

CV Date	16/07/2024
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## Part A. PERSONAL INFORMATION

First Name	Anna Maria		
Family Name	Porredon Diez de Tejada		
Sex	Not Specified	Date of Birth	
ID number Social Security, Passport			
URL Web			
Email Address	annam.porredon@gmail.com		
Open Researcher and Contributor ID (ORCID)	0000-0002-2762-2024		

### A.1. Current position

Job Title	César Nombela Research Talent Attraction Postdoctoral Fellow		
Starting date	2024		
Institution	Centro de Investigaciones Energéticas, Medioambientales y Tecnológicas		
Department / Centre			
Country	Spain	Phone Number	
Keywords	Gravitational field; Estadísticas de cumulos [eng]; Structures of great scale; Cosmology of particles		

### A.2. Previous positions (Research Career breaks included)

Period	Job Title / Name of Employer / Country
2023 - 2024	Marie Curie Postdoctoral Fellow / Ruhr-Universität Bochum, Germany
2022 - 2023	Postdoctoral Research Associate / University of Edinburgh, UK
2019 - 2022	CCAPP Postdoctoral Fellow / Ohio State University, Columbus OH, USA
2019 - 2019	Visiting Scholar / USP and ICTP-SAIFR, São Paulo, Brazil
2016 - 2019	Graduate Research Assistant / INSTITUTO DE CIENCIAS DEL ESPACIO

### A.3. Education

Degree/Master/PhD	University / Country	Year
PhD Programme in Physics	Universitat Autònoma de Barcelona / Spain	2019
Master's Degree in High Energy Physics, Astrophysics and Cosmology	Universitat Autònoma de Barcelona / Spain	2015
Bachelor's Degree in Physics	Universitat Autònoma de Barcelona / Spain	2014

## Part B. CV SUMMARY

Since starting the PhD in 2016 and joining the **Dark Energy Survey (DES)** international collaboration, I have become an expert in **cosmological parameter inference from the combination of galaxy clustering with other tracers of the large-scale structure (LSS) of the universe**.

During my **PhD** at the Institute of Space Sciences (ICE, IEEC-CSIC) in Barcelona (Spain), I was one of the lead authors of the joint analysis of galaxy clustering from DES Year 1 data and weak lensing of the Cosmic Microwave Background (CMB) observations from the South Pole Telescope and Planck surveys. The next batch of analyses from DES examines the first three years of observations (Y3), which contain almost 400M objects. From 2018 until 2021, I led the effort of optimising the selection of a lens galaxy sample from DES Y3 data

and obtaining the resulting cosmological constraints from galaxy clustering and galaxy-galaxy lensing. The result of this project is one of the main ingredients of the DES Y3 joint analysis of galaxy clustering and weak lensing, which is one of the key articles from DES and has **>750 citations**. My contributions to the DES Y3 analysis have resulted in **two first-author publications ( >120 citations)** and co-authoring over 30 additional publications. In total, I have authored 80 international publications (59 of them refereed) with a high impact on the scientific community: **>5700 citations** (average of 67 citations per refereed paper), **h-index of 35**, and **g-index of 75** (as of July 16, 2024; source: [https://ui.adsabs.harvard.edu/public-libraries/qA9TIfyEQzi9Op\\_hsi9LLQ](https://ui.adsabs.harvard.edu/public-libraries/qA9TIfyEQzi9Op_hsi9LLQ)).

In 2019, I was **awarded funding** from the Marie Skłodowska-Curie RISE action in the LACEGAL project, which allowed me to visit for 6 months the international centre ICTP-SAIFR and the University of São Paulo (USP) in Brazil. I have received several additional fellowships and awards, including **multiple postdoctoral fellowships** (CCAPP, Alexander von Humboldt, **Marie Curie** and **Atracción de Talento Investigador César Nombela**), **2 PhD fellowships** (~25% acceptance rate) and a prize of 1,000€ for having one of the top university entrance qualifications. In total, I have acquired **>940 k€ of research funding** (~540 k€ of which is associated with Spanish funding sources).

From 2019 to 2022, I joined the Ohio State University (Columbus OH, USA) as a CCAPP postdoctoral fellow, which allowed me to join two additional international collaborations for the next generation of galaxy surveys: the **Dark Energy Spectroscopic Instrument (DESI)** and the **Nancy Grace Roman Space Telescope**. Moreover, my position as a postdoctoral researcher at the University of Edinburgh (UK) from 2022 to August 2023, allowed me to join the **Rubin LSST – Dark Energy Science Collaboration**. Finally, from September 2023 until June 2024, I joined Ruhr-Universität Bochum as a Marie Curie Postdoctoral Fellow and started new collaborations within the **Euclid consortium**.

My work has provided me with **international recognition** that is reflected by the **leadership positions** I have been offered in the DES and DESI collaborations. I have been a coordinator of the DES LSS working group since 2021, and I was co-coordinator of the DESI weak lensing group for 5 months in 2022. I was also offered the position of coordinator of the DESI cross-correlations working group in September 2022.

I have disseminated the results of my research in **>25 oral presentations**, including invited international conferences, invited seminars at prestigious institutions, and contributions at collaboration meetings from DES, DESI and Euclid. My PhD and postdoctoral positions have not allowed me to teach. However, I have compensated for that by **mentoring and supervising numerous students** (1 high school, 1 bachelor, 2 master, and 2 PhD), and I have some previous **teaching experience** at the high school level. Moreover, I have been serving as a **mentor in the DESI collaboration** since February 2024).

I have been an internal **reviewer** of DES since 2018 and a reviewer for the Open Journal of Astrophysics since November 2023. Furthermore, I have contributed to **DESI observations**, organised institute seminars, group meetings and parallel sessions at workshops and conferences, and participated in multiple **outreach events** (public talks, Q&A, press releases, performing arts). Additionally, I have been a member of the DES committee on **Diversity, Equity, and Inclusion (DEI)** since 2021 and joined the DESI DEI committee in the 2021-2022 academic year.

## Part C. RELEVANT ACCOMPLISHMENTS

### C.1. Most important publications in national or international peer-reviewed journals, books and conferences

AC: corresponding author. ( $n^{\circ} x / n^{\circ} y$ ): position / total authors. If applicable, indicate the number of citations

- 1 **Scientific paper**. Emas, N.; Blake, C.; Ruggeri, R.; Porredon, A. 2024. Cosmology with shear ratios: a joint study of weak lensing and spectroscopic redshift datasets. Submitted to the Open Journal of Astrophysics. <https://doi.org/10.48550/arXiv.2403.07313>

- 2 **Scientific paper.** Giannini, G.; Alarcon, A.; Gatti, M.; Porredon, A.; et al. 2024. Dark Energy Survey Year 3 Results: Redshift Calibration of the MagLim Lens Sample from the combination of SOMPZ and clustering and its impact on Cosmology. *Mon. Not. Roy. Astron. Soc.*527-2, pp.2010-2036. ADS (11) <https://doi.org/10.1093/mnras/stad2945>
- 3 **Scientific paper.** DES collaboration (alphabetical); et al. 2024. Dark Energy Survey: A 2.1% measurement of the angular Baryonic Acoustic Oscillation scale at redshift  $z_{\text{eff}}=0.85$  from the final dataset. Accepted in *Phys. Rev. D*. ADS (14) <https://doi.org/10.48550/arXiv.2402.10696>
- 4 **Scientific paper.** Mena-Fernández, J.; Rodríguez-Monroy, M.; Avila, S.; Porredon, A.; et al. 2024. Dark Energy Survey: Galaxy Sample for the Baryonic Acoustic Oscillation Measurement from the Final Dataset. Accepted in *Phys. Rev. D*. ADS (1) <https://doi.org/10.48550/arXiv.2402.10697>
- 5 **Scientific paper.** Samuroff, S.; Campos, A.; Porredon, A.; Blazek, J. 2024. Joint constraints from cosmic shear, galaxy-galaxy lensing and galaxy clustering: internal tension as an indicator of intrinsic alignment modelling error. *The Open Journal of Astrophysics*. 7-40. ADS (1) <https://doi.org/10.33232/001c.117964>
- 6 **Scientific paper.** DES and KiDS collaboration (alphabetical); et al. 2023. DES Y3 + KiDS-1000: Consistent cosmology combining cosmic shear surveys. *The Open Journal of Astrophysics*. 6-36. ADS (90) <https://doi.org/10.21105/astro.2305.17173>
- 7 **Scientific paper.** Riquelme, W.; Avila, S.; Garcia-Bellido, J.; Porredon, A.; et al. 2023. Primordial non-Gaussianity with angular correlation function: integral constraint and validation for DES. *Mon. Not. Roy. Astron. Soc.*523-1, pp.603-619. ADS (6) <https://doi.org/10.1093/mnras/stad1429>
- 8 **Scientific paper.** Porredon, A. (AC); et al. 2022. Dark Energy Survey Year 3 results: Cosmological constraints from galaxy clustering and galaxy-galaxy lensing using the MagLim lens sample. *Phys. Rev. D*. 106-10, pp.103530-103530. ADS (67) <https://doi.org/10.1103/PhysRevD.106.103530>
- 9 **Scientific paper.** DES collaboration (alphabetical); et al. 2022. Dark Energy Survey Year 3 results: Cosmological constraints from galaxy clustering and weak lensing. *Phys. Rev. D*. 105-2, pp.023520-023520. ADS (755) <https://doi.org/10.1103/PhysRevD.105.023520>
- 10 **Scientific paper.** Cawthon, R.; Elvin-Poole, J.; Porredon, A.; et al. 2022. Dark Energy Survey Year 3 results: calibration of lens sample redshift distributions using clustering redshifts with BOSS/eBOSS. *Mon. Not. Roy. Astron. Soc.*513-4, pp.5517-5539. ADS (42) <https://doi.org/10.1093/mnras/stac1160>
- 11 **Scientific paper.** Givans, Jahmour J.; Choi, Ami; Porredon, Anna; et al. 2022. Quantum Yield and Charge Diffusion in the Nancy Grace Roman Space Telescope Infrared Detectors. *PASP*. 134-1031, pp.014001. ADS (7) <https://doi.org/10.1088/1538-3873/ac46ba>
- 12 **Scientific paper.** Porredon, A. (AC); et al. 2021. Dark Energy Survey Year 3 results: Optimizing the lens sample in a combined galaxy clustering and galaxy-galaxy lensing analysis. *Phys. Rev. D*. 103-4, pp.043503-043503. ADS (57) <https://doi.org/10.1103/PhysRevD.100.043501>
- 13 **Scientific paper.** Omori, Y.; Giannantonio, T.; Porredon, A.; et al. 2019. Dark Energy Survey Year 1 Results: Tomographic cross-correlations between Dark Energy Survey galaxies and CMB lensing from South Pole Telescope+Planck. *Phys. Rev. D*. 100-4, pp.043501-043501. ADS (49) <https://doi.org/10.1103/PhysRevD.100.043501>

## C.2. Conferences and meetings

- 1 "The Dark Universe" panel moderator. IEEC Forum 2024. Institut d'Estudis Espacials de Catalunya. 2024. Participatory - others. Conference.
- 2 Impact of photo-z uncertainties on the Euclid DR1 galaxy clustering. Euclid Spain Meeting. INSTITUTO DE CIENCIAS DEL ESPACIO. 2024. Participatory - oral communication. Conference.
- 3 Cosmology combining weak lensing surveys. Starting the golden years: going strong after KiDS. Universiteit Leiden. 2024. Participatory - invited/keynote talk. Conference.
- 4 Cosmology combining weak lensing surveys. IX Meeting on Fundamental Cosmology. Instituto de Astrofísica de Canarias. 2023. Participatory - invited/keynote talk. Conference.

- 5 Dark Energy Survey Year 6 Key Project Workshop. Princeton University. 2023. Organizational - Scientific and organizing committee. Workshop.
- 6 Cosmology from Galaxy Clustering and Weak Lensing. COSMO'23. Instituto de Física Teórica. 2023. Participatory - oral communication. Conference.
- 7 Cosmology from Galaxy Clustering and Weak Lensing with the Dark Energy Survey. Royal Astronomical Society National Astronomy Meeting 2023. Cardiff University. 2023. Participatory - oral communication. Conference.
- 8 Dark Energy Survey parallel session. Royal Astronomical Society National Astronomy Meeting 2023. Cardiff University. 2023. Organizational - Scientific and organizing committee. Conference.
- 9 Dark Energy Survey Year 6 Key Project Workshop. University of Chicago. 2023. Organizational - Scientific and organizing committee. Workshop.
- 10 Cosmology from galaxy clustering and weak lensing. Intriguing inconsistencies in the growth of structure over cosmic time. Sexten Center for Astrophysics. 2022. Participatory - invited/keynote talk. Conference.
- 11 Dark Energy Survey Special Session: 'Lens samples for cosmology' (virtual due to Covid). 239th Meeting of the American Astronomical Society. American Astronomical Society. 2022. Participatory - invited/keynote talk. Conference.
- 12 DES Y3 Cosmological Constraints from Galaxy Clustering and Galaxy-Galaxy Lensing Using an Optimized Lens Sample. Cosmology from Home 2021 (virtual conference). 2021. Participatory - oral communication. Conference.
- 13 Tomographic analysis of the cross-correlation between SPT CMB lensing and DES Y1 galaxies. Cosmology school in the Canary Islands. Instituto de Astrofísica de Canarias. 2017. Participatory - poster. Seminar.

### C.3. Research projects and contracts

- 1 **Project.** Ref: 2023-T1/TEC-29011, Cosmology from Galaxy Clustering and Weak Lensing with Euclid and DESI. Ayudas a la atracción de talento investigador "César Nombela" de la Comunidad de Madrid; Consejería de Educación, Ciencia y Universidades. Anna Porredon. (Centro de Investigaciones Energéticas, Medioambientales y Tecnológicas). 01/07/2024-30/06/2029. 392.090 €. Principal investigator.
- 2 **Project.** DOI:10.3030/101068581, UNified Cosmology Across Lensing Surveys (UNICALS). Marie Skłodowska-Curie Actions - Postdoctoral Fellowships 2021 (Grant ID: 101068581). Anna Porredon. (Ruhr-Universität Bochum). 01/09/2023-31/08/2025. 173.847,36 €. Principal investigator.
- 3 **Project.** DOI:10.3030/734374, Latin American Chinese European Galaxy Formation Network (LACEGAL). Marie Skłodowska-Curie Actions - Research and Innovation Staff Exchange (Grant ID: 734374). Enrique Gaztañaga. (INSTITUTO DE CIENCIAS DEL ESPACIO). 01/03/2017-30/09/2022. 126.000 €. Team member. 12.000 € awarded to A. Porredon to carry out a 6-month research stay in Brazil at Universidade de Sao Paulo (USP).
- 4 **Project.** Cosmology with Galaxy Maps (CosmoMaps). Ministerio de Ciencia e Innovación (Ref. PGC2018-102021). Enrique Gaztañaga. (INSTITUTO DE CIENCIAS DEL ESPACIO). 2019-2021. 170.000 €. Team member.