban Sanchis Kilders. 1/06/2021-31/12/2022. EMXYS 99.958 €, ATN 80.000 €, UMH/UVEG 119.985 €
2. Distributed Power System Test Setup for Bus Impedance Evaluation. ESA Purchase Order Nr. 5001030054. PI: Prof. Esteban Sanchis Kilders. (Dpt. de Ingeniería Electrónica). 1/09/2020-28/02/2021. 31.250 €.
3. Prototyping and Characterization of Radiation Hardened SiC MOS Structures. AO/1-8081/14/NL/KML (ESA). PI: Prof. Enrique Maset Sancho. I: Prof. Esteban Sanchis Kilders. (UVEG / Dpt. de Ingeniería Electrónica). 26/03/2015-02/09/2016. 120.000 €.
4. Obtención de los parámetros del proceso de conmutación de diversos dispositivos JFET de SiC – Characterization of comercial available SiC JFET AO/1-6962/12/NL/SFE (ESA) Diseño y Tecnología Microelectrónica A.I.E. PI: Prof. Enrique Maset Sancho. I: Prof. Esteban Sanchis Kilders. (UVEG / Dpt. de Ingeniería Electrónica). 25/11/2013-P07M06D. 24.200 €.