

Part A. PERSONAL INFORMATION		CV date	09-09-2018
First and Family name	David Marrero López		
Social Security, Passport, ID number	78676984X	Age	42
Researcher numbers	Researcher ID	A-2850-2010	
	Orcid code	0000-0003-0632-6442	

A.1. Current position

Name of University/Institution	University of Malaga		
Department	Física Aplicada I		
Address and Country	Facultad de Ciencias, Campus de Teatinos, Málaga, Spain		
Phone number	952137057	E-mail	marrero@uma.es
Current position	Associate professor	From	09-07-2012
Espec. cód. UNESCO	221006, 221001, 221012, 220201, 221028, 221307, 331203, 331208		
Palabras clave	Energy, ceramic materials, nanomaterials, fuel cells		

A.2. Education

PhD	University	Year
Degree in Physics	University of La Laguna	2000
PhD	University of La Laguna	2006

A.3. JCR articles, h Index, thesis supervised...

- Number of Spanish six-year periods of research activity: **2** (last one: **2008-2013**).
- Number of publications after the last six-year periods of research activity: **7** in 2014, **8** in 2015, **3** in 2016, **5** in 2017 y **5** in 2018.
- Number of five-year periods of teaching activity: **2**
- Number of PhD thesis supervised: **1**
- Number of ongoing PhD thesis under supervision: **3** (defense: 23-11-2018, 2019 and 2022).
- Number of publications included in JCR: **110** (Nature ×1, Energy and Environmental Science x1, Chemistry of Material ×6, Journal of Materials Chemistry ×3, Journal of Power Sources x19, Electrochimica Acta ×8, etc.).
- Number of publications in the first decile (D1): **50**
- Number of publications in the first quartile (Q1): **72**
- Number of publications not included in JCR: **10** (Scientific American, Anales de Química, etc.)
- **2** books + **2** book chapters.
- h-index: **36** (Scopus), **35** (Web of Science)
- Total citations: **3410** (Scopus), **3015** (web of Science)
- Average citations/year in the last 5 years: **330**
- Number of scientific conferences: **85** (40 international, 3 scientific committee).
- Referee for more than **45** journals included in JCR. In the last 5 years: **35** reviewed articles/year.
- Participation in research projects: **16** (6 funded by the Spanish Government, 7 funded by Autonomous Governments, 2010-CENIT, PROFIT, CICYT-FEDER).

Part B. CV SUMMARY (max. 3500 characters, including spaces)

Dr. David Marrero López finished his studies in Physics in 2000 and his PhD Thesis in 2006 (PhD prize awarded), both at the University of La Laguna (Spain). He joined University of Málaga in 2008 with a Juan de la Cierva fellowship and became associate profesor in Physics in 2012.

He has been a visiting researcher at the University of Aveiro (Portugal), University of St. Andrews (Scotland), University of Málaga and University of Buenos Aires (Argentina).

He has published over 110 papers in international SCI journal in materials science and electrochemistry. He is the first author of 24 papers and corresponding author of 30 papers (h-index: 36). He has participated in 16 research projects, including industrial collaborations (Ikerlan, Airbus, Fagor, etc.)

He acts as a regular referee for a variety of international journals in materials science and electrochemistry, such as *Energy and Environmental Science* (IF: 29.5) with 43 reviewed articles (publons.com/a/1442897) or *Journal of Power Sources* (IF: 6.9) with 78 reviewed articles. In the last 5 years, he has reviewed about 35 articles/year. He has presented more than 80 conference contributions and he was scientific committee member of three international conferences.

His main research interest is the study of materials for important applications in energy production and storage, including: (i) the synthesis and development of new oxide ion conductors for solid oxide fuel cells and electrolyzers; (ii) anode materials for direct hydrocarbon oxidation; (iii) proton conductors for hydrogen separation membranes; (iv) the optimization of the materials properties by control of the composition and microstructure; (v) the preparation of electrocatalytically active nanostructured electrodes by low cost fabrication methods, such as spray-pyrolysis deposition.

Dr. Marrero-López has extensive experience in the preparation of new ceramic materials and the structural, microstructural and electrical characterisation to relate the structural characteristics of the materials to their electrochemical properties. He is an expert in a wide number of characterisation techniques, such as X-ray, neutron and electron diffraction, electron microscopy, thermal analysis (TG, DSC, dilatometry) and impedance spectroscopy; in addition to other specific electrochemical techniques that have been designed and implemented in our laboratories (e.g. coulometric titration, ion-blocking, Faradaic efficiency, oxygen permeability, etc.)

He has collaborated widely with different national and international research groups: University of Birmingham, University of St. Andrews, University of Oslo, Technical University of Denmark, University of Aveiro, University of Buenos Aires, University of Castilla La Mancha, University of La Laguna, etc.

He has been university teaching at Degree and Master level for more than 10 years (>2000 hours of teaching). He has taught a Master course in renewable energies for two years at the University of Castilla La Mancha.

Since 2015, he is the responsible for the organization and the preparation of the university entrance exams (EVAU) in the area of Physics. In addition, he coordinates the preparation of Physics Olympics (RSEF) at the University of Malaga.

Part C. RELEVANT MERITS

C.1. Publications (including books)

1. A. López-Vergara, J. M. Porras-Vázquez, A. Infantes-Molina, J. Canales-Vázquez, A. Cabeza, E. R. Losilla, D. Marrero-López "Effect of preparation conditions on the polymorphism and transport properties of $\text{La}_{6-x}\text{MoO}_{12-\delta}$ ($0 \leq x \leq 0.8$)" *Chemistry of Materials*, 29(16) (2017) 6966-6975.
2. L. dos Santos-Gómez, J. M. Porras-Vázquez, E. R. Losilla, D. Marrero-López "Improving the efficiency of layered perovskite cathodes by microstructural optimization" *Journal of Materials Chemistry A* 5 (2017) 7896-7904.
3. L. dos Santos-Gómez; J. M. Porras-Vázquez; E. R. Losilla; F. Martín; J. R. Ramos-Barrado, D. Marrero-López "Stability and performance of $\text{La}_{0.6}\text{Sr}_{0.4}\text{Co}_{0.2}\text{Fe}_{0.8}\text{O}_3$ nanostructured cathodes with $\text{Ce}_{0.8}\text{Gd}_{0.2}\text{O}_{1.9}$ surface coating" *Journal of Power Sources* 347 (2017) 178-185.
4. L. dos Santos-Gómez, J.M. Porras-Vázquez, F. Martín, J.R. Ramos-Barrado, E.R. Losilla, D. Marrero-López "An easy and innovative method based on spray-pyrolysis deposition to obtain high efficiency cathodes for Solid Oxide Fuel Cells" *Journal of Power Sources* 319 (2016) 48-55.
5. L. dos Santos-Gómez, E. R. Losilla, F. Martín, J. R. Ramos-Barrado, D. Marrero-López "Novel microstructural strategies to enhance the electrochemical performance of $\text{La}_{0.8}\text{Sr}_{0.2}\text{MnO}_{3-\delta}$ cathodes" *ACS Applied Materials and Interfaces* 7(13) (2015) 7197-7205.
6. D. Marrero-López, R. Romero, F. Martín, J. R. Ramos-Barrado "Effect of the deposition temperature on the electrochemical properties of LSCF cathodes prepared by conventional spray-pyrolysis" *Journal of Power Sources* 255, (2014) 308-317.
7. M.J. Zayas-Rey, L. dos Santos-Gómez, D. Marrero-López, L. León-Reina, J. Canales-Vázquez, M. A. G. Aranda, E. R. Losilla "Structural and Conducting features of niobium-doped lanthanum tungstate, $\text{La}_{27}(\text{W}_{1-x}\text{Nb}_x)_5\text{O}_{55.55-\delta}$ " *Chemistry of Materials* 25 (2013) 448-456.
8. M. Amsif, A. Magraso, D. Marrero-López, J. C. Ruiz-Morales, J. Canales-Vázquez, P. Núñez. Mo-Substituted Lanthanum Tungstate $\text{La}_{28-y}\text{W}_{4+y}\text{O}_{54+\delta}$: A Competitive Mixed Electron-Proton Conductor for Gas Separation Membrane Applications, *Chemistry of Materials* 24 (2012) 3868-3877.
9. J. C. Ruiz-Morales, D. Marrero-López, M. Galvéz-Sánchez, J. Canales-Vázquez, C. Savaniu, S. N. Savin "Engineering of materials for Solid Oxide Fuel Cells and other energy and environmental applications" *Energy & Environmental Science (review)* 3 (2010) 1670-1681.
10. J. C. Ruiz-Morales, J. Canales-Vázquez, C. Savaniu, D. Marrero-López, W. Zhou, J. T. S. Irvine "Disruption of extended defects in solid oxide fuel cell anodes for methane oxidation" *Nature* 439 (7076) (2006) 568-571.

C.2. Research projects and grants

C.2.1. Title: **Dispositivos nanoestructurados para producir y almacenar energía en el horizonte 2020.**

Funding agency: MINECO, EC2014-53906-R

Timespan: 01/01/2015 to 01/01/2019 Amount: 154.600 €

Principal investigator: José Ramón Ramos-Barrado Role: Researcher

C.2.2. Title: Diseño de nuevos materiales híbridos órgano-inorgánicos multifuncionales para aplicaciones medioambientales

Funding agency: Junta de Andalucía, Proyectos de Excelencia: P12-FQM-1656.

Timespan: from 29/01/2014 to 28/01/2017.

Amount: 146.660 €

Principal investigator: Aurelio Cabeza Díaz

Role: Researcher

C.2.3. Title: Transferencia de estructuras de células fotovoltaicas de alta eficiencia a la producción industrial: una oportunidad para los métodos de bajo coste

Funding agency: MICINN, TEC2010-16700.

Timespan: from 01/01/2011 to 31/12/2014.

Amount: 150.000 €

Principal investigator: José Ramón Ramos-Barrado

Role: Researcher

C.2.4. Title: Desarrollo y prestaciones de pilas de combustible tipo SOFC: una apuesta por la eficiencia energética.

Funding agency: Proyecto Excelencia Junta de Andalucía, P10-FQM-6680

Timespan, from 15/03/2011 to 15/03/2015

Amount: 30.675,0 €

Principal investigator: Enrique Ramírez Losilla

Role: Researcher

C.3. Contratos, méritos tecnológicos o de transferencia

C.3.1. Title: DEIMOS: Desarrollo de Nuevas Tecnologías para la Fabricación de Pilas de Combustible de Electrolito Sólido

Funding agency: CDTI Programa Ingenio 2010-CENIT (ref. CENIT-2007-1018).

Timespan: 2007-2010

Total amount: 13.759.469,00 € for ULL: 250.000,00 €

Participant companies: CEGASA (leader), AIRBUS España, EADS, FAGOR, COPRECI, EMBEGA, SENER, AMES, ZIGOR, CARBOGEN, BIOGAS FUEL CELL.

Participants CITs: AIJU, CEIT, CIDETEC, GAIKER, IKERLAN, INASMET

Participants OPIS: ICMA-CSIC, ICP-CSIC, INTA

Participant universities: Alicante, Autónoma de Madrid, Carlos III, La Laguna, País Vasco

Role: Researcher

C.4. Patents

C.5. Institutional responsibilities, memberships of scientific societies

- Supervisor of 18 Final Degree Project, Master and DEA.
- Schoenbein Gold Medal by the European Solid Oxide Fuel Cell Forum in 2006.
- PhD prize awarded, 2005-2006, academic year, University of La Laguna.
- Best poster award by "Fuel cells studies on doped LaGaO₃ materials for IT-SOFC applications", congress: Materials Optimisation of Solid State FC Processes for all Aspects of Hydrocarbon Oxidation Project (OSSEP-ESF) Finalworkshop, 10-14 November 2004,
- Poster Quality Award: characterisation of La_{1-x}Sr_{1+x}Fe_{1-y}Al_yO_{3-d} as IT-SOCF cathode materials. European Fuel Cell Forum (Lucerne/Switzerland, July 2008).