

Fecha del CVA

13/05/2026

Parte A. DATOS PERSONALES

Nombre	Juan Antonio		
Apellidos	Anta Montalvo		
Sexo	Hombre	Fecha de Nacimiento	
DNI/NIE/Pasaporte			
URL Web	https://www.upo.es/investiga/ccs/people/		
Dirección Email	anta@upo.es		
Open Researcher and Contributor ID (ORCID)	0000-0002-8002-0313		

A.1. Situación profesional actual

Puesto	Catedrático de Universidad		
Fecha inicio	2017		
Organismo / Institución	Universidad Pablo de Olavide		
Departamento / Centro	Sistemas Físicos, Químicos y Naturales / Ciencias Experimentales		
País		Teléfono	
Palabras clave	230700 - Química física		

Parte B. RESUMEN DEL CV

Juan Antonio Anta (**ORCID: 0000-0002-8002-0313**) is Full Professor of Physical Chemistry at Universidad Pablo de Olavide (UPO) and leads the Enegy Nanomaterials & Devices group (www.upo.es/investiga/ccs/). His distinguished professional trajectory is marked by pioneering scientific contributions, sustained leadership in research coordination and management, and a dedicated commitment to academic training and infrastructure development. His career began with an award for an outstanding PhD (CSIC/Complutense University of Madrid, 1997), followed by a formative postdoctoral research fellowship in the Department of Theoretical Chemistry at the University of Oxford. This early international experience set the stage for a research focus on novel materials for energy applications. As a principal investigator and mentor, he has supervised eight PhD candidates to completion, with five of these theses receiving the award for an outstanding doctorate, underscoring his role in cultivating research excellence.

His scholarly output in the field of emerging photovoltaics is both influential and innovative. Seminal works include a highly read and cited feature article that became a key reference for ZnO-based dye-sensitized solar cells (J. Phys. Chem. C, 2012; <https://doi.org/10.1021/jp5069076>, Anta*, Guillén y Tena-Zaera*), a foundational study applying small-perturbation techniques to the analysis of perovskite solar cells (J. Phys. Chem. C, 2014; <https://doi.org/10.1021/jp5069076>, Guillén, Ramos, Anta* y Ahmad*), and the development of a novel photochromic photovoltaic device published in Nature Energy (2020) (<https://doi.org/10.1038/s41560-020-0624-7>, Hualmé, Anta, Demadrille et al.), work recognized with a team award from the Royal Society of Chemistry (<https://www.rsc.org/standards-and-recognition/prizes/winners/pisco-team>).

He has repeatedly demonstrated strategic leadership and a capacity for large-scale project management. This is evidenced by his successful coordination of international consortia within competitive European funding frameworks (SOLAR-ERA.NET, M-ERA.NET) and by securing over €1.3 million in national grants specifically for scientific instrumentation,

significantly enhancing the research infrastructure at UPO. His academic leadership extends to curriculum development, where he has been instrumental in designing and now co-coordinating the inter-university Master's in Functional Nanomaterials (UPO/UNIA). He has also contributed to pedagogy as the author of a widely used problem-solving textbook on chemical thermodynamics and kinetics. ("Termodinámica y Cinética Química para Ciencias de la Vida: 100 problemas resueltos", Anta, Calero y Cuetos, Ediciones Pirámide, 2020, versión inglesa: "Chemical Thermodynamics and Kinetics: 100 solved problems" - Ed. Pirámide 2021).

The broad reach of his research is confirmed by his consistent inclusion in Stanford's global list of the most-cited researchers. His publication record comprises over 163 indexed articles, > 6700 citations and an H-index of 48 (Scopus, May 2026)

Parte C. LISTADO DE APORTACIONES MÁS RELEVANTES

C.1. Publicaciones más importantes en libros y revistas con “peer review” y conferencias

AC: Autor de correspondencia; (nº x / nº y): posición firma solicitante / total autores. Si aplica, indique el número de citaciones

- 1 **Artículo científico.** Nabil, Mahmoud; Grau, Isel; Grau-Crespo, Ricardo; Hamad, Said; (5/5) Anta, Juan A (AC). 2026. Inversion of the impedance response towards physical parameter extraction using interpretable machine learning. Advanced Energy Materials. pp.e06352-e06352. ISSN 1614-6832. <https://doi.org/10.1002/aenm.202506352>
- 2 **Artículo científico.** Sánchez-Fernández, Patricia; Aranda, Clara A; Escalante, Renán; Riquelme, Antonio J; Demadrille, Renaud; Pistor, Paul; Oskam, Gerko; (8/8) Anta, Juan A (AC). 2024. Competition between transport and recombination in dye solar cells at low light intensity. Solar RRL. 8-10, pp.2400149-2400149.
- 3 **Artículo científico.** Almora, Osbel; Jafarzadeh, Farshad; Samir, Mohamed; et al; (10/10) Anta, Juan Antonio (AC). 2024. Electron Diffusion Length Effect on Direction of Irradiance in Transparent FAPbBr₃ Perovskite Solar Cells. The Journal of Physical Chemistry Letters. American Chemical Society. 15-40, pp.10153-10161.
- 4 **Artículo científico.** (1/3) Anta, Juan A (AC); Oskam, Gerko; Pistor, Paul. 2024. The dual nature of metal halide perovskites. The Journal of Chemical Physics. AIP Publishing. 160-15.
- 5 **Artículo científico.** Balestra, Salvador Rodríguez-Gómez; Vicent-Luna, Jose Manuel; Calero, Sofia; Tao, Shuxia; Anta, Juan A. 2020. Efficient Modelling of Ion Structure and Dynamics in Inorganic Metal Halide Perovskites. Journal of Materials Chemistry A. Royal Society of Chemistry. 8, pp.11824-11836.
- 6 **Artículo científico.** Barranco, Angel; Lopez-Santos, Maria C.; Idigoras, Jesus; et al; Sanchez-Valencia, Juan R. 2020. Enhanced Stability of Perovskite Solar Cells Incorporating Dopant-Free Crystalline Spiro-OMeTAD Layers by Vacuum Sublimation. Advanced Energy Materials. 10-2, pp.1901524-1901524. ISSN 1614-6832.
- 7 **Artículo científico.** Riquelme, Antonio; Bennett, Laurence J.; Courtier, Nicola E.; Wolf, Matthew J.; Contreras-Bernal, Lidia; Walker, Alison B.; Richardson, Giles; Anta, Juan A. 2020. Identification of recombination losses and charge collection efficiency in a perovskite solar cell by comparing impedance response to a drift-diffusion model. Nanoscale. The Royal Society of Chemistry. 12, pp.17385-17398.
- 8 **Artículo científico.** Huault, Quentin; Mwalukuku, Valid M; Joly, Damien; et al; others; (10/11) Anta, Juan Antonio. 2020. Photochromic dye-sensitized solar cells with light-driven adjustable optical transmission and power conversion efficiency. Nature Energy. Nature

Publishing Group. 5, pp.468-477. ISSN 2058-7546.

- 9 Artículo científico.** Yoo, So-Min; Yoon, Seog Joon; (3/6) Anta, Juan A.; Lee, Hyo Joong; Boix, Pablo P.; Mora-Seró, Iván. 2019. An Equivalent Circuit for Perovskite Solar Cell Bridging Sensitized to Thin Film Architectures. *Joule*. ISSN 2542-4351.
- 10 Artículo científico.** Contreras-Bernal, Lidia; Ramos-Terrón, Susana; Riquelme, Antonio; Boix, Pablo P.; Idígoras, Jesús; Mora-Seró, Iván; (7/7) Anta, Juan A. (AC). 2019. Impedance analysis of perovskite solar cells: a case study. *Journal of Materials Chemistry A*. 7-19, pp.12191-12200. ISSN 2050-7496. CrossRef (Nov 2025) (136)
- 11 Artículo científico.** Salado, Manuel; Contreras, Lidia; Calio, Laura; et al; others. 2017. Impact of Moisture on Efficiency-Determining Electronic Processes in Perovskite Solar Cells. *Journal of Materials Chemistry A*. Royal Society of Chemistry.

- 12 **Artículo científico.** Todinova, Anna; Contreras-Bernal, Lidia; Salado, Manuel; Ahmad, Shahzada; Morillo, Neftalí; Idígoras, Jesús; Anta, Juan Juan A. 2017. Towards a Universal Approach for the Analysis of Impedance Spectra of Perovskite Solar Cells: Equivalent Circuits and Empirical Analysis. ChemElectroChem. pp.n/a-n/a. ISSN 2196-0216.
- 13 **Artículo científico.** Todinova, Anna; Idígoras, Jesús; Salado, Manuel; Kazim, Samrana; Anta, Juan A. 2015. Universal Features of Electron Dynamics in Solar Cells with TiO₂ Contact: From Dye Solar Cells to Perovskite Solar Cells. The journal of physical chemistry letters. American Chemical Society. 6-19, pp.3923-3930.
- 14 **Artículo científico.** Vicent-Luna, José Manuel; Idígoras, Jesús; Hamad, Said; Calero, Sofía; Anta, Juan Antonio. 2014. Ion Transport in Electrolytes for Dye-Sensitized Solar Cells: A Combined Experimental and Theoretical Study. The Journal of Physical Chemistry C. American Chemical Society. 118-49, pp.28448-28455.
- 15 **Artículo científico.** (1/3) Anta J. A. (AC); Guillén E.; Tena-Zaera R. 2012. ZnO-based dye-sensitised solar cells. Journal of Physical Chemistry C. American Chemical Society. 116-21, pp.11413-11425. ISSN 1948-7185. WOS (47)
- 16 **Artículo científico.** Navas-Pineda, Francisco Javier; Guillén-Rodríguez, Elena; Alcántara-Puerto, Rodrigo; et al; (9/9) Anta J. A. 2011. Direct Estimation of the Electron Diffusion Length in Dye-Sensitized Solar Cells. Journal of Physical Chemistry Letters. American Chemical Society. 2-9, pp.1045-1050. ISSN 1948-7185. WOS (14)
- 17 **Artículo científico.** Anta, Juan A. 2009. Random walk numerical simulation for solar cell applications. Energy & Environmental Science. Royal Society of Chemistry. 2-4, pp.387-392.
- 18 **Artículo científico.** Nabil, Mahmoud; Contreras-Bernal, Lidia; Moreno-Martinez, Gloria P.; et al; Barranco, Angel. 2025. Boosting perovskite solar cell stability: Dual protection with ultrathin plasma polymer passivation layers. Materials Today Energy. 54, pp.102117-102117. ISSN 2468-6069.
- 19 **Artículo científico.** Sánchez-Fernández, Patricia; Mwalukuku, Valid; Miró-Llorente, Marta; et al; Anta, Juan A. 2025. Impact of Transparent Conducting Oxide on the Performance of Dye-Sensitized Solar Cells for Indoor Applications. Solar RRL. pp.202500077-202500077.
- 20 **Artículo científico.** García-Peña, Nidia G; Nabil, Mahmoud; Pourjafari, Dena; et al; others. 2025. Improving the Performance of Carbon-Based Perovskite Solar Cells by the Incorporation of a Screen-Printed NiCo₂O₄ Interlayer. ACS Applied Energy Materials. American Chemical Society.
- 21 **Artículo científico.** Aranda, Clara A; Li, Wenhui; Martínez-Ferrero, Eugenia; Pistor, Paul; Oskam, Gerko; Palomares, Emilio; Anta, Juan A. 2025. Insights from Impedance Spectroscopy in Perovskite Solar Cells with Self-Assembled Monolayers: Decoding SAM's Tricks. The Journal of Physical Chemistry Letters. American Chemical Society. 16-9, pp.2301-2308.
- 22 **Artículo científico.** Bennett, Laurence John; Riquelme, Antonio; Courtier, Nicola Elizabeth; Anta, Juan; Richardson, Giles. 2023. Avoiding ionic interference in the computation of ideality factor for perovskite solar cells and an analytical theory for their impedance spectroscopy response. Physical Review Applied. 19-1, pp.014061.

- 23 Artículo científico.** Mwalukuku, Valid M; Liotier, Johan; Riquelme, Antonio J; et al; Demadrille, Renaud. 2023. Strategies to Improve the Photochromic Properties and Photovoltaic Performances of Naphthopyran Dyes in Dye-Sensitized Solar Cells. Advanced Energy Materials. pp.2203651-2203651.
- 24 Artículo científico.** Samanta, Bipasa; Morales-García, Ángel; Illas, Francesc; et al; others. 2022. Challenges of modeling nanostructured materials for photocatalytic water splitting. Chemical Society Reviews. Royal Society of Chemistry.
- 25 Artículo científico.** Lammar, Stijn; Escalante, Renan; Riquelme, Antonio J; Jenatsch, Sandra; Ruhstaller, Beat; Oskam, Gerko; Aernouts, Tom; Anta, Juan A. 2022. Impact of non-stoichiometry on ion migration and photovoltaic performance of formamidinium-based perovskite solar cells. Journal of Materials Chemistry A. Royal Society of Chemistry. 10-36, pp.18782-18791.

- 26 Artículo científico.** Obrero-Perez, Jose M; Contreras-Bernal, Lidia; Nuñez-Galvez, Fernando; et al; Barranco, Angel. 2022. Ultrathin plasma polymer passivation of perovskite solar cells for improved stability and reproducibility. *Advanced Energy Materials*. 12-32, pp.2200812-2200812.
- 27 Artículo científico.** Riquelme, Antonio J; Mwalukuku, Valid Mwatati; Sánchez-Fernández, Patricia; Liotier, Johan; Escalante, René; Oskam, Gerko; Demadrille, Renaud; Anta, Juan A. 2021. Characterization of Photochromic Dye Solar Cells Using Small-Signal Perturbation Techniques. *ACS Applied Energy Materials*. American Chemical Society.
- 28 Artículo científico.** Seijas-Bellido, Juan Antonio; Samanta, Bipasa; Valadez-Villalobos, Karen; et al; others. 2021. Transferable Classical Force Field for Pure and Mixed Metal Halide Perovskites Parameterized from First-Principles. *Journal of Chemical Information and Modeling*. American Chemical Society.

C.3. Proyectos o líneas de investigación

- 1 Proyecto.** INDOOR PHOTOVOLTAICS WITH DYE-SENSITIZED SOLAR CELLS. Juan Antonio Anta Montalvo. (Universidad Pablo de Olavide). 01/09/2024-31/08/2027. 268.750 €.
- 2 Proyecto.** Customizable AI-based in-line process monitoring platform for achieving zero-defect manufacturing in the PV industry (Platform-ZERO). TOPIC ID: HORIZON-CL4-2021-TWIN-TRANSITION-01-02. Paul Pistor. (Universidad Pablo de Olavide). 01/01/2023-31/12/2026. Miembro de equipo.
- 3 Proyecto.** PID2022-140061OB-I00, OPTIMIZACION COMBINADA DEL BINOMIO MATERIAL-DISPOSITIVO PARA ENERGIA SOLAR POR APRENDIZAJE AUTOMATICO. Ministerio de Ciencia e Innovación. Investigación. Juan Antonio Anta Montalvo. (UNIVERSIDAD PABLO DE OLAVIDE). 01/09/2023-30/08/2026. 226.250 €. INVESTIGADOR PRINCIPAL
- 4 Proyecto.** Diseño, modelado y caracterización eléctrica avanzada de arquitecturas híbridas metal-óxido para dispositivos optoelectrónicos de alto rendimiento. Convocatoria 2021 - «Proyectos de Transición Ecológica y Transición Digital. Paul Pistor. (Universidad Pablo de Olavide). 01/12/2022-30/11/2024. 189.175 €. Miembro de equipo.
- 5 Proyecto.** Simulador solar y cámara climática para caracterización opto-eléctrica de submódulos fotovoltaicos para escalado pre-industrial. (UNIVERSIDAD PABLO DE OLAVIDE, DE SEVILLA). 01/01/2022-31/12/2023. 588.517,38 €.
- 6 Proyecto.** Large scale molecular simulation of perovskite solar cells (SCALEUP). SOLAR ERA-NET. (Universidad Pablo de Olavide). 01/09/2019-31/08/2022. 1.020.591 €. Coordinador. Coordinador del consorcio europeo
- 7 Proyecto.** AT17-5873, SOLARSOFT: UN PROYECTO DE INGENIERÍA DE SOFTWARE CIENTÍFICO PARA LA INVESTIGACIÓN BÁSICA Y LA INNOVACIÓN EMPRESARIAL EN ENERGÍA SOLAR FOTOVOLTAICA DE NUEVA GENERACIÓN. ACTIVIDADES DE TRANSFERENCIA DE CONOCIMIENTO ENTRE LOS AGENTES DEL SISTEMA ANDALUZ DEL CONOCIMIENTO Y EL TEJIDO PRODUCTIVO. (Universidad Pablo de Olavide). 01/01/2020-30/06/2021. 30.000 €. Investigador principal.
- 8 Proyecto.** EQC2019-006317-P, Ampliación de INMALAB con un sistema de medida de

fotoluminiscencia resuelta en el tiempo. Infraestructuras científicas. Juan Antonio Anta Montalvo. (Universidad Pablo de Olavide). 01/04/2020-31/12/2020. 168.069 €. Investigador principal.

- 9 Contrato.** Research Agreement with Abengoa Research ABENGOA RESEARCH. Sofia Calero Díaz. 03/12/2012-03/12/2016. 220.000 €.
- 10 Contrato.** CONSULTORÍA Y DESARROLLO DE SOFTWARE CON ACCELRYSLC JUAN ANTONIO ANTA MONTALVO. Desde 15/10/2008. 2.728 €.