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	02/12/2021

First name	Lourdes		
Family name	García Rodríguez		
Gender (*)	[redacted]	Birth date (dd/mm/yyyy)	
Social Security, Passport, ID number			
e-mail		URL Web	
Open Researcher and Contributor ID (ORCID) (*)		0000-0003-1357-9085	

(*) Mandatory

A.1. Current position

Position	Full Professor		
Initial date	14/03/2014		
Institution	University of Seville		
Department/Center	Energetic Engineering	Higher Technical School of Engineering.	
Country	Spain	Teleph. number	[redacted]
Key words	Solar desalination, seawater desalination, reverse osmosis, membrane distillation, multi-effect distillation		

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

Period	Position/Institution/Country/Interruption cause
09/08/01- 13/03/14	Profesora Titular de Univ,/ Univ. Sevilla (2007-) y La Laguna/Spain/ No interruptions within the last 10 years.

A.3. Education

PhD, Licensed, Graduate	University/Country	Year
PhD in Phisics	Univ. La Laguna/ Spain	1999
Licensed in Physics	Univ. Seville/ Spain	1991

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

Lourdes García Rodríguez. Her SCOPUS figures summarise her scientific impact: h= 33, 67 documents. 61 papers in JCR journals (22 with more than 50 citations). Since 2010: 18 papers in D1 (first decile).

She is author or co-author of 61 papers in international journals of JCR. She is author/co-author of four book chapters edited by Springer, Elsevier and CRC Press, and 20 contributions to International Conferences. Her research activities in renewable energy-powered desalination started in 1992. In a first stage, thermodynamic simulations and thermoeconomic assessments of solar distillation and wind-powered reverse osmosis were performed in order to identify the most interesting improvements in renewable energy-powered desalination processes. In a second stage, since 2001 to 2012, these improvements are being analysed: solar thermal-driven reverse osmosis; the use of absorption heat pumps in solar distillation, and solar membrane distillation. **Current activities are mainly focused on innovations of plant design for sustainable desalination.**

She was nominated as member of Scientific Board in **MIDES (H2020-EU.2.1.2. - INDUSTRIAL LEADERSHIP –** Contract nº. 685783) coordinated by FCC-Aqualia) and a member of the User Selection Panel of the project **SFERA-III (H2020-INFRAIA-2018-**1, 823802). In addition, **she currently is principal investigator of an INTERREG-Atlantic project and participates in other three international projects. Since 2001 she has participated in 7 European, 4 National and 4 Regional projects, being PI in 3 European (in one of them Scientific coordinator), 3 National (in one of them coordinator of 3 subprojects) and 2 Regional projects.**

She has been PI of 5 contracts with companies that amounts more than 250,000.00 €.

She **reviewed projects for four foreign institutions**: University of California- Berkeley and national agencies of Netherland, France and Chile. At national level, reviewer of projects and external expert of CDTI in a public procurement procedure. Besides, she has **reviewed papers** for several journals with impact index: *Desalination*, *Solar Energy*, *Applied Energy* and *J. of Membrane Science*.

She is currently responsible of the TEP026-Solar Desalination, officially registered by Andalusian Autonomous Government. **She had been leading the desalination research team of the University of La Laguna until September, 2007, when she moved to the University of Seville**. This team has been financially supported by European, national and local authorities and private companies.

She **supervised 11 PhD theses** – 10 dealing with desalination and one related to solar collectors - and has another five predoctoral student to date, four of them within an international frame. Through said 11 PhD theses she contribute to the capacity building of:

- Staff of companies. 2021: Salvador Suárez, **head of the Renewable Energies dapartment** of the ITC; 2019: Arturo Buenaventura, **Managing director of Abengoa´s Technology Incubator**. 2018: Vicente Subiela, **Water Department of ITC**. 2011: Baltasar Peñate, **head of the Water Department** of the ITC.
- Researchers of research centres: 2016: Bartolomé Ortega, **posdoctoral research** of the Plataforma Solar de Almería-CIEMAT. 2012: Patricia Fernández, **Engineer of the IAC**. 2006: Diego Alarcón, **Head of the Solar Desalination unit** of the Plataforma Solar de Almería-CIEMAT. 2003: Ana Palmero Marrero. **Senior research** at IDMEC institute, University of Porto, Portugal.
- University lecturers, one at Suez Canal University, Egypt (2011: Mohamed Sharaf) and two at University of La Laguna, Agustín Delgado (2007) and Vicente Romero (2004).

She **also has educational experience on desalination:** Degree subjects, "Desalination plants" and "Desalination" (B.Sc. Engineering) and "Renewable energy-powered desalination" in a postgraduate course ("Máster en energías Renovables"), at the Universidad de La Laguna (2002-2007). Besides, at the University of Seville, master subjects on Solar Desalination and on Energy Efficiency in desalination plants (2007-).

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

C.1. Publications *(see instructions)*

Only papers in the top decile (D1) of JCR and book chapters of recognized editorials, by topics:
A/ Solar desalination

1. Delgado-Torres, A.M., García-Rodríguez, L. Chapter 12: Desalination powered by hybrid solar photovoltaic (PV) and tidal range energy systems – Future Prospects. In: Gude, V.G. (Eds.). Energy Storage for Multi-generation: Desalination, power, cooling and heating applications. **Elsevier, 2022** (Accepted).
2. Delgado-Torres, A.M., García-Rodríguez, L., del Moral, M.J. Preliminary assessment of innovative seawater reverse osmosis (SWRO) desalination powered by hybrid solar photovoltaic (PV) – Tidal range energy system. (2020) *Desalination*, 477, art. No. 114247. **IF 9.501 Q1 (D1)/ Cited 25 times.**
3. Buenaventura Pouyfaucon, A., and García-Rodríguez, L.v Solar thermal-powered desalination: A viable solution for a potential market. Desalination, 435, 2018, pp. 60-69. **IF 6.035 Q1 (D1)/ Cited 73 times.**
4. García-Rodríguez, L. *Chapter 15: Current trends and future prospects of renewable-energy driven desalination (RE-DES). In:* Mahmoudi, H.; Ghaffour, N.; Goosen, M. F. A., and Bundschuh, J. (Eds.). Renewable Energy Technologies for Water Desalination. **CRC Press, Taylor & Francis, 2017. eBook ISBN 9781315643915. Cited 3 times.**
5. Patricia Palenzuela, Guillermo Zaragoza, Baltasar Peñate, Vicente Subiela, Diego-César Alarcón-Padilla and Lourdes García-Rodríguez. Chapter 2: The use of solar energy for small-scale

autonomous desalination). In: Mahmoudi, H.; Ghaffour, N.; Goosen, M. F. A., and Bundschuh, J. (Eds.). Renewable Energy Technologies for Water Desalination. CRC Press, **Taylor & Francis, 2017. eBook ISBN 9781315643915. Cited 2 times.**

6. Delgado-Torres, A. M.; García-Rodríguez, L.; Peñate, B.; de la Fuente, J. A., and Melián, G. *Water Desalination by Solar-Powered RO systems*. *In:* A. Cassana, A. Figoli and A. Basile (Eds.) "Current trends and Future Developments on (Bio-) Membranes: Renewable Energy Integrated with Membrane Operations. **Elsevier, 2018. ISBN: 978-0-12-813545-7. Cited 7 times.**

B/ Desalination by Multieffect distillation (MED) coupled to absorption heat pumps and MED

7. Palenzuela, P., Roca, L., Zaragoza, G., Alarcón-Padilla, D.C., García-Rodríguez, L., De La Calle, A. Operational improvements to increase the efficiency of an absorption heat pump connected to a multi-effect distillation unit. (2014) Applied Thermal Engineering, 63 (1), pp. 84-96. **IF= 2.739 Q1 (D1)/ Cited 16 times.**
8. Fernández-Izquierdo, P., García-Rodríguez, L., Alarcón-Padilla, D.-C., Palenzuela, P., Martín-Mateos, I. Experimental analysis of a multi-effect distillation unit operated out of nominal conditions. (2012) Desalination, 284, pp. 233-237. **IF= 3.041 Q1 (D1)/Cited 19 times.**

C/ Solar thermal-driven reverse osmosis

9. Delgado-Torres, A. and García-Rodríguez, L., *Design recommendations for solar ORC-powered reverse osmosis desalination.* Renewable and Sustainable Energy Reviews, 16(1), 2012, pp.44-53. **IF= 3.030 Q1 (D1)/Cited 70 times.**
10. Peñate, B. and García-Rodríguez, L. *Seawater reverse osmosis desalination driven by a solar organic Rankine cycle: design and technology assessment for medium capacity range.* Desalination, 284, 2012, pp. 86-91. **IF= 3.041 Q1 (D1)/Cited 44 times.**

D/ Reverse osmosis desalination

11. Peñate, B. and García-Rodríguez, L. *Current trends and future prospects of seawater reverse osmosis desalination.* Desalination, 284, 2012, pp. 1-8. I**F= 3.041 Q1 (D1)/Cited 309 times.**
12. Peñate, B. and García-Rodríguez, L. *Reverse osmosis hybrid membrane inter-stage design: A comparative performance assessment.* Desalination, 281(1), 2011, pp. 354-363. **IF= 2.590 Q1 (D1)/Cited 38 times.**
13. Peñate, B. and García-Rodríguez, L. *Energy optimisation of existing SWRO (Seawater Reverse Osmosis Plants) with ERT (Energy Recovery Turbines): technical and thermoeconomic assessment.* Energy, 36, 2011, pp. 613-626. **IF= 3.565 Q1 (D1)/ Cited 87 times.**
14. Peñate, B. and García-Rodríguez, L. *Retrofitting assessment of Lanzarote IV seawater reverse osmosis desalination plant.* Desalination, 266(1-3), 2011, pp. 244-255. **IF= 2.590 Q1 (D1)/Cited 14 times.**
15. Peñate, B., Castellano, F., Bello, A., García-Rodríguez, L. Assessment of a stand-alone gradual capacity reverse osmosis desalination plant to adapt to wind power availability: A case study. (2011) Energy, 36 (7), pp. 4372-4384. **IF= 3.565 Q1 (D1)/Cited 43 times.**

E/ Desalination processes integrated in solar power plants

16. B. Ortega Delgado; L. García Rodríguez and D.-C. Alarcón Padilla; *Thermoeconomic comparison of integrating seawater desalination processes in a concentrating solar power plant of 5 MWe*. Desalination 392 (2016) 102-117. **IF= 5.527 Q1 (D1)/Cited 48 times.**
17. Sharaf, M. A.; Nafey, A. S., and García-Rodríguez, L. *Thermo-economic Analysis of Solar Thermal Power Cycles Assisted Multi Effect Distillation- Vapor Compression (MED-VC) Desalination Processes.* Energy, 36(5), 2011, pp. 2753-2764. **IF= 3.565 Q1 (D1)/Cited 118 times.**
18. Sharaf, M. A.; Nafey, A. S., and García-Rodríguez, L. *Exergy and Thermo-economic Analysis of a Combined Solar Organic Cycle with Multi Effect Distillation (MED) Desalination Process.* Desalination, 272, 2011, pp.135-147. **IF= 2.590 Q1 (D1)/Cited 128 times.**

C.2. Congress

Since editions of 2020 and 2021 of the congress organized by the European Desalination Society have been cancelled, the most recent papers were submitted to the online editions of the ASME Turbo Expo, presented by Prof. David Sánchez, full professor on turbomachinery:

- Montes-Sánchez, J., De Weert, B., Petit, B., García-Rodríguez, L., Sánchez, D. (2021) Proceedings of the ASME Turbo Expo, 4, art. no. V004T05A0015, DOI: 10.1115/GT2021-60253.
- Sanchez, D., Rollan, M., Garcia-Rodriguez, L., Martinez, G.S. (2020) Journal of Engineering for Gas Turbines and Power, 142 (3), art. no. 4045474, Q4. Cited 1 time. DOI: 10.1115/1.4045474.

C.3. Research projects

Participation as external expert:

- **Member of Users Selection Panel of the H2020 project: SFERA-III** *Solar facilities for the European Research Area-Third Phase* (H2020-INFRAIA-2018-1, Contract 823802). 2019-2021.
- **Member of the Scientific Advisory Broad of the H2020 project: MIDES** *"Microbial Desalination for Low Energy Drinking Water".* H2020-EU.2.1.2. - INDUSTRIAL LEADERSHIP - Leadership in enabling and industrial technologies – Nanotechnologies (Grant agreement, 685783). Project coordinator: *F. Rogalla FCC-Aqualia* Funding: 6.5 M€. European Commission (01/01/2016-31/12/2018).

Ongoing projects:

- **EERES4WATER-** "*Promoting Energy-Water Nexus resource efficiency through Renewable Energy and Energy Efficiency"*. **European Regional Development fund INTERREG-Atlantic Area,** Second Call, Priority 2. Funding: 2.348.244,81€ (total project 3.130.993,08€), EAPA_1058/2018). (03/2019-03/2022). **PI of Univ. of Seville Lourdes García Rodríguez.** Coordinator: Germán López (CTA).
- **REMIND- "***Renewable energies for water treatment and reuse in mining industries"*. European **Commission** (H2020-MSCA-RISE-2017). *Grant Agreement: 823948. (*01/11/2018- 31/10/2022*) Funding:* 1.329.400,00 €. **PI Univ. Seville: David Sánchez;** Coordinator: Univ. Calabria, Italy. **Workpackage 8 coordination: Lourdes García Rodríguez**
- **NextMGT-** "*Next Generation of Micro Gas Turbines for High Efficiency, Low Emissions and Fuel Flexibility*", **European Commission** (H2020-EU.1.3.1. **H2020-MSCA-ITN-2019 Innovative Training Networks,** *Grant Agreement* 861079). Funding: 501.809,76€ (total project 4.080.240€) (01/2020-12/2023). Coordinator: City University of London, United Kingdom. **PI Univ. Seville: David Sánchez;** Role of L. García Rodríguez: **Co-supervisor of 1 of the 14 theses within the Innovative Training Networks (MSCA-ITN-2019).**
- **SCARABEUS** "***Supercritical CARbon dioxide/Alternative fluids Blends for Efficiency Upgrade of Solar power plants"*** **European Commission** (Call: H2020-LC-SC3-2018-2019-2020 submitted for H2020-LC-SC3-2018-RES-TwoStages / 28 Aug 2018. Topic: LC-SC3-RES-11-2018 - Funding: 4,950,266.25 €, grant agreement N° 814985. 01/04/2019 - 48 meses Coordinador*:* Politécnico di Milano (Italia). **PI of Universidad de Sevilla: David Sánchez Martínez.**
- **SOLMIDEFF** *"SOLar Micro gas turbine-driven Desalination for Environmental oFF-grid applications"* **ERDF/Ministry of Science and Innovation – Spanish Research Agency, National Programme of R+D+I** (*Grant Agreement* RTI2018-102196-B-I00). Funding: 166.000,00 €. (01/01/2019-31/12/2021). **PI: David Sánchez Martínez. Leader of desalination activities (Workpackages 2, 3): Lourdes García Rodríguez.**

Relevant proposals under evaluation procedures:

- L. García-Rodríguez, project coordinator and PI of the Univ. of Seville of the proposal: ***EERES4WATER extension*** (submitted on 30/11/2021 to the Call 3 INTERREG Atlantic Area Programme). Partnership: 12 partners and 12 associated partners. Total Budget: 3.130.993,08 €. Budget Univ. Of Seville: 358.500,00 €
- PI of the University of Seville and co-supervisor of two out of 10 doctoral thesis in proposal NEWER "*Energy-smart water treatment: Sustainable, decentralized, and flexible production of high-quality water within the water-energy nexus".* Marie-Sklodowska-Curie (HORIZON-MSCA-2021-DN-01). *Project coordinator:* Politecnico di Torino. Total Budget: 2.627.509,60 €. Budget Univ. Of Seville: 473.702,40 €.

C.4. Contracts, technological or transfer merits

- TEcoAgua 02 (2009-2012) "Desarrollo de un módulo precomercial de destilación por membranas". - **Project líder: Lourdes García Rodríguez**. Funding: 80.000,00 €, Befesa Agua SAU (Abengoa Water, afterwards). *Subcontract of the* ***Project: CENIT*** *TEcoAgua (CEN-20091028), project leader: Arturo Buenaventura, Befesa Agua SAU, funded by the Centro para el Desarrollo Tecnológico Industrial (CDTI), 8.900.367,00 €.*
- TEcoAgua 01 (2009-2012) *"Aplicación de la energía solar térmica a una bomba de calor de absorción de doble efecto acoplada a un sistema de destilación multi-efecto".* - **Project líder: Lourdes García Rodríguez**. Funding: 130.000,00 €, Befesa Agua SAU (Abengoa Water, afterwards). *Subcontract of* ***the Project: CENIT*** *TEcoAgua (CEN-20091028), project leader: Arturo Buenaventura, Befesa Agua SAU, funded by the Centro para el Desarrollo Tecnológico Industrial (CDTI), 8.900.367,00 €.*