

**CURRICULUM VITAE**

**IMPORTANT – The Curriculum Vitae cannot exceed 4 pages. Instructions to fill this document are available in the website.**

<b>Part A. PERSONAL INFORMATION</b>		<b>CV date</b>	09/02/2023
First name	Jacobo		
Family name	Asorey Barreiro		
Gender (*)	Male	Birth date (dd/mm/yyyy)	01/09/1986
Social Security, Passport, ID number	72989601K		
e-mail	jasorey@gmail.com	URL Web	
Open Researcher and Contributor ID (ORCID) (*)	0000-0002-6211-499X		

(\*) *Mandatory*

**A.1. Current position**

Position	María Zambrano Research Fellow		
Initial date	01/09/2022		
Institution	Universidad Complutense de Madrid		
Department/Center	Departamento de Física Teórica	Facultad de Ciencias Físicas	
Country	Spain	Teleph. number	+34661215855
Key words	Astrophysics, Cosmology, Astroparticles		

**A.2. Previous positions (research activity interruptions, see call)**

Period	Position/Institution/Country/Interruption cause
2019 - 2022	Postdoc / Centro de Investigaciones Energéticas, Medioambientales y Tecnológicas (CIEMAT) / Spain
2018 - 2019	Postdoc / Korea Astronomy and Space Science Institute (KASI) / Republic of Korea
2017 - 2018	Postdoc / Swinburne University of Technology / Australia
2016 - 2017	Postdoc / University of Queensland (UQ) / Australia
2013 - 2016	Postdoc / University of Illinois at Urbana-Champaign (UIUC) / United States
2009 - 2013	Predoc / Institut de Ciències de l'Espai (ICE)/ Consejo Superior de Investigaciones Científicas (CSIC) / Spain

**A.3. Education**

PhD, Licensed, Graduate	University/Country	Year
PhD in Physics	Universitat Autònoma de Barcelona / Spain	2013
Máster en Física de Altas Energías, Astrofísica y Cosmología	Universitat Autònoma de Barcelona / Spain	2011
Licenciado en Física	Universidad de Zaragoza / Spain	2009
Diploma on Higher Education	University of Southampton / United Kingdom	2009

**Part B. CV SUMMARY** (max. 5000 characters, including spaces) to complete this section, please read carefully: "Instructions to fill CVA"

My research has addressed the determination of the ultimate structure of dark energy. This analysis is based on astronomical observations with extragalactic surveys in different wavelength ranges. Most of



my more relevant results paved the way to new methodologies and optimisation techniques that allow us to extract cosmological information from surveys in a faster and more robust way. **My most relevant work is my contribution to get the most stringent constraints on cosmological parameters just from using Galaxy Clustering and Weak Lensing (pub. 8)**, getting confidence levels similar to the ones obtained from Cosmic Microwave Background (CMB). Thanks to this, we have been able to confirm the validity of the cosmological model  $\Lambda$ CDM with great accuracy. In the last years, I started analyzing the data from radio telescopes, being a pioneer in the field of the new era of radio-cosmology, both in radio continuum surveys and in the analysis of the distribution of neutral hydrogen from the birth of the first stars to the present realm of large-scale structure.

My research is developed in the framework of international collaborations, which I joined as a member, such as the photometric Dark Energy Survey (DES), the spectroscopic follow-up, the Australian Dark Energy Survey (OzDES), the spectroscopic Dark Energy Spectroscopic Instrument (DESI) and the photometric narrow-band Physics of the Accelerating Universe Survey (PAUS). In the field of radio-astronomy, I am a prominent member of the Evolutionary Map of the Universe (EMU) radio continuum Survey and I am involved in the SKA Observatory cosmology sub working group. All these collaborations and experiments are playing a central role in the task of understanding the nature of dark energy.

The results of my research have generated **49 publications in Q1 journals** with an h-index of 23 ([ADS database](#)). In 6 of them, I am the first author. The number of citations is 3228 (183 self-citation, 323/year [606/year in the last 5 years]). The total number of my publications is 73, including pre-prints, white-papers and supernova detections. According to [INSPIRE-HEP](#) database, I have 3103 citations (310/year [583/year in the last 5 years]) and an h-index of 22.

I have disseminated my results as speaker in more than 30 international conferences, being invited speaker in 10 of them. I also was invited speaker in 10 seminars at Universities of Australia, Korea, Italy, Spain and USA. In some of them, **I have represented a whole collaboration such as in the EMU general science meetings and the Rencontres de Moriond 2022.**

I have been distinguished with a María Zambrano Atracción de Talento Internacional contract in the 2021 call, starting in September 2022 at the Universidad Complutense de Madrid (UCM). Previously, I was a postdoctoral researcher at CIEMAT (Spain, 2019-2022), as part of the European Union Horizon 2020 project "Enabling Weak lensing Cosmology". I started my research career by completing my PhD in 2013 at the Universitat Autònoma de Barcelona, under the supervision of E. Gaztañaga and M. Crocce. My first postdoctoral position was at the University of Illinois at Urbana-Champaign, USA (2013-2016). Afterwards I was appointed as a CAASTRO fellow at the University of Queensland (Australia 2016-2017) and the Centre for Astrophysics and Supercomputing of the Swinburne University of Technology (Australia, 2017-2018). I also worked as a postdoc at the Korea Astronomy and Space Science Institute, KASI (Korea, 2018-2019). In all these positions, **I have been a participant in 7 competitive research projects funded by the main agencies of European Union, Spain, Korea, Australia and the United States.**

In addition, I have been involved in the organizing committee of two conferences and two summer schools. I have coordinated meetings of scientific collaborations. I was a member of the postdoctoral committee in CAASTRO. **I am a reviewer of Q1 journals:** MNRAS and ApJ. I am an **evaluator of the Spanish national evaluation agency (ANEP)**. I have been accredited as **I3 researcher** by Ministerio de Universidades and as PAD by the ANECA.

I supervised **two master thesis** at UCM:

-*"Efecto de la estructura a gran escala del Universo en la cosmología con supernovas"* Alberto Sánchez Fernández-Pedraza (2022)

- *"Cosmología con cartografiados extragalácticos en radiotelescopios"* David Fernández Gil (2021)

I also **co-supervised** the master thesis of Christopher Johnson, at the University of Queensland (2018).

My former student David Fernández Gil joined Sejong University group in Korea where I participate in his doctoral supervision. I have taught in Bachelor and Master courses for more than 150 hours. I



have been member of master thesis panels in the University of Queensland and in a PhD thesis jury in the Universidad Complutense de Madrid. I have participated in several outreach activities in different countries (Spain, Korea and Australia) and different languages.

## Part C. RELEVANT MERITS

They may include publications, data, software, contracts or industrial products, clinical developments, conference, publications, etc. If these contributions have DOI, please include it

### C.1. Publications

Must be include the corresponding author, the position occupied by the applicant researcher)

1. Bahr-Kalus, Benedict; Parkinson, David; Asorey, Jacobo; Camera, Stefano; Hale, Catherine; Qin, Fei. (3/6). 2022. *A measurement of the integrated Sachs-Wolfe effect with the Rapid ASKAP Continuum Survey*. Monthly Notices of the Royal Astronomical Society. 517-3, pp.3785-3803. DOI: 10.1093/mnras/stac2040. 3 citations (ADS database)
2. DESI Collaboration; Abaresi, B.; Aguilar, J.; Ahlen, S.; et al; Zu, Y.; [incl. Asorey, J.] (11/269). 2022. *Overview of the Instrumentation for the Dark Energy Spectroscopic Instrument*. Astronomical journal. 164-5 pp.207. DOI: 10.3847/1538-3881/ac882b. 41 citations (ADS database)
3. Norris, Ray P.; Marvil, Joshua; Collier, J. D. et al. Voronkov, Maxim A. [incl. Asorey, J.] (8/48); 2021. *The Evolutionary Map of the Universe Pilot Survey* Publications of the Astronomical Society of Australia. 38, pp.e046-e046. DOI: 10.1017/pasa.2021.42. 44 citations. (ADS database)
4. Asorey, Jacobo (AC); Parkinson, David; Shi, Feng et al; Zuo, Shifan. (1/9). 2020. *HIR4: cosmology from a simulated neutral hydrogen full sky using Horizon Run 4* Monthly Notices of the Royal Astronomical Society. 495-2, pp.1788-1806. DOI: 10.1093/mnras/staa1191. 12 citations. (ADS database)
5. DES Collaboration; Abbott, T. M. C.; Alarcon,A.; et al; Annis,J. ;Zuntz, J. [incl. Asorey, J.] (7/178). 2019. *Cosmological Constraints from Multiple Probes in the Dark Energy Survey*. Physical Review Letters. 122-17. DOI:10.1103/PhysRevD.98.04200. 111 citations. (ADS database)
6. DES Collaboration; Abbott, T. M. C.; Allam, S.; et al; Zhang, Y. [incl. Asorey, J.] (5/105). 2019. *First Cosmology Results using Type Ia Supernovae from the Dark Energy Survey: Constraints on Cosmological Parameters* The Astrophysical Journal Letters. 872-2. 10.3847/2041-8213/ab04fa. 204 citations. (ADS database)
7. Abbott, T. M. C.; Abdalla, F. B. ;Allam, S.; et al; Zuntz, J. [incl. Asorey, J.] (6/ 199). 2018. *The Dark Energy Survey Data Release 1* The Astrophysical Journal Supplement Series. 239-18. DOI:10.3847/1538-4365/aae9f0. 478 citations (ADS database)
8. DES Collaboration; Abbott, T. M. C.; Abdalla, F. B.; et al; Zuntz,J. [incl. Asorey, J.] (9/200). 2018. *Dark Energy Survey Year 1 Results: Cosmological Constraints from Galaxy Clustering and Weak Lensing* Physical Review D. 98-043526. DOI:10.3847/1538-4365/aae9f0. 915 citations. (ADS database)
9. Asorey, J. (AC); Carrasco Kind, M.; Sevilla-Noarbe, I.; Brunner, R. J.; Thaler, J.(1/5). 2016. *Galaxy clustering with photometric surveys using PDF redshift information* Monthly Notices of the Royal Astronomy Society. 459, pp.1293-1309. DOI: 10.1093/mnras/stw721. 16 citations. (ADS database)
10. Asorey, J. (AC); Croce, M.; Gaztanaga, E.; Lewis, A. (1/ 4). 2012. *Recovering 3D clustering information with angular correlations* Monthly Notices of the Royal Astronomy Society.427,pp.1891-1902. DOI:10.1111/j.1365-2966.2012.21972.x. 72 citations. (ADS database)

### C.2. Congress

Please, include the modality of your participation (invited conference, oral presentation, poster)



1. Cosmology with wide extra-galactic radio surveys from SKAO pathfinders. Rencontres de Moriond 2022. Hotel Planibel, La Thuile. 2022. Italy. Contributed speaker.
2. Testing Cosmology with optical and radio surveys. COST CA18107 2<sup>nd</sup> Annual Conference. Corfu Summer Institute. 2021. Greece. Invited Speaker
3. HIR4: Cosmology from a simulated neutral hydrogen full sky. The 9th KIAS Workshop on Cosmology and Structure Formation. Korea Institute for Advanced Study. 2020. Republic of Korea. Contributed speaker.
4. HIR4: Mock 21cm intensity mapping maps for cross-correlations with optical surveys. 6th Korea-Japan Workshop on Dark Energy. Kobayashi–Maskawa Institute. 2019. Japan. Invited speaker
5. EMU Cosmology, and the angular distribution of galaxies in the EMU Pilot Survey. 17th EMU International Conference. Osservatorio astrofisico di Catania. 2019. Italy. Invited speaker
6. HIR4:Mock 21cm intensity mapping maps for cross-correlations with optical surveys. East Asia SKA Meeting. Shangai Observatory. 2019. China. Contributed speaker.
7. Cosmology with type Ia supernova gravitational lensing. Cosmo 2018. Institute for Basic Science. 2018. Republic of Korea. Contributed speaker.
8. Cosmology with wide field photometric surveys and gravitational lensing of type Ia Supernovae. Estate Quantistica 2018. Université de Bourgogne. 2018. Italy. Invited speaker.
9. Measuring Large Scale Structure with photometric surveys using angular correlations. Great Lakes Cosmology and Galaxies 2016 Conference. McMaster University. 2016. Canada. Contributed speaker
10. Galaxy clustering with photometric redshift probability distribution functions. Large Synoptic Survey Telescope. SLAC. 2015. United States of America. Invited speaker.

### C.3. Research projects

(must indicate their personal contribution, and lines of research for which they have been responsible)

1. **Project.** PGC2018-094773-B-C33. *Física Fundamental y Cosmología con Cartografiados Extragalácticos..* Proyectos de Generación de Conocimiento (Centro de Investigaciones Energéticas Medioambientales y Tecnológicas) 2018. 2019-2022. 169.400 €. Participant.
2. **Project.** EWC776247, *Enabling Weak lensing Cosmology.* Horizon 2020. Thomas Kitching. (Centro de Investigaciones Energéticas, Medioambientales y Tecnológicas). 01/04/2018-31/03/2022. 1.587.154 €. Participant. I was in charge of PAUS science at CIEMAT.
3. **Project.** KASI, *Understanding Dark Universe Using Large Scale Structure of the Universe.* Yong-Seon Song. (Korea Astronomy and Space Science Institute). 2015- 2022. 6.000.000 €. Participant. In charge of the creation of neutral hydrogen simulations for SKAO and in charge of cosmological analysis of ASKAP-EMU.
4. **Project.** CE110001020, Australian Research Council Centre of Excellence for All-Sky Astrophysics (CAASTRO). Australian Research Council Centre of Excellence. Elaine Sadler. (University of Sydney). 2011-2018. 21.000.000 €. Participant. I was leading SN Cosmology weak lensing measurement with DES and OzDES
5. **Project.** DE-SC0009932, *Research on Elementary Particle Physics, High Energy Physics at the University of Illinois.* Department of Energy Grant. Jon Thaler. (University of Illinois at Urbana-Champaign). 2013- 2016. 11.000.000 €. Participant. I was in charge of implementing a clustering estimator for photometric surveys such as DES.
6. **Project.** AYA2009-39559, *Cosmology with extragalactic surveys.* (Institut de Ciències de l'Espai). 2009- 2014. 285.000 €. Participant.
7. **Project.** ITN-2008-238356 (FP7-PEOPLE-ITN-2008), Cosmo Comp: Marie Curie Initial Training Networks. European Union Marie Curie Initial Training Networks. Carlton Baugh. (University of Durham). 2009-2013. 4.700.000 €. Participant.