



CV date	18/12/2023
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Part A. PERSONAL INFORMATION

First name	Florencia		
Family name	Almonacid Cruz		
Gender (*)	Female	Birth date	07/11/1974
Social Security, Passport, ID number			
e-mail	facruz@ujaen.es	URL Web	
Open Research and Contributor ID (ORCID)(*)	0000-0001-7352-2377		

(*) Mandatory

A.1. Current position

Position	Full Professor		
Initial date	10/2022		
Institution	University of Jaén		
Department/Center	Department of Electronic and Automatic Engineering		
Country	Spain	Teleph. number	953212426
Keywords	Solar Energy, Photovoltaic, Concentrator Photovoltaics, Agrivoltaics		

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

Period	Position/Institution/Country/Interruption cause
06/10/1999-31/03/2007	Profesor Asociado (University of Jaén , Spain)
01/04/2007-01/01/2010	Profesor Colaborador (University of Jaén, Spain)
02/01/2010-23/10/2019	Profesor Contratado Doctor (University of Jaén, Spain)
24/10/2019 -04/10/2022	Tenured Professor
05/10/2022-	Full Professor

A.3. Education

PhD, Licensed, Graduate	University/Country	Year
PhD. in Electronic Engineering	University of Jaén	2009

Part B. CV SUMMARY

Currently, I am full professor in the Department of Electronic and Automatic Engineering of the University of Jaén (2022-). I have more than 20 years of experience in the field of the photovoltaic solar energy. My main research lines are related with the photovoltaic (PV), concentrator photovoltaic (CPV) and emerging photovoltaic technologies, with the development of novel concept to promote their efficiency and competitiveness.

As a summary of my research career, I have participated in more than 19 research projects with funding exceeding 4M euros, including 4 international and 3 EU. I have been Principal Investigator of 8 projects, including 2 EU and 3 nationals, with total funding exceeding 700k euros. I have also conducted research visits in prestigious research centres for a total period above 1 year. Due to this activity, I have published over 100 peer-review papers indexed in ISI JCR (+90% T1), ten book chapters and presented \approx 50 contributions in the most relevant international conferences and workshops. I am co-inventor of three patents, one of them with

the National Renewable Energy Laboratory of USA that is in an industrialization phase and has received funding of \$ 1.4 million from the Department of Energy (DOE) of USA”. Currently, I was also member of the working group WG5: PV in grids of the COST Action PEARL PV.

I have co-supervised six doctoral theses, two of them Extraordinary Thesis Award, that have generated high-impact publications and results, Thus, I would like to mention that the majority of the graduated PhDs are working in prestigious institutions related to the PV sector. Dr Mathew Muller work as PV expert in the National Renewable Energy Laboratory (NREL) of USA; Dr. Alberto Soria Moya works as PV expert at the Solar Energy Training Centre (CENSOLAR); Dr. Pedro M. Rodrigo is researcher/teacher at the Panamericana University (Mexico) since 2014, Secretary for Research at the Engineering Faculty since 2016 and member of the National System of Researchers of México. Currently, he obtained a Beatriz Galindo fellowship from the Spanish Government (BGP18/00034) and a Marie Curie action (MSCA-IF-2019 HybridCPV2000 (882504))

Due my research activities, I keep strong international and national collaborations with researchers from different centres and institution, i.e.: the Environment and Sustainability Institute of Exeter University (UK), the Thermoelectrics and Photovoltaics laboratory of Cardiff University (UK), the Universidad Panamericana- Campus Aguascalientes (México), the FOSS Research Centre for Sustainable Energy of the University of Cyprus (Cyprus), the Universidad de Santiago de Compostela (Spain), the Lleida University (Spain), the National Renewable Energy Laboratory (USA) and the Sandia National Laboratories (USA).

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

C.1. Publications (selection of the last ten)

1. Sanmartín, P., Almonacid, F., Ceballos, M.A., García-Loureiro, A., Fernández, E.F. Wide-bandgap III-V materials for high efficiency air and underwater optical photovoltaic power transmission (2024) *Solar Energy Materials and Solar Cells*, 266, art. no. 112662, DOI: 10.1016/j.solmat.2023.112662
2. Fernández-Solas, Á., Fernández-Ocaña, A.M., Almonacid, F., Fernández, E.F. Potential of agrivoltaics systems into olive groves in the Mediterranean region (2023) *Applied Energy*, 352, art. no. 121988, DOI: 10.1016/j.apenergy.2023.121988
3. Valera, Á., Rodrigo, P.M., Ceballos, M.A., Almonacid, F., Fernández, E.F. Design, manufacturing and indoor/outdoor testing of a hybrid thermoelectric-concentrator photovoltaic mono-module at unprecedented ultra-high concentration levels (2023) *Solar Energy Materials and Solar Cells*, 254, art. no. 112269, DOI: 10.1016/j.solmat.2023.112269
4. Ceballos, M.A., Valera, Á., Sanmartín, P., Almonacid, F., Fernández, E.F. Development and indoor characterization of a concentrator photovoltaic assembly for tracking-integrated systems (2023) *Solar Energy*, 255, pp. 292-300. DOI: 10.1016/j.solener.2023.03.039
5. Valera-Albacete, A., Almonacid, F., Rodrigo, P.M., Fernandez, E.F. The potential of a hybrid optical photovoltaic converter-thermoelectric receiver to enhance conversion efficiency (2023) *IEEE Electron Device Letters*, pp. 1-1. DOI: 10.1109/LED.2023.3288173
6. Piancó, F., Moraes, L., Prazeres, I.D., Lima, A.G.G., Bessa, J.G., Micheli, L., Fernández, E., Almonacid, F. Hydroelectric operation for hybridization with a floating photovoltaic plant: A case of study (2022) *Renewable Energy*, 201, pp. 85-95. DOI: 10.1016/j.renene.2022.10.077

7. Micheli, L., Theristis, M., Talavera, D.L., Nofuentes, G., Stein, J.S., Almonacid, F., Fernández, E.F. The economic value of photovoltaic performance loss mitigation in electricity spot markets (2022) *Renewable Energy*, 199, pp. 486-497. DOI: 10.1016/j.renene.2022.08.149
8. Lozano, J.F., Seoane, N., Comesaña, E., Almonacid, F., Fernández, E.F., García-Loureiro, A. Laser Power Converter Architectures Based on 3C-SiC with Efficiencies >80% (2022) *Solar RRL*, 6 (8), art. no. 2101077, DOI: 10.1002/solr.202101077
9. Outes, C., Fernández, E.F., Seoane, N., Almonacid, F., García-Loureiro, A.J. Dependence of the vertical-tunnel-junction GaAs solar cell on concentration and temperature (2022) *IET Renewable Power Generation*, 16 (8), pp. 1577-1588. DOI: 10.1049/rpg2.12456
10. Muller, M., Perry, K., Micheli, L., Almonacid, F., Fernández, E.F. Automated detection of photovoltaic cleaning events: A performance comparison of techniques as applied to a broad set of labeled photovoltaic data sets (2022) *Progress in Photovoltaics: Research and Applications*, 30 (5), pp. 567-577. DOI: 10.1002/pip.3523

C.3. Research projects

- Greenhouse Living-lab Agrivoltaic Systems in Spain. GLASS (Cód.: PLEC2022-009435). Funded by the AEI. Proyectos Proyectos de I+D+i en líneas estratégicas 2022 (2023-2026), Principal Investigator: Fernández Fernández, Eduardo. (12/2022 - 11/2024). 519.654€.
- Rear concentrator photovoltaic bifacial module for agrivoltaics. RearCPVbif (Cód.: TED2021-130463B-I00). Funded by the AEI. Proyectos transición ecológica y digital 2021 (2023-2025), Principal Investigators: Almonacid Cruz, Florencia; Fernández Fernández, Eduardo. (12/2022- 11/2024). 143.750€€.
- Ultra-efficient Micro-scale new generation hybrid Concentrator PhotoVoltaic systems: ULTRAMicroCPV (Cód.: PID2019-106497RBI00). Funded by Ministerio de Ciencia, Innovación y Universidades. Proyectos de I+D+i 2019. Principal Investigators: Almonacid Cruz, Florencia; Fernández Fernández, Eduardo. (01/06/2020-31/05/2023). 272.250€.
- Nuevas Arquitecturas de Células de Concentración Fotovoltaica y TErmoeléctricos para el desarrollo de módulos híbridos de nueva generación: NACe-CPV/TE (Cód.: P18-RT-1595). Funded by Plan Andaluz de Investigación (2020-2023). Principal Investigators: Almonacid Cruz, Florencia; Fernández Fernández, Eduardo. (01/01/2020-31/12/202) 122.968 €.
- "Improving the photovoltaic operation and maintenance (O&M) performance through advanced modelling methods, IOM-PV (ref: PCI2019-111852-2)", Funded by SOLARERA.NET Cofund 2 (Proyectos de I+D+I «Programación Conjunta Internacional» 2019 - 2.^a). IPs: Fernández, Eduardo F.; Papaeconomou, Vassilis; Georghiou, George. (01/01/2020 - 31/12/2022) 113.400€
- DUSST: NREL's Low Maintenance Soiling Station (Cód.: DUSST 19-17838 - DE-SC0020012). Funded by: US Department of Energy's 2019 Technology Commercialization Fund Projects. IPs: Lin Simpson; Michael Gostein. (01/07/2019 – 30/06/2020) \$250000
- Efficient lightweight hybrid thermoelectric generator-concentrator photovoltaic module at 2000x light concentration factor. HybridCPV2000 (882504). Funded by UE. H2020-

MSCA-IF-2019. Coordinators: Almonacid Cruz, Florencia; Fernández Fernández, Eduardo (2020). €172,932.48.

- Novel Soiling Identification Logics for Photovoltaics. NoSoilPV (793120). Funded by UE. H2020-MSCA-IF-2017. Coordinators: Almonacid Cruz, Florencia; Fernández Fernández, Eduardo (2018-2020). €158,121.60
- Global Investigation on the spectral effects of soiling losses. Funded by Engineering and Physical Sciences Research Council. Principal Investigators: Mallick TK.; Fernández, E. F.; Micheli, L.; Muller, M. (2016-2017). £30000
- Nuevas Arquitecturas para el Desarrollo de Sistemas a Ultra-Alta Concentración Fotovoltaica (ENE2016-78251-R). Funded by Ministerio de Economía y Competitividad. Programa estatal de investigación. Principal Investigators: Almonacid Cruz, Florencia; Fernández Fernández, Eduardo (2016-2019). 113.740€
- Nuevos conceptos basados en tecnología de concentración fotovoltaica: Desarrollo de sistemas de muy alta concentración (ENE2013-45442-R). Funded by Ministerio de Economía y Competitividad. Principal Investigator: Perez-Higueras, Pedro Jesus. (2014-2016). 115580 EUR.
- Desarrollo de un módulo fotovoltaico basado en nuevos conceptos ópticos operando a ultra alta concentración (UHCPV) (Ref: UJAEN2015/07/01). Funded by Universidad de Jaén. Principal Investigator: Florencia Almonacid Cruz (01/01/2016-31/12/2017). 30000€
- Scalable solar thermoelectrics and photovoltaics (SUNTRAP) (Reef: EPSRC (EP/K022156/1). Funded by Engineering and Physical Sciences Research Council. Program “SUPERGEN”. Principal Investigator: Knox A., Mallick TK., et al (2013-2017). £2.5m
- Development and Integration of Biomass and Concentrating Photovoltaic System for Rural and Urban Energy Bridge: BioCPV (Ref: EPSRC (EP/J000345/1). Funded by Engineering and Physical Sciences Research Council. Program “BURD”. Principal Investigator: Mallick TK et al. (2011-2016). £2.9m

C.4. Contracts, technological or transfer merits

- E. F. Fernández, F. Almonacid, P. Rodrigo, P. Pérez-Higueras, “Bifacial semi-transparent photovoltaic module with back irradiance concentrators”, University of Jaén (Spain), 2021, P202130520, 2021
- E. F. Fernández, M. Muller, L. Micheli, F. Almonacid, "Methods and systems for determining soiling on photovoltaic devices", National Renewable Energy Laboratory (USA) and University of Jaén, US Patent 10,734,946 B2 and PCT Patent PCT/US2019/026049, Publication no. WO 2019/195718 A1, 2019.
- P. Perez-Higueras, E. F. Fernández, F. Almonacid, J. I. Fernández-carrasco, “Sistema de concentración de haces de rayos de luz (Concentration system of beams of sunlight), University of Jaén (Spain), P201430087 (Publication no. ES2493740A1, 2015).