CV Date 02/09/2024

Part A. PERSONAL INFORMATION

First Name	Antonio		
Family Name	García Hernández		
Sex	Not Specified	Date of Birth	
ID number Social Security, Passport			
URL Web	https://wpd.ugr.es/~fqm292/members/antonio-garcia-hernandez/		
Email Address	[redacted]		
Open Researcher and Contributor ID (ORCID)	0000-0002-6906-4526		

A.1. Current position

Job Title	Associate Professor / Lecturer (Profesor Contratado Doctor, tenure)
Starting date	2023
Institution	Universidad de Granada
Department / Centre	Física Teórica y del Cosmos / Facultad de Ciencias
Country	Phone Number
Keywords	

Part B. CV SUMMARY

My research experience and interest cover Stellar Interiors and Evolution, Stellar Modelling and Asteroseismology, both theoretical and observational. n the last years, I fucossed on one of the most critical problems in stellar physics: the rotation effects, which I tackle through the asteroseismic analysis of intermediate-mass rotating stars. I am an international reference researcher in the search for pattterns in the frequency spectra of Delta Scuti stars.

I did my Ph. D. at the Instituto de Astrofísica de Andalucía (IAA-CSIC) with a FPI grant, during which I collaborated with the Laboratoire Cassiopee at Observatoire de la Côte d'Azûr (Nice, France) in a 5-months stay. In 2011, I got my Ph. D. degree, defending my thesis at the University of Granada and started my first post-doc in 2012 with a Fellowship granted by the Fundação para a Ciência e a Tecnologia (FCT, from the Portuguese Ministery). I worked at the Institute of Astrophysics and Space Science (IA-UP) in Porto (Portugal) during almost 5 years. In November 2016, I was contracted as post-doctoral researcher by the University of Granada (UGR) where I developed my work in the frame of the preparation of the future space mission PLATO2.0 (ESA). In 2020, I started a post-doctoral position at the UGR funded by my own research project CHARROTS (CHARacterization of ROTating Stars, E-FQM-041-UGR18). Since July 2023, I became Associate Professor/Lecturer in Physics (Profesor Contratado Doctor, tenure) at the UGR.

My CV counts with 67 publications with a total of 1436 citations according to ADS (https://ui.adsabs.harvard.edu/public-libraries/SZQNtw2aSdSbIkEXtXYI1A) or 1713 according to Google Scholars. From them, 39 are in referred journals of the first quartile with 1418 citations (ADS) and 10 as first or second author with 305 citations (ADS). The impact factor H is 17 (January 22, from ADS) or 20 (January 22, from Google Scholars). I contributed to more than 17 national and international conferences and meetings, the majority with a talk or a poster. I have been referee for renown international scientific journal, like the ApJ, A&A and MNRAS, and reviewer and guest associated editor of the Frontiers Editorial for the topic Challenges of Asteroseismology in the Era of Space Missions. I have been involved in several national and international projects, most of them devoted to space missions, such as CoRoT or PLATO, as well as other within the European FP7 (SpaceInn) or the Horizon H2020 initiative (HELAS IA proposal, rejected). My project for the 2017 call of the Marie Sklodowska-Curie actions (H2020-MSCA-IF.2017) obtained the "Seal of Excellence" (that means it was scored as a high-quality project proposal in a highly competitive evaluation process). I am part of several international research groups, focussed in the asteroseismic analysis of data from space mission and in

the research of rapid rotating stars. I am part of the Kepler Asteroseismic Science Consortium (KASC), the TASC (for the TESS upcoming mission), SoFAR and FRStars research groups, and leader of the WP274.310 ("End-Product Guarantee") and key personnel of the WP120.130 for the preparation of the PLATO2.0 European mission. Additionally, I am member of the International Astronomical Union (IAU) and the Spanish Astronomical Society (SEA).
I have more than 300 hours of teaching experience both at degree and master levels, and in two different universities. I have been part of the examining committee of 2 Ph. D. and several M. Sc. dissertations, supervisor of more than 20 M. Sc. students (TFM), 2 final degree works (TFG) and currently supervisor of 2 Ph. D. students. I was lecturer of the Valencian International University (VIU) for the official master degree "Astronomy and Astrophysics" until 2016. Since then, I am lecturer of the UGR at degree and master levels. I have been awarded with 3 six-year-periods of research activity (sexenios) and 3 five-year-periods of teaching activity (quinquenios) in 2024 by ANECA.

I have participated on several outreach activities, such as public and school oriented talks (more than 5), the International Year of Astronomy (IYA2009), and in special events, such as the "Pabellón del Sol", an itinerant exposition.

Part C. RELEVANT ACCOMPLISHMENTS

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

AC: corresponding author. (nº x / nº y): position / total authors. If applicable, indicate the number of citations

1 **Scientific paper**. 2024. TESS Cycle 2 observations of roAp stars with 2-min cadence data. Monthly Notices of the Royal Astronomical Society.
2 **Scientific paper**. David Pamos Ortega; Giovanni Marcelo Mirouh; Antonio García Hernández; Juan Carlos Suárez Yanes; Sebastià Barceló Forteza. 2023. Dating young open clusters using delta Scuti stars. Results for Trumpler 10 and Praesepe. Astronomy and Astrophysics. EDP Science. 675, pp.A167.
3 **Scientific paper**. Pascual-Granado, Javier; Campante, Tiago; García Hernández, Antonio; Guo, Zhao. 2022. Editorial: Challenges of asteroseismology in the era of space missions. Frontiers in Astronomy and Space Sciences. 9. ISSN 2296-987X.
4 **Scientific paper**. Pamos Ortega, David; García Hernández, Antonio; Súarez, Juan Carlos; Pascual Granado, Javier; Barceló Forteza, Sebastià; Rodón, José Ramón. 2022. Determining the seismic age of the young open cluster alpha Per using δ Scuti stars. Monthly Notices of the Royal Astronomical Society. Oxford Academic. 513-1, pp.374-388. ISSN 0035-8711.
5 **Scientific paper**. Ramón-Ballesta, A.; García Hernández, A.; Suárez, J.~C.; Rodón, J.~R.; Pascual-Granado, J.; Garrido, R.2021. Study of rotational splittings in delta Scuti stars using pattern finding techniques. Monthly Notices of the Royal Astronomical Society. 505-4, pp.6217-6224.
6 **Scientific paper**. Holdsworth, D L; Cunha, M S; Kurtz, D W; et al; Vanderspek, R. 2021. TESS cycle 1 observations of roAp stars with 2-min cadence data. Monthly Notices of the Royal Astronomical Society. Oxford Academic. 506-1, pp.1073-1110. ISSN 0035-8711.
7 **Scientific paper**. Rodríguez-Martín, J E; García Hernández, A; Suárez, J C; Rodón, J R. 2020. Study of the low-order Delta nu-rho relation for moderately rotating Delta Scuti stars and its impact on their characterization. Monthly Notices of the Royal Astronomical Society. Oxford University Press (OUP). 498-2, pp.1700-1709. ISSN 0035-8711.
8 **Scientific paper**. Caballero Navarro, R; García Hernández, A; Ayala, A; Suárez, J C. 2020. Study of the effects of magnetic braking on the lithium abundances of the Sun and solar-type stars. Monthly Notices of the Royal Astronomical Society. Oxford University Press (OUP). 496-2, pp.1343-1354. ISSN 0035-8711.

9 **Scientific paper**. Ayala, Adrián; Lopes, Ilidio; García Hernández, Antonio; Suárez, Juan Carlos; Muñoz Elorza, Íñigo. 2020. Constraining dark photon properties with Asteroseismology. Monthly Notices of the Royal Astronomical Society. 491-1, pp.409-416. ISSN 0035-8711.

10 **Scientific paper**. Antoci, V; Cunha, M S; Bowman, D M; et al; Weiss, W W; (11/66) García Hernández, A. 2019. The first view of δ Scuti and γ Doradus stars with the TESS mission. Monthly Notices of the Royal Astronomical Society. 490-3, pp.4040-4059. ISSN 0035-8711.

11 **Scientific paper**. Cunha, M S; Antoci, V; Holdsworth, D L; et al; Weiss, W W. 2019. Rotation and pulsation in Ap stars: first light results from TESS sectors 1 and 2. Monthly Notices of the Royal Astronomical Society. Narnia. 487-3, pp.3523-3549. ISSN 0035-8711.

12 **Scientific paper**. A. Moya; J. C. Suárez; A. García Hernández; M. A. Mendoza. 2017. Semi-empirical seismic relations of A-F stars from COROT and Kepler legacy data. Monthly Notices of the Royal Astronomical Society. ISSN 0035-8711.

13 **Scientific paper**. A. García Hernández; J. C. Suárez; A. Moya; et al; J. Nieto. 2017. Precise surface gravities of δ Scuti stars from asteroseismology. Monthly Notices of the Royal Astronomical Society: Letters. ISSN 1745-3925.

14 **Scientific paper**. García Hernández, A.; Martín-Ruiz, S.; Monteiro, M.J.P.F.G.; Suárez, J.C.; Reese, D.R.; Pascual-Granado, J.; Garrido, R.2015. OBSERVATIONAL ∆nu-rho RELATION for δ Sct STARS USING ECLIPSING BINARIES and SPACE PHOTOMETRY. Astrophysical Journal Letters. 811-2.

15 **Scientific paper**. J.C. Suárez; A. García Hernández; A. Moya; E. Solano; C. Rodrigo; R. Garrido; J.R. Rodón. 2014. Measuring mean densities of delta Scuti stars with asteroseismology. Theoretical properties of large separations using TOUCAN. Astronomy and Astrophysics. EDP Science.

16 **Scientific paper**. A. García Hernández; A. Moya; E. Michel; et al; L. Lefevre and F. Baudin.2009. Asteroseismic analysis of the CoRoT δ Scuti star HD 174936. Astronomy and Astrophysics. EDP Science. 506, pp.79G.

C.2. Conferences and meetings

1 Antonio García Hernández; Javier Pascual Granado; Juan Carlos Suárez; et al; Zsófia Bognár. The PL diagram for Delta Sct: back in business as distance estimators. At the cross-roads of astrophysics and cosmology: Period–luminosity relations in the 2020s (IAU 376). International Astronomical Union. 2023. Hungary. Participatory - oral communication.

2 Antonio García Hernández; Juan Carlos Suárez; Javier Pascual Granado; et al; David Pamos. The period-luminosity-color diagram: identifying the fundamental radial mode in A/F stars with Kepler and Gaia. TASC5/KASC12 conference. Massachusetts Institute of Technology. 2019. United States of America. Participatory - oral communication.

3 {Garc{\'\i}a Hern{\'a}ndez}, A.; {Su{\'a}rez}, J.~C.; {Moya}, A.; et al; {Nieto}, J.. Precise surface gravitites of A-type stars from Asteroseismology. XIII Scientific Meeting of the Spanish Astronomical Society (SEA). 2018. Spain.

4 García Hernández, A.; Ramón Ballesta, A.; Suárez, J. C.. Rotational splitting in δ Sct: the hidden link. TASC4/KASC11 Workshop: First Light in a new Era of Astrophysics. 2018. Denmark.

5 A. García Hernández. Precise surface gravities of Delta Scuti stars from asteroseismology. Asteroseismology and Optical Interferometry. Measuring very accurate stellar diameters by high angular resolution techniques in the era of photometric space missions (K2, TESS, CHEOPS, PLATO) and Gaia. Observatoire de la Côte d'Azur. 2017. France.

C.3. Research projects and contracts

1 **Project**. Contribución de la UGR a la misión espacial Plato 2.0. Fases C/D-1. Ministerio de Ciencia e Innovación. Juan Carlos Suárez Yanes. (Universidad de Granada). 01/06/2020-31/05/2024. 277.211 €.

2 **Project**. Characterization of Rotating Stars (CHARROTS). European Regional Development Fund (FEDER); Consejería de Economía y Conocimiento de la Junta de Andalucía. Antonio García Hernández. (Universidad de Granada). 01/03/2020-28/02/2023. 141.150 €.

3 **Project**. Contribución de la UGR a la misión espacial Plato 2.0. Fases B2/C/D. MINISTERIO DE ECONOMÍA, INDUSTRIA Y COMPETITIVIDAD. Juan Carlos Suárez Yanes. (Universidad de Granada). 01/01/2018-31/12/2020. 139.150 €.

4 **Project**. Proyecto Coordinado para la participación española en Plato 2.0. MINISTERIO DE EDUCACION Y CIENCIA. Juan Carlos Suárez Yanes. (Universidad de Granada). 01/01/2015-31/12/2018. 157.300 €.

5 **Project**. Exploitation of Space Data for Innovative Helio- and Asteroseismology (SPACEINN). European Comission. Markus Roth. (Centro de Astrofísica da Universidade do Porto). 01/01/2013-31/12/2016.

MINISTERIO DE CIENCIA E INNOVACIÓN

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 2024/06/20

First name	Isabel		
Family name	Márquez		
Gender (*)	female	Date of Birth	[redacted]
ID number	[redacted]		
e-mail	[redacted]	URL Web	
Open Researcher and Contributor ID (ORCID) (*)	0000-0003-2629-1945		

(*) Mandatory

A.1. Current position

Position	Investigadora Científica OPIs		
Initial date	May 2009		
Institution	Consejo Superior de Investigaciones Científicas (CSIC)		
Department/Centre	Extragalactic Astronomy	Instituto de Astrofísica de Andalucía	
Country	Spain	Phone number	[redacted]
Keywords	Galaxies, active galactic nuclei, galaxy clusters		

A.2. Previous positions (research activity interruptions)

Period	Position/Institution/Country/Cause of the interruption
2003-2009	Científica Titular OPI, IAA, Spain *(4 months maternity leave)*
2001-2003	Ramón y Cajal fellow, IAA, Spain
1998-2001	Postdoc contracts, IAA, Spain *(4 months maternity leave)*
1997-1998	Postdoc contract, IAA, Spain
1997 (3 months)	Postdoc French CNRS contract, **IAP**, **France**
1995-1996 (2 years)	Postdoc grant, **Institut d'Astrophysique de Paris** (IAP), **France**
1991-1994	Predoctoral fellow, IAA, Spain

A.3. Education

PhD, Graduate Degree	University/Country	Year
PhD thesis	Universidad de Granada	1994
Degree Physics	Universidad Complutense de Madrid	1990

Part B. CV SUMMARY *(max. 5,000 characters, including spaces)*

I am the **Scientific Director of the two IAA-CSIC Severo Ochoa excellence awards** (since 2018), that provide the IAA with a total of **8,75 M€** and **24 predoctoral contracts in 8 years**. I am the Science Deputy Director of the IAA since 2017.

My scientific output in ADS includes **190 refereed publications** (ADS 9457 cites, **h-index=49**), **15 invited talks** and more than 125 contributions to international conferences. In the period 2016-2024, I published 74 referee papers (9.9 papers/year). I have gathered **5 "sexenios" and 6 "quinquenios"**. I have supervised **4 PhD theses**, **4 Master and 5 JAE-intro students**, and **6 postdocs**. All of them are active researchers in astrophysics. Another PhD supervision is **in progress**. In total I got **10,3 M€ as PI** from competitive funding sources (1 international, 10 national, 5 regional). I have worked in **prestigious foreign scientific institutions for more than 3 years**.

My research is devoted to the understanding of galaxy evolution, with a special focus on the connection between processes, occurring both within the **galaxy itself and from external interactions,** that would **ignite/maintain nuclear activity in galaxies.** I also consider the **impact of the AGN-related processes in the host galaxy and its surroundings. A multiwavelength** (MWL) **perspective** (visible, NIR, MIR, radio, and X-rays) is incorporated.

My activity started with a **pioneering work** on the effects of gravitational interaction, that demonstrated that **isolated spiral galaxies** have smaller bulges. Recent numerical simulations and observations of thousands of galaxies have confirmed this scenario. I also showed that the size of the bulge is key, since larger bulges allow a more efficient transfer of mass to the central regions, and may feed nuclear activity. This study articulated my PhD (1994), awarded with the Extraordinary Doctorate Prize. Directly connected with it, **I led the international project DEGAS**, aimed at comparing isolated galaxies with and without an active galactic nucleus (AGN), including for the 1st time gas and stellar kinematics. I participated in the **NUGA** project, based on ALMA data. In **ALHAMBRA**, I co-led the galaxy classification and the study of quasars. In **CALIFA**, I co-led the 1st paper on 2D gas kinematics. I proposed and supervised a study on the lower end of AGN power, LINERs, with **STIS/HST, MUSE/VLT** and **MEGARA/GTC**, which defined the PhD by Laura Hermosa-Muñoz. As member of its Scientific Team, I proposed to use the unprecedented, high spectral resolution of MEGARA/GTC data on the Seyfert galaxy NGC7469. To understand the properties of LINERs, we designed a pioneering approach at X-rays, the **seed of the X-ray line at the extragalactic department at the IAA**, that resulted in the PhDs by Omaira González-Martín and Lorena Hernández-García. I participate in two science working groups for the X-ray observatory **ATHENA**. To understand the change of AGN type in some objects from a MWL perspective, I participate as external member of the **eROSITA_DE** consortium in the eroAGN working group. To analyse how the innermost obscuring material is distributed in LINERs, we used MIR data combined with the best suited models for the data interpretation; this approach puts us in a privileged position for the exploitation of the upcoming **JWST** data (several proposals have been submitted). I also belong to the AGN- and/or galaxy-evolution-related science working teams of **MOSAIC, SKA and J-PAS.** In all of them my contribution is focused in the connection between nuclear activity and interactions. At this respect, clusters, groups and filaments offer a unique opportunity to disentangle how internal and external processes in galaxies drive galaxy evolution. The study of the properties of galaxies in such environments, specially their brightest galaxies, was the core of Aline Chu's PhD.

I am an **international expert** on nuclear activity, **leader of the AGN group** since 2009 at the IAA. I was **invited author** in the **book "Fifty years of Quasars" and invited reviewer** in "Quasars at all cosmic epochs". I serve as **elected Member** in the **International Astronomical Union (IAU) Cross-Division D-J Commission Supermassive Black Holes, Feedback and Galaxy Evolution**. I have served as **Hubble Space Telescope** Panelist, in the **NASA ADAP Review Panel**, the **ESO Observing Programme Committee**, the **Time Allocation Committee (TAC)** of the Canarian Observatories, **the Instrumental and Scientific Advisory Committee** of CAHA, and the **CAHA TAC** (chair). I have been **Expert Reviewer** for the **ERC 2022 Starting Grant** Call, ***HORIZON-MSCA-2022-SE-01,* European FP7 Space Research Projects**, **H2020-MSCA-IF-2016** evaluation, and the French Evaluation System for research centers (HCÈRES), among others. In the national context, I was invited by the Spanish Ministry of Science to the **Experts Committees** for the **Ramón y Cajal** fellowships selection, and for the evaluation of **research projects**. The Spanish Network for Astronomical Infrastructures (RIA) invited me for defining the **Spanish Strategy for the Next Decade 2015-2025**. I was elected member of the **Spanish CNA**. I am 2nd Vicepresident of **SOMMa** since Nov. 2022. Very recently, I have **coordinated the report** for the CSIC Vice-presidency for Scientific and Technological Research, **VICYT (CSIC),** on the evaluation of excellence in SOMM centres.

I have a strong record in **Gender activities**. I received the **"2021 Granada City of Science and Innovation Award for Women in Science"**, devoted to "women researchers with an internationally recognised and outstanding track record in their field of work and who have contributed to the visibility of women in science".

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

C.1. Publications

1. Hermosa-Muñoz, L., Cazzoli, S., Márquez, I. et al. "The MEGARA view of outflows in LINERs". 2024 Astronomy and Astrophysics 683, A43 (30 pages) (3/15)

2. Chu, A., Sarron, F., Durret, F. & Márquez, I. "Physical properties of more than one thousand brightest cluster galaxies detected in the Canada-France-Hawaii Telescope Legacy Survey". 2022 Astronomy and Astrophysics 666, A54 (12 pages) (4/4)

3. Chu, A., Durret, F. & Márquez, I. "Physical properties of brightest cluster galaxies up to redshift 1.80 based on HST data". 2021 Astronomy and Astrophysics 649, A42 (19 pages) (3/3)

4. Pérez-Díaz, B., J. Masegosa, I. Márquez, and E. Pérez-Montero "Chemical abundances in the nuclear region of nearby galaxies from the Palomar Survey". 2021 MNRAS 505, 4289 (21 pages) (3/4)

5. Hermosa-Muñoz, L., Márquez, I. et al. "A search for ionised gas outflows in an Ha imaging atlas of nearby LINERs". 2022 Astronomy and Astrophysics 660, A133 (31 pages) (2/5)

6. Hermosa Muñoz, L., S. Cazzoli, I. Márquez, and J. Masegosa "Optical spectroscopy of type 2 LINERs". 2020, Astronomy and Astrophysics 635, A50 (19 pages) (2/4)

7. Cazzoli, S., Gil de Paz, A., Márquez, I. et al. "NGC 7469 as seen by MEGARA: new results from high-resolution IFU spectroscopy". 2020, MNRAS 493, 3656 (20 pages) (3/16)

8. Falcón-Barroso, J. et al. "The CALIFA view on stellar angular momentum across the Hubble sequence". 2019, Astronomy and Astrophysics 632, A59 (17 pages) (27/35)

9. González-Martín et al. "Exploring the Mid-infrared SEDs of Six AGN Dusty Torus Models. I. Synthetic Spectra". 2019, Astrophysical Journal 884, 10 (18 pages) (6/10)

10. BOOK. "Fifty Years of Quasars. From early observations and ideas to future research". Springer 2012. **Co-author of Chapter 4.** Eds. M. D'Onofrio, P. Marziani & J. W. Sulentic. ISBN: 978-3-642-44384-8

C.2. Congresses

SOC member in 13 (inter)national conferences, **Invited or reviewer** in 13, **Chair person** in 17. A short selection:

- **Organiser & Chair** of the **"SO-IAA International Conference"** (2022) and the meeting **"QSO Hosts and their environments"** (2001). International
- Organising Committees of the SOMM Alliance Meetings (2021, 2022, 2023). **(Chair in 2023)**. National.
- **SOC** of the "IAU Symposium 356: Nuclear Activity in Galaxies Across Cosmic Time". Addis Ababa (Ethiopia), 2019. International.
- **Invited review** in "V Meeting of AGNs in Spain", Santander 2019. I. Márquez. National
- **Invited review** in "Quasars at all Cosmic Epochs", Padova 2017. I Márquez. International.

C.3. Research projects (as **Principal Investigator** = PI, selection)

- CEX2021-001131-S (AEI, MICINN) **"Centro de Excelencia Severo Ochoa IAA-CSIC".** 2023–2026. **4.000.000 €** and 11 FPI predocs.

- SEV-2017-0709 (AEI, MICINN) **"Centro de Excelencia Severo Ochoa IAA-CSIC".** 2018–2022. **4.000.000 €** and 14 FPI predocs.

- Ayudas CSIC a Centros de Excelencia Severo Ochoa (CSIC). 2022. **750.000 €.**

- PID2022-140871NB-C21 (MICIU) "COMPRENSION DE LOS AGN EN LAS GALAXIAS: DESDE LAS BAJAS A LAS ALTAS TASAS DE ACRECION". 2023-2026. 247.500€. Also PI of the coordinated project, 2 nodes (IAA, Univ. Barcelona).

- PID2019-106027GB-C41 (MICINN) "Understanding Nuclear Activity in Galaxies; from low to high accretion rates". 2020-2023. 157.300€. Also PI of the coordinated project, 4 nodes (IAA, IAC, Univ. Barcelona, OAN), total budget 377.520€.

-AYA2016-76682-C3-1-P (MINECO) "AGN, from the local universe to cosmological distances, from the central engine to the host galaxy and its environment". 2016-2021. 97.750€. Also PI of the coordinated project, 3 nodes (IAA, IAC, Univ. Barcelona), total budget 294.000€.

- **Proyecto de Excelencia de la Junta de Andalucía,** P08-TIC-03531. 2009-2013. 327.933€.

C.5. Knowledge transfer to society: outreach and communication (selection)

- **SOC** of the CSIC series of conferences "Ciencia básica para un futuro sostenible", 2022-23
- Interdisciplinary outreach project **"Hola Tierra"**, 2021. Presentation of the **book** "Hello Earth" at the **Book Fair**, Granada. **Round table** at the **concert** in Calar Alto Observatory. Presentation of the documentary **"Hola Tierra, el poeta que nos orbita"**, at the **Instituto Cervantes** and the **Poético Festival**, Madrid.
- Exhibition **"Perspectivas"** at Central CSIC Headquarters, Madrid 2021.
- Teacher in the **U. Almería Summer Schools** 2018, 2019 and 2022
- Conferences in the "***Museo de Las Ciencias***" (Valencia), **Caixa Forum** (Sevilla); "**Pint of Science**" and "***Desgranando Ciencia***" (Granada) (2018-19), and in "***Jornadas de la Sociedad Científica Aranzadi***", San Sebastián (2019).
- Lecturer at the **"Tent of Science", Book Fair**, Granada 2017, 2018, 2021
- **Invited conference for the 25th Anniversary of the SEA**, Granada (2017)

C.6. Gender equality in Research (selection)

- Publication of **"A sociological study of gender and astronomy in Spain"** by Pérez-Sedeño, E., Kiczkowski, A. and Márquez, I., in **Nature Astronomy** 2, 628-633 (2018)

- **First Chair** of the Committee **"Women in Astronomy"** of the Spanish Astronomical Society (SEA), 2008-2015

- SOC Member for the **EWASS Special Sessions "Equity and Diversity"** in Leiden, The Netherlands (2020), Lyon, France (2019) and Liverpool, UK (2018). **Invited talk** for the **EWASS Luncheon "Equity and Diversity"**, Prague (2017)

- **Invited talk and round Table** in "Ciencia y Género", Valencia (2019)

- Member of the **CSIC Advisory Commitee for "Women in Science"**, 2016-2020

- Member of the Specialised Group **"Women in Physics"** of the Spanish Royal Society of Physics (RSEF), 2010-2018

- Member of the Working Group for the FECYT project **"AstronomAs"** (2021) (www.astronomas.org)

- **Round table** "**Women of Excellence; meeting with Severo Ochoa project directors**", 2021, with María Blasco, Teresa Moreno, Isabel Márquez (https://youtu.be/vhpSwQbLUZA)

- **Round table "Igualdad y sociedades científicas"**, 2023 , with Ana López, Erika Diz, Alicia García, Marina Rodríguez, Isabel Márquez **(chair)** (https://www.youtube.com/watch?v=WB32IqAZMxA)

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CURRICULUM VITAE ABREVIADO (CVA)

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

Part A. PERSONAL INFORMATION

First name	Giuseppina		
Family name	Battaglia		
Gender (*)	Female	Birth date (dd/mm/yyyy)	[redacted]
Social Security, Passport, ID number	[redacted]		
e-mail	[redacted]	URL Web	
Open Researcher and Contributor ID (ORCID) (*)		0000-0002-6551-4294	

(*) Mandatory

A.1. Current position

Position	Cientifica Titular de OPIs		
Initial date	15/07/2020		
Institution	Instituto de Astrofísica de Canarias		
Department/Center	Research area		
Country	Spain	Teleph. number	[redacted]
Key words	Astrophysics, Local Group, Resolved stellar populations, dwarf galaxies, galaxy evolution		

A.2. Previous positions (research activity interuptions, indicate total months)

Period	Position/Institution/Country/Interruption cause
15/05/2014 - 14/07/2020	Ramón y Cajal Fellowship/Instituto de Astrofísica de Canarias (IAC)/Spain
01/12/2013 - 28/02/2014	Postdoctoral research grant/INAF – Astronomical Observatory of Bologna/Italy.
01/10/2011 - 30/09/2013	Marie Skłodowska-Curie Intra-European Postdoctoral Research Fellowship/INAF – Astronomical Observatory of Bologna/Italy.
01/05/2011 - 30/06/2011	Unpaid Associate within the European – Extremely Large Telescope Science Office/European Southern Observatory/ Germany.
01/11/2007 - 30/04/2011	ESO Postdoctoral Fellowship/European Southern Observatory/Germany (16 weeks maternity leave)

A.3. Education

PhD, Licensed, Graduate	University/Country	Year
PhD	University of Groningen / The Netherlands	2007
Master	University of Bologna / Italy	2003

(Include all the necessary rows)

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

I received my PhD in 2007, at the University of Groningen (NL), being the first woman and foreign to obtain the doctorate ¨cum laude" at the Kapteyn Astronomical Institute, a recognition assigned to the top 10% PhD theses. I was then awarded three prestigious and highly competitive post-doctoral fellowships, which have given me the freedom to lead an independent research program: an ESO fellowship (ESO, Germany), a Marie Curie Intra European fellowship (INAF - Astronomical Observatory of Bologna, Italy) and a Ramón y Cajal fellowship (Instituto de Astrofísica de Canarias,

Spain; hereafter, IAC). **Since July 2020, I am Científica Titular de OPIs at the IAC. I have 3 recognized *sexenios de investigación*, and received the I3 certification from Agencia Estatal de Investigación.**

My main scientific interest is to use resolved stellar populations to shed light on the processes that drive galaxy evolution and to gain insights in the properties of dark matter.

I mainly focused on (Local Group) dwarf galaxies because of their intrinsic interest as the most numerous galaxy population and as test-beds for dark matter (DM) theories of galaxy formation. In my studies I have made ample use of ESO facilities (over 800h of acquired data). My research has led to major step forwards in our observational understanding of Local Group dwarf galaxies, as well as in the way their DM content is determined. ***This has resulted in high-impact publications (93 refereed articles, with 6340 citations, h-index=42; 7 and 20 articles >200 and 100 citations, respectively), including two invited review articles led by me (one of which on Nature Astronomy). The recognition of my work at an international level can also be gathered by invited talks at international conferences and workshops (e.g. I delivered 7 invited review talks and 8 invited talks, farther to other talks in invitation-only workshops).***

For a few years I have been expanding my expertise to the study of the properties and build-up of the Milky Way stellar halo. In particular, I am coordinating a core group of about 20 people as **co-lead of the WHT/WEAVE Galactic Archaeology (GA) low resolution sub-survey of the halo and thick disc**, including satellite galaxies and streams. ***My strong contributions to the WEAVE project were recognized by granting me Builder Status for the WEAVE Galactic Archaeology survey and recently I have become Deputy Science Team Lead of the whole WEAVE GA survey (150+ people).*** I am co-I of two approved 4MOST community surveys (4DWARFS: 523000 fiber hours; 4GRoundS: 144900 fiber hours), and as such part of the 4MOST science team.

On a longer timescale, my goal is to carry out spectroscopy of resolved stellar populations with the European Extremely Large Telescopes (E-ELT) to investigate how the properties and histories of galaxies in our "template environment", the Local Group, compare to those in other environments. I have been involved in studying such prospects for 15 years, since I was part of the E-ELT Science Office, thanks to which I became an **active science team member of E-ELT/HARMONI.**

I have a proven track record of securing data from very competitive observing facilities worldwide (~200h awarded at the Very Large Telescope as PI) and of securing funding (~960k€ as PI). I have also experience in the official supervision of BSc, MSc, PhD students and postdocs (for example, 3 PhD students as supervisor, 2 as co-supervisor; 4 Msc students as supervisor, 3 as co-supervisor). I strive to communicate to the early-career researchers that work with me a strong work ethic and to make sure that their work is successfully published.

I have performed a variety of professional activities related to scientific assessment, management and implementation of quality systems, organized several scientific meetings and divulged the results of my work to the public through press releases. Here I highlight: **hiring committee of PhD students and postdoctoral fellows at ESO** and several other selection processes since I work at the IAC; **telescope time allocation committee for ESO and Spanish CAT** proposals; **GTC User committee**; thesis committee for 6 PhD students; Guest Editor of a special issue on the journal Universe; **SOC** for 5 international meetings, 2 WEAVE GA meetings and co-organizer of one PhD school.

I also highlight that I am part of the **IAC Severo Ochoa committee,** first as co-representative for the research line "Stars and ISM" (2017-2020) **and currently for the "Milky Way and Local Group" line, which I contributed to create (from mid 2020).** Among the duties are to advise on the use of the Severo Ochoa funding and to act as a link between the committee and the scientists belonging to the research line. Going beyond the duties, I have been fostering scientific discussion among the members of the research line by promoting the organization of regular meetings.

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

C.1. Publications *(see instructions)*

In all the publications below, the corresponding author is the first author.

1. **Battaglia, G.,** & Nipoti, C. 2022 Stellar dynamics and dark matter in Local Group dwarf galaxies NatAs 6: 659-672. Citations: 25. 1 / 2
2. Thomas, G. F., & **Battaglia, G.** 2022 The Cetus-Palca stream: A disrupted small dwarf galaxy. A prequel to the science possible with WEAVE with precise spectro-photometric distances A&A 660: A29. Citations: 8. 2/2
3. **Battaglia, G.**, Taibi, S., Thomas, G. F., & Fritz, T. K. 2022 Gaia early DR3 systemic motions of Local Group dwarf galaxies and orbital properties with a massive Large Magellanic Cloud A&A 657: A54. Citations: 82. 1 / 4
4. Taibi, S., **Battaglia, G.**, Rejkuba, M., Leaman, R., Kacharov, N., Iorio, G., Jablonka, P., & Zoccali, M. 2020 The Tucana dwarf spheroidal galaxy: not such a massive failure after all A&A 635: A152. Citations: 26. 2/8
5. Fritz, T. K., **Battaglia, G.**, Pawlowski, M. S., Kallivayalil, N., van der Marel, R., Sohn, S. T., Brook, C., & Besla, G. 2018 Gaia DR2 proper motions of dwarf galaxies within 420 kpc. Orbits, Milky Way mass, tidal influences, planar alignments, and group infall A&A 619: A103. Citations: 235. 2/8
6. Kacharov, N., **Battaglia, G.**, Rejkuba, M., et al. 2017 Prolate rotation and metallicity gradient in the transforming dwarf galaxy Phoenix MNRAS 466: 2006-2023. Citations: 52. 2/10
7. **Battaglia, G.**, Helmi, A., & Breddels, M. 2013 Internal kinematics and dynamical models of dwarf spheroidal galaxies around the Milky Way NewAR 57: 52-79. Citations: 98. 1 / 3
8. **Battaglia, G.**, Helmi, A., Tolstoy, E., Irwin, M., Hill, V., & Jablonka, P. 2008 The Kinematic Status and Mass Content of the Sculptor Dwarf Spheroidal Galaxy ApJL 681: L13. Citations: 294. 1 / 6
9. **Battaglia, G.**, Tolstoy, E., Helmi, A., et al. 2006 The DART imaging and CaT survey of the Fornax dwarf spheroidal galaxy A&A 459: 423-440. Citations: 280. 1/16
10. **Battaglia, G.**, Helmi, A., Morrison, H., et al. 2005 The radial velocity dispersion profile of the Galactic halo: constraining the density profile of the dark halo of the Milky Way MNRAS 364: 433-442. Citations: 279. 1/9

C.2. Congress, indicating the modality of their participation (invited conference, oral presentation, poster)

<u>Invited reviews</u> at international conferences:

1. IAU Symposium 379 "Dynamical Masses of Local Group Galaxies", Potsdam, Germany. 20-24/03/2023. Title: *The internal kinematics and dynamical masses of Local Group dwarf galaxies*
2. EAS 2020 (EWASS) symposium S11 "The Local Group in Context: Galaxies in the Local Volume as a Testbed of Cosmology", Jul 2-3, 2020, Leiden (NL) - held remotely due to covid-19. Title: "*Observational developments in our understanding of the Local Group properties, enabled by the study of dwarf galaxies*", Jul 2
3. EWASS 2019 special session "Stellar populations in the era of ELTs: advances over the next decade and beyond", Jun 28, 2019, Lyon, France. Title: "*Stellar populations in the scientific landscape of the ELTs*", Jun 28
4. IAU Symposium 334 "Rediscovering our Galaxy", 10-14 Jul 2017, Potsdam, Germany. Title: *"Galactic Archaeology with WEAVE"*, Jul 14.
5. IAU General Assembly, Symposium 317 "The General Assembly of Galaxy halos: Structure, Origin and Evolution", 3-7 Aug 2015, Hawaii, USA. Title: *"Stellar kinematics and dark matter in dwarf galaxies",* Aug 5.
6. ESO workshop "Resolved and Unresolved stellar populations" , 13-17 Oct 2014, Garching bei Muenchen, Germany. Title: *"The internal kinematics of Local Group dwarf galaxies transformations via environmental effects",* Oct 14.
7. Conference "Metal Production and Distribution in a Hierarchical Universe", Paris, France, 21-25 Oct 2013. Title: *"Stellar Populations gradients and metallicity properties of Local Group dwarf galaxies",* Oct 24.

Some other recent invited talks at international conferences (I have given a total of 7 invited talks and participated as speaker in 5 invitation-only international meetings):

1. *RRLyr and Cepheid stars* conference: ¨Large-scale surveys as bridges between spectroscopy and photometry¨, 26-30 Sep 2022, La Palma, Spain. Title: *The WEAVE Galactic Archaeology surveys*
2. Workshop "Fiat Lux: lightening dark matter halos with galaxies" (in honor of Prof. Julio Navarro), held in Castel Gandolfo, Italy, 19-23 June 2023. Title: *The properties of satellite galaxies in the context of their orbits around the Milky Way*
3. EWASS 2019, one-day session "Metal-poor stars in surveys", 27 Jun 2019, Lyon, France. Title: "*Metal-poor stars and the WHT/WEAVE Galactic Archaeology surveys"*

C.3. Research projects, indicating your personal contribution. In the case of young researchers, indicate lines of research for which they have been responsible.

1. **PID2020-118778GB-I0;** Title: "At the FOrefront of Galactic Archaeology: evolution of the luminous and dark matter components of the Milky Way and Local Group dwarf galaxies in the Gaia ERA (FOGALERA)."; financing entity: Ministerio de Ciencia e Innovación; 1/9/2021-31/08/2024. **PIs**: **G. Battaglia** (IAC) and C. Gallart (IAC). Funding (eur): 192.995,0; status: awarded.

2. **AYA2017-89076-P;** Title: "Las múltiples dimensiones del grupo Local: evolución galáctica a partir de estructuras, quimica, dinámica e historias de formación estelar "; financing entity: MINECO; 1/1/2018-31/12/2021 (originally 3yrs + 1 yr extension). **PIs**: **G. Battaglia** (IAC) and C. Gallart (IAC). Funding (eur): 143.990; status: awarded.

3. **AYA2014-56795-P;** Title: "Las múltiples dimensiones del grupo Local: evolución galáctica a partir de estructuras, quimica, dinámica e historias de formación estelar "; financing entity: MINECO; 1/1/2015-31/12/2018 (originally 3yrs + 1 yr extension). **PIs**: **G. Battaglia** (IAC) and C. Gallart (IAC). Funding (eur): 135.540; status: awarded.

4. **RYC-2012-11537;** Ramon y Cajal fellowship, Title: "Baryons and dark matter on the smallest galactic scales "; financing entity: MINECO; **PI: G. Battaglia** (IAC); 15/05/2014-14/05/2019. Funding (eur): 308.600; status: awarded.

5. **PIEF-GA-2010-274151;** Marie Curie Intra European Fellowship; project "Exploring evolutionary links between dwarf galaxy types using distant Local Group late-type dwarfs"; financing entity: European Union Seventh Framework Program (FP7/2007-2013); **PI: G. Battaglia** (INAF – Astronomical Observatory of Bologna, Italy); 01/10/2011-30/09/2013. Funding (eur): 187.000; status: awarded.

6. Member of three International Space Science Institute (ISSI) International teams (Bern, Switzerland): "*The formation and evolution of the Galactic Halo*" (PI: D. Romano) - 2016-2017; "*The evolution of the first stars in dwarf galaxies*" (PI: P. Jablonka) – 2012-2014; "*Defining the life-cycle of Dwarf galaxy evolution: the Local Universe as template*" (PI: E. Tolstoy), 2009-2011. These were teams of ~10 members, which were awarded - through public competition based on evaluation of a research proposal and team composition - the use of ISSI facilities for multiple meetings, as well as funding towards covering the accommodation and meals expenses. Invited external member of the ISSI team "The Early Milky Way" (PI: Starkenburg) -2022; no funding associated with my participation.

7. Member of the Spanish network for Gaia science exploitation ("Red Española de Explotación Científica de Gaia", REG), supported by the MINECO under the contract *Acciones de dinamización*, Redes de Excelencia (2016-2017). This proposal was successfully renewed twice (RED2018-102672-T, 15000eur; 01/01/2020-31/12/2021, extended till 31/12/2022, where I was in charge of the WP on "Milky Way satellites" (https://gaia.ub.edu/twiki/do/view/RecGaia/GruposdeTrabajo; RED2022-134612-T, 20.600€ , 1/1/2023 a 31/12/2024)

MINISTERIO DE CIENCIA E INNOVACIÓN

Cofinanciado por la Unión Europea

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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	15/02/2024

First name	Olga		
Family name	Muñoz		
Gender (*)	Female	Birth date (dd/mm/yyyy)	[redacted]
Social Security, Passport, ID number	[redacted]		
e-mail	[redacted]	URL Web www.iaa.es/scattering	
Open Researcher and Contributor ID (ORCID) (*)		**0000-0002-5138-3932**	

(*) Mandatory

A.1. Current position

Position	Investigadora Científica OPI		
Initial date	26/06/2007		
Institution	Agencia Estatal Consejo Superior de Investigacions Científicas		
Department/Center	Instituto de Astrofísica de Andalucía		
Country	Spain	Teleph. number	[redacted]
Key words	Solar System, comets, dust, aerosols		

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

Period	Position/Institution/Country/Interruption cause
01/02/2018- 30/06/2018	Visiting Research Fellow at Univ. College, Dublin
01/06/2007- 25/05/2023	Científica Titular IAA-CSIC
01/12/2003-30/06/2007	Ramón y Cajal @IAA-CSIC
01/04/2000-31/12/2003	Postdoc @IAA-CSIC
01/10/1997- 30/03/2000	ESA external postdoc Fellowship @Dep. Physics & Astronomy, Fre Univ. Amsterdam

A.3. Education

PhD, Licensed, Graduate	University/Country	Year
PhD Physics	University of Granada	1997
Licensed Physics	University of Granada	1994

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

Senior research Scientist at the Instituto de Astrofísica de Andalucía (IAA), CSIC since 2007. Received her PhD in physics in 1997 with title “Vertical distribution of clouds in different peculiar regions of Jupiter atmosphere”. After graduation at the University of Granada, she was granted with an ESA external fellowship as postdoc fellow in the group of Prof. J.W. Hovenier at the Vrije Universiteit (VU), Amsterdam. During her postdoc she was involved in the calibration and first measurements with aerosol particles at the VU light scattering apparatus. Those first measurements provided a unique benchmark for testing the validity of the used numerical techniques to study the impact of aerosol clouds on the radiative balance

of the Earth atmosphere. Those studies are compiled in three papers with a significant impact in the aerosol community **[Volten, Muñoz et al. JGR, 2000 (cites=361); Mishchenko et al. JQSRT, 2003 (cites=104); and Dubovik et al. JGR, 2006 (cites: 1166)].** After her postdoc in Amsterdam she is granted with a "*Contrato de Incorporación de Doctores y Tecnólogos"* (3 years) and subsequently with a "***Ramón y Cajal***" *contract* at the Instituto de Astrofísica de Andalucía where she became permanent staff in June 2007. Specialized in radiative transfer in planetary/cometary atmospheres and light scattering by small dust particles. In particular, she has specialized in the experimental and theoretical study of the scattering behavior of cosmic dust particles. After her stay in Amsterdam, she was responsible for the design and development of the **IAA-COsmic DUst LABoratory (IAA-CODULAB**), a scattering apparatus entirely built at the IAA that constitutes a world-wide reference in the field. The IAA Cosmic Dust Laboratory is devoted to experimentally studying the angle dependence of the scattering matrices of dust samples of astrophysical interest. Its main interest is focused on mineral dust particles that are potential candidates for being present in the planetary and cometary atmospheres of the Solar System. After the closing of the Dutch scattering apparatus, she developed the Granada-Amsterdam Light Scattering Database that presents in digital form the experimental data produced in Amsterdam and Granada. The data from the database are used in regular basis by research groups world-wide.

She is **Science Team Associate of the F (Fast)-class ESA Comet Interceptor Mission** estimated for launch in 2029 and **col** of the **EnVisS** (entire Visible Sky coma mapper) instrument that will provide wide field photopolarimetric images of the target cometary coma. She is member of the **Facility Science team of the ESA IPE** (ICAPS Precursor Experiment) to study the Interactions in Cosmic and Atmospheric Particle System under microgravity: ICAPS. The IPE collaboration includes and international Facility Science Team composed of leading scientists from France, Germany, Belgium, Canada and Spain (led by O. Muñoz). She is deeply involved in the design of the Light Scattering Unit (LSU). She participated in the **C-CLEAN** project (**Convocatoria de Emergencia COVID-19** del Instituto de Salud Carlos III) devoted to the dectection of SARS-CoV-2 by optical techniques. She leaded the WP concerning photo-polarimetrc technique (Gómez-González, Muñoz, et al JQSRT, 302, 2023).

During the period June 2013-June 2017, she was **Vice-Director of Technology at the Instituto de Astrofísica de Andalucía**. She has been member of the 2015 Ramón y Cajal, and 2016 Juan de la Cierva Formación and Incorporación evaluation committees. She is usual member of proposals evaluation panels (MINECO, AEI, ERC) and reviewer of SCR Journals (JQSRT, MNRAS, A&A, ApJ, Icarus). She is **JQSRT** (Elsevier) Associate Editor since November 2020.

She has received funding from the Spanish Ministry of science and Technology (Ministerio de Ciencia y Tecnología); Spanish Research Agency (Agencia Estatal de Investigación); Junta de Andalucía; and European research Council via H2020-Space and COST programs. Principal Investigator in four projects. She leads the Spanish participation in RoadMap funded by EU H2020-LEIT-SPACE/0753. **She has managed as PI 1.1M€.**

She has been advisor of three PhD thesis: Daniel Guirado; Dominika D Dabrowska; and Jesús Escobar-Cerezo. She has been tutor of the 3 months master internship of Chris Palmer (TU Delft); PhD research visit (2 months) of Elisa Frattin (Univ. Padova) and PhD mentor of Zuri Gray (Armagh Observatory). Zuri´s PhD advisors: Geraint Jones (Science team leader of CI) and Stefano Bagnulo (CATS work team).

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

C.1. Publications *(see instructions)*

C.1.1. Ten selected publications last 5 years:

- Jones et al. (including **Muñoz**), **2024**. *The Comet Interceptor Mission.* Space Science Reviews, 220(1).

- Gray et al. (including **Muñoz**), **2024**. *Polarimetry of Didymos-Dimorophos: Unexpected long-term effects of the DART impact.* Planetary Science Journal, 5 (1).
- Gómez-Martín**, Muñoz**, et al., **2023**. *Experimental phase function and degree of linear polarization of light scattered by hydrogenated amorphous carbon circumstellar dust analogs.* ApJSS, 270(1), 2.
- Martikainen, **Muño**z, et al., **2023.** Optical constants of Martian dust analogs at UV-Visible-Near infrared wavelengths. ApJSS, 268(2), 47.
- Lin, et al. (including **Muñoz**), **2023**. (Sub)millimetre dust polarization of protoplanetary discs from scattering by large mm-sized irregular grains. MNRAS, 520(1), 1210-1223.
- Huang et al. (including **Muñoz**), **2023**. Single-scattering properties of ellipsoidal dust aerosols constrained by measured dust shape distributions. Atmospheric chemistry and Physics, 23(4), 2557.
- *Frattin**, Martikainen, Muñoz** et al., **2022.** Experimental phase function and degree of linear polarization of olivine and spinel and the origin of the Barbarian asteroids.* MNRAS, 517(4), 5463.
- *Gómez Martín, JC, Guirado, D., Zubko E. et al. (**including O. Muñoz as group leader**). **2020**. Computational study of the sensitivity of laser light scattering particles sizing to refractive index. JQSRT, Vol 256 (1).*
- ***Muñoz, O.,** Moreno, F., Gómez-Martín, J.C., et al. **2020.** Experimental phase function and degree of linear polarization curves of millimeter-sized cosmic dust analogs. Astrophysical Journal Supplement Series, Vol 247 (1), id. 19.*
- Zubko, N., **Muñoz, O.,** Zubko, E. et al. 2019. *Light scattering from volcanic-sand particles in deposited and aerosol form. Atmospheric Environment, 215, id. 116813.*
- Frattin E., **Muñoz O**., Moreno, F. 2019. Experimental phase function and degree of linear polarization of cometary dust analogues. MNRAS. Vol 484, Issue 2, 2198-2211.

C.1.2 Books chapters (last 10 years)

C1.2.1 *Guirado, D. **Muñoz O.**, 2022. Particle Characterization with laboratory nephelometers in: Light, Plasmonics and Particles. Elsevier,* ISBN 978-032399901-4, 978-032398534-5

***C1.2.2** Escobar-Cerezo, J**., Muñoz O**., Moreno F. 2018. Light Scattered by cosmic dust at visible wavelengths. En: Laboratory Astrophysics, Springer, ISBN 978-3-319-90019-3.*

***C1.2.3 Muñoz, O., Hovenier, J.W**. 2015. Experimental scattering matrices of clouds of randomly oriented particles. In: Polarimetry of Stars and Planetary Systems, Cambridge University Press; ISBN: 9781107043909; 2015.*

C.2. Congress

Invited talks/workshops by invitation por invitación (Last 10 years)

C.2.1.- **Characterizing cosmic dust particles from polarimetry.** From prestellar cores to solar Nebulae II (May 17-28, 2021) (Online, **workshop por invitación).**

C.2.2,- ***Polarization as a tool for characterizing cosmic dust particles.*** Polarization as a tool for characterizing cosmic dust particles. Building Blocks of Planets 14-17 April 2020 (Online, **workshop por invitación**).

C.2.3. ***Light Scattering Experiments at visible wavelengths*****.** 18th Conference on Electromagnetic & Light scattering conference, Zhejiang University, Hangzhou, China, 10-14 Junio 2019. **Invited.**

C.2.4.- Spectro-polarimetry as tool for characterizing small dust grains. European Planetary Science Conference, Riga, Letonia, 17-22 Septiembre, 2017. **Key noteSpeaker.**

C.2.5.- Laboratory studies of scattering polarization by macroscopic particles. Polarization in the Sun, Solar System and Beyond, Granada, Spain, 25-28 May 2015. **Invited Review.**

***C.2.6.*- Laboratory experiments for light scattering by small particles.** Asteroids Comets and Meteors (ACM) Helsinki, Finland, June 30th-July 4th 2014**. Invited.**

C.2.7.- **Light Scattering measurements of cosmic dust analogues.** *Light Scattering Measurements of cosmic dust analogs.* Astronomical Polarimetry, Grenoble, France 26-30 May, 2014**. Invited.**

C.2.8.- Characterization of mineral dust samples from measurements of scattering matrix elements. Optical Characterization of atmospheric Aerosols, Smolenice, Austria, 2013. **Invited.**

C.2.9- Characterization of small dust particles in the Solar System through polarization: Laboratory measurements. European Geosciences Union (EGU), Viena, Austria, 2013. **Solicited.**

C.2.10- *Experimental scattering matrices by ensembles of small particles.* 1 st WG meeting MP1104 COST Action, Warsow, Poland, 2012. **Invited.**

C.3. Research projects (last 5 years)

D.3.1 Title: Cometary and Asteroidal dusT Science (CATs).
Reference: PID2021-123370OB-I00
Role: IP
Founding Agency: AEI
Budget: 321.739 euros.
Periodo Ejecución: 01/09/2022-31/08/2025

D.2.1 Title: Role and impact of dust and clouds in the Martian atmosphere: from lab to space (RoadMap).
Reference: H2020-LEIT-SPACE/0753
Role: Lidero la participación española en el proyecto (CSIC-IAA y CSIC-ICV). El consorcio está liderado por BIRA-IASB (Belgium) y lo integra, aparte del CSIC, la Universidad de Duisburgh-Essen (Alemania) y la Universidad de Aarhus (Dinamarca).
Founding Agency: Union Europea, Programa H2020 Space.
Budget (IAA): 231 563.25 euros
Periodo Ejecución: 01/11/2020-31/10/2023

D.2.2. Title: Propiedades físicas del polvo cometario y aplicaciones biomédicas.
Reference: P18-RT-1854
Role: co-IP
Funding Agency: Junta de Andalucía.
Budget: 119 800.00 euros
Periodo Ejecución: 01/01/2020-31/12/2022

D.2.3. Título: Experimentos de laboratorio, observaciones y modelos de polvo cometario: una nueva estrategia (LEONIDAS),
Referencia: RTI2018-095330-B-100
Role: IP
Entidad financiadora: Agencia Estatal de Investigación.
Financiación recibida: 121 000.00 euros.
Periodo ejecución: 01/01/2019-30/09/2022

D.2.4 Title: Afrontando los inminentes retos Tecnológicos del IAA.
Reference CSIC13-1E-1573
Role: IP.
Funding Agency: MINECO (SUBPROGRAMA ESTATAL DE INFRESTRUCTURAS CIENTÍFICAS Y EQUIPAMIENTO)
Budget: 265.142,52 euros

CURRICULUM VITAE (maximum 4 pages)

Part A. PERSONAL INFORMATION **CV date** 30/6/2024

First and Family name	Antonio Alberdi Odriozola
Social Security, Passport, ID number	[redacted] Age [redacted]
Researcher numbers	Researcher ID H-6432-2015 Orcid code 0000-0002-9371-1033

A.1. Current position

Name of University/Institution	Instituto de Astrofísica de Andalucía (IAA), Consejo Superior de Investigaciones Científicas (CSIC)
Department	Radioastronomía y Estructura Galáctica
Address and Country	Glorieta de la Astronomía s/n, 18008-Granada, Spain
Phone number	[redacted] E-mail [redacted]
Current position	Profesor de Investigación CSIC From 27/03/2010
Espec. cód. UNESCO	2105
Palabras clave	Radioastronomía, Interferometría, VLBI, AGN, Relativistic Jets, Black Holes, Radio Supernovae, Massive Stars

A.2. Previous positions (research activity interuptions, indicate total months)

Period	Position/Institution/Country/Interruption cause
2003-26/03/2010	Investigador Científico

A.3. Education

PhD	University of Granada (Spain)	1991

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

My main area of research is the study of (1) the parsec-scale relativistic jets in Active Galactic Nuclei and (2) radio supernovae and supernova factories in starburst galaxies, using high angular resolution and high sensitivity interferometric observations. Radio interferometers provide unique information because of their sharp angular resolution and their ability to observe phenomena or objects that are not detectable at other wavelengths. I am a recognised expert in multi-frequency, polarimetric VLBI observations of the relativistic jets. These images provide unsurpassed high angular resolution images from which we can obtain unique information about the physics of the jets: jet formation and collimation, the regions of particle acceleration, the presence of shocks and/or instabilities along the jets, and the magnetic field structure, among others. I am also a recognised expert in the study of the time evolution and expansion of young radio supernovae using VLBI techniques, as well as the study of supernova factories and the AGN-starburst connection in starburst galaxies. Major achievements to date include the discovery of the shell structure in SN 1993J and the detection of a wavelength-dependent expansion due to the evolution of the inner opacity; the detection of very faint supernovae in distant LIRGs at radio and near-infrared wavelengths; and the monitoring of LIRG galaxies; the monitoring of the LIRG galaxy Arp 299 and the discovery of a "radio" supernova factory in its central 200 pc, as well as a starburst-driven outflow in the A nucleus; the study of the interaction between a fixed and a moving component in the parsec-scale relativistic jet of 4C 39. 25; and the detection of precession in the relativistic jet of M81*.

We have also been actively using near-infrared interferometric techniques (with the AMBER and GRAVITY instruments in the VLTI) to study different aspects of the physics of massive stars: multiplicity, formation, interaction of the winds with the ISM. We have created the first research group in Spanish astronomy to routinely use NIR interferometry for our scientific objectives. The combination of high angular resolution and high sensitivity radio and NIR techniques can be extremely productive in the coming years.

I am heavily involved in the preparatory science for the Square Kilometre Array ESFRI through observations with its precursors. I am a member of the "Radio Continuum" and "Our Galaxy" working groups. Within these groups I contribute to the definition of the SKA Key Science Projects (KSP). I am a member of the Science and Engineering Advisory Committee (SEAC), an important independent advisory body to the SKAO Council and the SKAO Director General. SEAC members are highly respected specialists in topics relevant to the SKAO.

In the last years, I want to emphasixe my participation in the scientific collaboration EHT (Event Horizon Telescope), a telescope designed to obtain the first images of the event horizon of the black holes at the heart of M87 and the Milky Way (SgrA*). Observing the long-term stability of the ring-like structures of M87* and SgrA* will allow the study of possible deviations from the Kerr metric, as well as the accretion physics of the black hole. Members of the EHT group at IAA-CSIC lead the EHT imaging, gain calibration and scattering working groups and play a reference role in the collaboration. The EHT collaboration will obtain the first full-intensity and polarised emission movies of SgrA* for constraining black hole accretion models

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

According to the ADS (the SAO/NASA Astrophysics Data System (ADS) is a Digital Library portal for researchers in Astronomy and Physics), I have 197 refereed publications, a total of 343 bibliographic entries, with a total number of 16436 *citations* and an h factor *h=53*, with essentially all my publications included in the Q1. I have 6 *sexenios,* the last one corresponding to the period 2018-2023. In the last 10 years, I have supervised 5 PhD-Thesis:

- *Rubén Herrero-Illana*: "A multiwavelength and multiscale study of Luminous and Ultraluminous Infrared Galaxies in the Local Universe"; Supervisors: M.A. Pérez-Torres/ A. Alberdi; Univ. Granada; 31 octubre 2014;
- *Joel Sánchez-Bermúdez:* "Study of the Dynamical and Morphological Properties of Massive Stars with High Angular Resolution Techniques"; Supervisors: A. Alberdi/R. Schödel; Univ. Granada; 15 junio 2015.
- *Francisco Nogueras-Lara***:** "The structure and stellar population of the Nuclear Bulge of the Milky Way"; Supervisors: A. Alberdi/R. Schödel; Univ. Granada; 23 September 2019.
- *Naím Ramírez-Olivencia***:** "High Angular Resolution Radio Observations of Luminous Infrared Galaxies; Supervisors: A. Alberdi/M.A. Pérez-torres; Univ. Granada; 5 July 2021.
- Miguel Cano: "A radio continuum study of the massive star clusters at the Galactic Center";Supervisors: A. Alberdi/R. Schödel; Univ. Granada; 2025

In the last 5 years I have given more than 10 seminar talks/invited colloquium at international research institutes. I have also been invited speaker at several international conferences.

C.1. Publications (last 10 years; including books)

1.- "***First Sagittarius A* Event Horizon Telescope Results. I. The Shadow of the Supermassive Black Hole in the Center of the Milky Way"***
Event Horizon Telescope Collaboration; Akiyama, K.,**Alberdi, A**.; …; Astrophysical Journal 930, L12 (2022); Citations: 787
This paper shows the image of SgrA*, the black hole at the center of our Galaxy. It consists of a compact emission region dominated by a bright, thick ring consistent with the expected appearance of a Kerr black hole with a mass of 4 million solar masses.This is a series of 6 papers showing the first image ever of the Black Hole at the Galactic Center, SgrA*.
2.- ***"First M87 Event Horizon Telescope Results. VII. Polarization of the Ring"***
Event Horizon Telescope Collaboration; Akiyama, K.,Algaba, J.C, **Alberdi, A.**; …; Astrophysical Journal 910, L12 (2021); Citations: 282
This paper presents the linear-polarimetric EHT images of the center of M87. We find that only a part of the ring is significantly polarized. These polarimetric images carry information

about the structure of the magnetic fields responsible for the synchrotron emission. Their physical interpretation is discussed in an accompanying publication.

3.- "***A First M87 Event Horizon Telescope Results. I. The Shadow of the Supermassive Black Hole"***

Event Horizon Telescope Collaboration; Akiyama, K.; **Alberdi, A**.; Alef, W.; …; Astrophysical Journal 875, L1 (2019); Citations: 2824

This paper shows the first image ever of the shadow of a Black Hole, the supermassive black hole in the center of the giant elliptical galaxy M87. This is a series of 6 papers showing, with two additional in polarization.

4.- ***"A VLBI study of the wind-wind collision region in the massive multiple HD 167971"***

Sánchez-Bermúdez, J.; **Alberdi, A.**; Schoedel, A.; …; Pérez-Torres, M.A. (2/10)

Astronomy & Astrophysics, Volume 624, id.A55 (2019); Citations: 9

This paper shows that the non-thermal radio emission of the system HD167971 is consistent with the Wind Colliding Region between the Spectroscopic Binary and theTertiary. The morphology of the emission changes according to the predicted orbital motion determined with VLTI andare consistent with GAIA proper motion and parallax.

5.- "***A dust-enshrouded tidal disruption event with a resolved radio jet in a galaxy merger"***

Mattila, S.; Pérez-Torres, M.; Efstathiou, A.; … **Alberdi, A**.; … Östlin, G. (7/36)

Science 361, 482 (2018); Citations: 125

We have observed a transient source in Arp299B which we have interpreted as a TDE with much of its emission reradiated at infrared wavelengths by dust.

6.- ***"ALMA Discovery of Dust Belts around Proxima Centauri"***

Anglada, G.; Amado, P.J.; Ortiz, J.L.; ... **Alberdi, A.**; ... Rodriguez, E. (6/22)

The Astrophysical Journal Letters, 850, article id. L6 (2017); Citations: 43

This provides the first ALMA detection of Proxima Centauri at 1.3 mm and the discovery of a belt of dust orbiting around it at distances ranging between 1 and 4 au, approximately.

7.- "***Unveiling the AGN in IC 883: discovery of a parsec-scale radio jet"***

Romero-Cañizales, C.; **Alberdi, A.**; Ricci, C.; ... Ryder, S.D. (2/15)

Monthly Notices of the Royal Astronomical Society 467, p.2504-2516 (2017); Citations: 10

This is the first direct and unequivocal evidence of the AGN activity in IC 883, a luminous infrared galaxy (LIRG) classified as a starburst-active galactic nucleus (AGN) composite. Romero-Cañizales was my PhD-student.

8.- "***GRAVITY Spectro-interferometric Study of the Massive Multiple Stellar System HD 93206 A"***

Sánchez-Bermúdez, J.; **Alberdi, A.**; Barbá, R; et al. (2/12)

The Astrophysical Journal, Volume 845, Issue 1, article id. 57 (2017); Citations: 15

Characterization of the dynamics of massive star systems and the astrophysical properties of the interacting components are a prerequisite for understanding their formation and evolution. Sánchez-Bermúdez was my PhD-student.

9.- "Constraints on the Progenitor System and the Environs of SN 2014J from Deep Radio servations"

Pérez-Torres, M. A., Lundqvist, P., Beswick, R. J., … **Alberdi, A.**, …, Guirado, J. C. (8/14)

The Astrophysical Journal 792, 38 (2014); Citations: 80

This is the most stringent limit in the mass-loss rate of the progenitor of the supernova SN 2014J, constraining the progenitor system to a small number of systems.

10-"Properties of bow-shock sources at the Galactic center"

Sánchez-Bermúdez, J., Schödel, R., **Alberdi, A**., Muzic, K., Hummel, C. A., and Pott, J.-U.

Astronomy and Astrophysics 567, A21 (2014); Citations: 25

Physical characterization of the bow-shock geometry of the massive stars at the Galactic Center due to their interaction with the ISM. Sánchez-Bermúdez was my PhD-student.

C.3. Funded Research Projects and Grants

- Research Project Reference: AST2_01

Title: "***DESARROLLO DE INSTRUMENTACIÓN CIENTÍFICA AVANZADA PARA INFRAESTRUCTURAS NACIONALES/INTERNACIONALES EN ASTROFÍSICA Y FÍSICA DE ALTAS ENERGÍAS; PLANES COMPLEMENTARIOS ASTRO+FAE - ANDALUCÍA***"

Principal Investigator: ANTONIO ALBERDI; Funding Agency: Fondos Plan de Recuperación, Transformación y Resiliencia (PRTR) y Junta de Andalucía;
Relevant Period: 1/9/2024-30/09/2025; Total Budget: 7.740.322,0 Euros
- Research Project Reference: PID2020-117404GB-C21;
Title: ***DE LOS EXOPLANETAS A LOS AGUJEROS NEGROS SUPERMASIVOS: LA EXPLORACION DE LAS FRONTERAS COSMICAS A LA MAXIMA RESOLUCION ANGULAR***
Principal Investigator: MA PÉREZ-TORRES; ANTONIO ALBERDI; Funding Agency: MCI
Relevant Period: 1/9/2021-31/08/2024; Total Budget: 138.545,0 Euros
- Research Project Reference: P08-TIC-4075
Title: ***IAA4SKA. CONTRIBUTION OF THE IAA-CSIC TO THE SQUARE KILOMETRE ARRAY (SKA): OPEN SCIENCE AND ENGINEERING TO REINFORCE THE LEADERSHIP OF THE SPANISH PARTICIPATION IN THE SKA.***
Principal Investigator: LOURDES VERDES-MONTENEGRO (IP1), ANTONIO ALBERDI (IP2) (IAA-CSIC);
Funding Agency: PROYECTOS DE EXCELENCIA, JUNTA DE ANDALUCÍA (JA)
Relevant Period: 1/1/2020-31/12/2022; Total Budget: 116.142 Euros
- Research Project Reference: COST MP0905
Title: ***BLACK HOLES IN A VIOLENT UNIVERSE*** (http://www.cost.eu/COST_Actions/mpns/Actions/MP0905)
Principal Investigator: SILKE BRITZEN (MPIfR, Chair); A. Alberdi (Vice-Chair)
Funding Agency: EUROPEAN SCIENCE FOUNDATION (COMUNIDAD EUROPEA)
Relevant Period: 24/3/2010-1/6/2014; Total Budget: 421.966,36 Euros

C.4, Institutional responsibilities; Scientific Management; Community Services

16/June/2017-...: Director of the “Instituto de Astrofísica de Andalucía (IAA-CSIC)”
2018- …: Member of the “Comisión Nacional de Astronomía (CNA)”
2021- …: Member of the Scientific Board of “Red de Infraestructuras de Astronomía (RIA)”
2012 and 2018: Member of the Evaluation Committee of the ”Ramón y Cajal” Contracts
2016: Member of the Editorial Committee of the “Spanish SKA White Book”
-Referee of Astrophysical Journals of high impact (A&A, ApJ, MNRAS)
-Scientific Reviewer for FONDECIT, CONACYT, INAF-Italy, STFC-England
-Member (Chair or otherwise) of several LOC and SOC in international conferences
-Opponent in several PhD and Master Theses

C.5, Memberships of International Committees

- 2021-...: Member of the “SKAO Science & Engineering Advisory Committee (SEAC)”
- 2022: External Advisory Committee RadioNetfor the H2020 program “RadioNet”
-2018: Member of the Review Panel of the “Joint Institute for VLBI in Europe (JIVE-ERIC)”
-2017-...: Member of the EU OPTICON Project Coordination Team
-2012-2015: Member of the “European Review Radio Telescope Committee” (http://ertrc.strw.leidenuniv.nl/), sponsored by ASTRONET

C.6.Teaching Activities

- Lecturer in the Master Course “Radioastronomy and Interferometry” of the Master Program “FISyMAT” (Física y Matemáticas; http://www.ugr.es) of the University of Granada (UGR)
- Member of the “Academic Commission” of the Doctoral Program “FISyMAT” (UGR)

C.7. Outreach Activities

- Book: “Agujeros Negros”, A. Alberdi, Editorial RBA, ISBN 978-8491875901 (2017)
- Large number of Contributions to different newspapers (“El País”, “Ideal”, “Granada Hoy”), and magazines (“IAA – Información y Actualidad Astronómica”, “Astronomía”)
- Public Talks; Regular interviews in the Radio
- Participation in Science Festivals, Scientific Documentaries, TV Programs

CV date	22/07/2024

Part A. PERSONAL INFORMATION

First and Family name	Jorge Jiménez Vicente		
Social Security, Passport, ID number	[redacted]	Age	[redacted]
Researcher codes	Open Researcher and Contributor ID (ORCID**)	orcid.org/0000-0001-7798-3453	
	SCOPUS Author ID (*)	6602888713	
	WoS Researcher ID (*)	K-1209-2014	

(*) Optional
(**) Mandatory

A.1. Current position

Name of University/Institution	Universidad de Granada		
Department	Departamento de Física Teórica y del Cosmos		
Address and Country	Fac. de Ciencias. Av. Fuentenueva s/n 18071 Granada		
Phone number	[redacted]	E-mail	[redacted]
Current position	Professor	From	18/06/2023
Key words	Galaxies, Quasars, Graviattional Lensing		

A.2. Education

PhD, Licensed, Graduate	University	Year
Licenciado en Ciencias (Física)	Universidad de Granada	1992
Doctor en Física (Astrofísica)	Universidad de Granada	1998

A.3. General indicators of quality of scientific production *(see instructions)*

Bibliographic data used in this section have been extracted from the SAO/NASA Astrophysics Data System (ADS) (www.adsabs.harvard.edu):
.- Sexenios: 4 research periods (sexenios). Last one with date 01-01-2020.
.- PhD. Thesis supervised since 2010: 2 (in years 2012, 2019).
.- Publications: 99 publications. 68 publications in refereed journals. 65 publications in journals of the first quartile (Q1). http://goo.gl/5VbHZi
.- Number of citations: 2850. Average of 200 citations/year over last 5 years. 1260 citations for most cited article. Average of 41 citations in refereed articles. 45 articles with 10 or more citations (i10-index) and 2 with over 100 citations (i100 index).
.- Indices: h-index: 23. g-index: 52. tori-index: 7.5. riq-index: 97

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

With an experience of over 25 years in research in the field of astrophysics, I have participated in at least 15 research projects funded at national level, in three of which I was IP

(PID2020-118687GB-C33) or (co)IP (AYA2014-53506-P, AYA2017-84897-P). Throughout this time I have collaborated in different research projects with over 40 international researchers from different institutions and countries worldwide.

I started my research career at the Universidad de Granada during my PhD (1995-1999). Afterwards, I continued my postdoctoral research at the Kapteyn Institute of the Rijksuniversiteit Groningen (Netherlands) for a period of three years (1999-2002). I returned to Spain, to the Universidad de Granada, in year 2002 with a "Contrato de Reincorporación de doctores de la Junta de Andalucía". I was appointed as Associate Professor (tenured) in 2008. I am full Associate Professor at the Universidad de Granada since 2010. My research has had strong observational aspect, and I have been regularly allocated observing time as IP or otherwise. I have experience in working with data in most regions of the electromagnetic spectrum from radio waves to the UV. I have also great computational experience.

My research has been related to different aspects of the structure and evolution of galaxies:

- Morphology of disk galaxies. In particular, I worked in stellar disk warps and truncations. I have also published several works on the vertical structure and kinematics of galaxy disks. I also performed several woks on vertical motions of the interstellar gas in galaxies using integral field spectroscopy, including fountains and large scale galactic winds. I have (co)authored about 15 works in refereed journals in this field.

- Stellar populations in galaxies. I was one of the leaders in the team that developed the MILES stellar library. This stellar library contains specdtra of 985 stars at a resolution of 2.3 Å, constituting a big step forward mainly (but not exclusively) for the development of stellar population synthesis models. The two main papers of this project of which I am coauthor have been cited by over 1130 works.

- Interstellar Diffuse Bands. In particular, I coauthored an article reporting the first detection of theses absorption band in extragalactic objects, in the Magallanic Clouds.

- Quasar gravitational microlensing/mililensing. During the last 10 years I have actively worked in the use of gravitational microlensing in the study of the properties of quasar and lens galaxies. In this field, we have been able to obtain valuable information on the size and structure of the accretion disk and the BLR, the fraction and distribution of dark matter in lens galaxies, the stellar IMF, the possible existence of primordial black holes, etc. This research has produced 19 refereed papers in the last 5 years which I have (co)authored.

I shared my research activities with teaching duties. I have lectured at graduate and postgraduate level for over 16 years. I (co)supervised two PhD thesis (defended on years 2012 and 2019).

I worked as "Project Manager" for the participation of the Universidad de Granada in the Plank space mission of the ESA during one year in the period 2002-2003. I have made project assessment for the Plan Nacional for the ANEP on several occasions. I have regularly refereed articles for the journals The Astrophysical Journal, Astronomy and Astrophysics, Monthly Notices of the RAS y Science. I am member of the Scientific Team of instrument MEGARA on GTC.

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

C.1. Publications *(see instructions)*

1. *The Initial Mass Function of Lens Galaxies from Quasar Microlensing*
   Jiménez-Vicente, J. & Mediavilla, E., 2019, ApJ, 885, 75
2. *Systematic Redshift of the Fe III UV Lines in Quasars: Measuring Supermassive Black Hole Masses under the Gravitational Redshift Hypothesis*
   Mediavilla, E.; **Jiménez-Vicente, J.**; Fian, C.; Muñoz, J. A.; Falco, E.; Motta, V.; Guerras, E., 2018, ApJ, 862, 104
3. *Limits on the Mass and Abundance of Primordial Black Holes from Quasar Gravitational Microlensing*
   Mediavilla, E.; **Jiménez-Vicente, J**.; Muñoz, J. A.; Vives-Arias, H.; Calderón-Infante, J., 2017, ApJL, 836, L18
4. *Probing the Dark Matter Radial Profile in Lens Galaxies and the Size of X-Ray Emitting Region in Quasars with Microlensing*

Jiménez-Vicente, J.; Mediavilla, E.; Kochanek C. S.; Muñoz, J. A., 2015, ApJ, 806, 251

5. *Dark Matter Mass Fraction in Lens Galaxies: New Estimates from Microlensing*
   Jiménez-Vicente, J.; Mediavilla, E.; Kochanek C. S.; Muñoz, J. A., 2015, ApJ, 799, 149
6. *The Average Size and Temperature Profile of Quasar Accretion Disks*
   Jiménez-Vicente, J.; Mediavilla, E.; Kochanek, C. S.; Muñoz, J. A.; Motta, V.; Falco, E.; Mosquera, A. M., 2014, ApJ, 783, 47.
7. *Microlensing of Quasar Broad Emission Lines: Constraints on Broad Line Region Size*
   Guerras, E.; Mediavilla, E.; **Jiménez-Vicente, J.**; Kochanek, C. S.; Muñoz, J. A.; Falco, E.; Motta, V., 2013, ApJ, 764, 160
8. *A Robust Determination of the Size of Quasar Accretion Disks Using Gravitational Microlensing*
   Jiménez-Vicente, J.; Mediavilla, E.; Muñoz, J. A.; Kochanek, C. S., 2012, ApJ, 751, 106
9. *Blasts and shocks in the disc of NGC 4258*
   Jiménez-Vicente, J.; Mediavilla, E.; Castillo-Morales, A.; Battaner, E., 2010, MNRAS, 406, 181
10. *Medium-resolution Isaac Newton Telescope library of empirical spectra*
    Sánchez-Blázquez, P.; Peletier, R. F.; **Jiménez-Vicente, J**.; Cardiel, N.; Cenarro, A. J.; Falcón-Barroso, J.; Gorgas, J.; Selam, S.; Vazdekis, A., 2006, MNRAS, 371, 703

C.2. Research projects

I have participated as **researcher** in over 15 projects. **I have acted as co-PI in the last two projects.** I have participated in the following projects funded throughout the last years:

Las propiedades de cuásares y galaxias a través del efecto de (micro)lente gravitatoria PID2020-118687GB-C33
Funded by: Ministerio de Ciencia e Innovación
Period: 01-09-2021 to 31-08-2025
Principal Investigator: **Jorge Jiménez Vicente** (Coordinator: E. Mediavilla)
Budget: 16940 eur

Solving the Riddle of Galaxy Evolution AYA2017-84897-P
Funded by: Ministerio de Economía y Competitividad
Period: 01-01-2018 to 31-12-2020
Principal Investigator: Ute Lisenfeld y **Jorge Jiménez Vicente**
Budget: 96800 eur

Dissecting Galaxies: From the dar ages to the luminous present AYA2014-53506-P
Funded by: Ministerio de Economía y Competitividad
Period: 01-01-2015 to 31-12-2017
Principal Investigator: Ute Lisenfeld y **Jorge Jiménez Vicente**
Budget: 54450 eur

Magnetism versus Gravitation: A Cosmic Challenge AYA2011-24728
Funded by: Ministerio de Ciencia e Innovación
Period: 01-01-2012 to 31-12-2014
Principal Investigator: Estrella Florido y Eduardo Battaner
Cuantía: 123420 eur.

Galaxy evolution: a challenge to the standard cosmological model AYA200767625-C02-02
Funded by: Ministerio de Educación y Ciencia. Proyecto C-Consolider
Period: 01-01-2007 to 30-09-2012
Principal Investigator : J. E. Beckman (IAC)/ E. Battaner (UGR)
Budget: 490050 eur.

C.3. Contracts, technological or transfer merits

C.4. Patents

C.5. Supervision activity

- PhD thesis Supervisor of Ana Guijarro Román.
  Title: ***Warps and truncations in the stellar disk of edge-on galaxies***
  Universidad de Granada. 2/11/2012.
  Maximum qualification: Sobresaliente cum laude (co-supervised with E. Battaner and E. Florido)
- PhD Thesis of Pablo Martín Fernández.
  Title***: Detection and analysis of galactic winds.***
  Universidad de Granada. 02/2019
  Maximum qualification: Sobresaliente cum laude. Co-supervised with A. Zurita
- Master Thesis of Pablo Martín Fernández. Curso 2012/13.
  Titule: ***Detection and analysis of galactic winds in a galaxy sample***
  Master FISYMAT. Sobresaliente. Co-supervised with A. Zurita

C.6. Evaluation activity

- Evaluator expert for Research Projects for the ANEP in the period 2007-2009
- Member of evaluation comitees for the several Associate Proffesor positions in the Universidad de Granada (Astronomía y Astrofísica).

C.7. Teaching activities

- Teaching at degree level in the Universidad de Granada during 17 years. Subjects: Introducción a la Astrofísica (1º Lic. en Física), La Astronomía a lo largo de la Historia (Libre Configuración), Fundamentos de Física II (1º Lic. Física) , Fundamentos de Astrofísica (Grado en Física).
- Teaching at postgraduate/master level during 10 años. Subjects: Astrofísica Avanzada y Comunicación de la astrofísica.
- Evaluation of teaching activity: Excellent (94.23/100) (from the Vicerrectorado para la Garantía de la Calidad de la Universidad de Granada).

C.8. Management activity/Conference organization

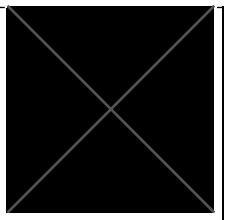
- Project Manager for the participation of the Universidad de Granada in the Planck mission of the ESA (2002-2003).
- Member of the LOC of the Conference “The role of bars in galaxy evolution” held in Granada from 13th to 17th May 2013.
- Member of the SOC and LOC of the Conference “50 años Escudriñando y Descifrando el Universo” held in Granada from 17th to 18th September 2015

C.9. Membership in committees, etc.

- Representative of the área de Astronomía y Astrofísica in the Junta de Dirección del Departamento de Física Teórica y del Cosmos de la UGR.
- Member of the Scientific Team of MEGARA (Integral Field Spectrograph on the GTC).
- Member of the International Astronomical Union (IAU)

DATE	24/07/24

Part A. Personal Information

Surname(s)	Castillo-Morales		
Forename	África		
National ID	[redacted]		
Gender	Female		
Age	[redacted]		
Researcher IDs & links	Researcher ID	F-4778-2016	
	ORCID	0000-0003-4964-3245	
	SCOPUS Author ID	6506004178	

A.1. Current position

Post/Professional Category	Profesor Titular de Universidad	
UNESCO Codes	2101.04, 2103.03	
Key Words	Star forming galaxies – Physical properties - Galactic winds – Astronomical instrumentation – 2D spectroscopy	
Institution	Universidad Complutense de Madrid	
	Department/Center	Física de la Tierra y Astrofísica
	Full Address	Dpto. Física de la Tierra y Astrofísica, Facultad CC. Físicas, Plaza Ciencias 1, E-28040, Madrid, SPAIN
	Email Address	[redacted]
	Phone Number	[redacted]
Start date	23/03/2021	

A.2. Previous positions

2014-2021	Profesora Contratada Doctor/ UCM
2009-2014	Profesora Ayudante Doctor/ UCM
2005-2009	Contratada Juan de la Cierva/ UCM
2001-2005	Becaria F.P.I. (MEC)/ Univ. Granada
2000-2001	Becaria predoctoral Marie Curie/ Liverpool John Moores University, UK
1999-2000	Becaria predoctoral/ Liverpool John Moores University, UK

A.3. Education

	University	Year
Physics Degree	Universidad de Granada	1996
Degree of Master of Philosophy (Astrophysics)	Liverpool John Moores University	2002
PhD in Astrophysics	Universidad de Granada	2004

A.4. Indicators of Quality in Scientific Production

Six-year research periods: 3 (last 2013-2018). Supervised PhD Thesis: 3.
ADS metrics: *h*-index:15. Total publications 57. Q1 publications 36 (A&A 17, MNRAS 14, ApJ 5). Total number of citations in Q1 publications: 2597

Part B. Free Summary of CV

Bio Sketch: I have a degree in Physics from the University of Granada (1996) in the speciality of Theoretical Physics. Thanks to a pre-doctoral scholarship granted by the Astrophysical Research Institute (ARI) of Liverpool for one year and a Marie Curie fellowship in the second year, I was able to start my research career in 1999 at Liverpool John Moores University. A Research Staff Training Grant from the Ministry of Science and Technology enabled me to obtain a PhD degree from the University of Granada (2004). In 2005 I started my postdoctoral

stay at UCM as a "Juan de la Cierva" postdoc. I am currently Profesor Titular de Universidad at the Department of Earth Physics and Astrophysics of the UCM since March 2021, having held various teaching positions since 2009 as a Profesor Ayudante Doctor, Profesor Visitante and Profesor Contratado Doctor.

Scientific research: My postdoctoral research has been carried out at UCM since 2005 in the GUAIX research group and has mainly focused on the study of nearby star-forming galaxy populations using advanced techniques of 2D spectroscopy in the visible: (1) understanding the interaction between galaxies and the intergalactic medium has been a topic I have devoted (in collaboration with Univ. Granada and IAC), part of my postdoctoral research, with the detection and analysis of galactic winds (INTEGRAL at WHT), (2) the study of luminous, compact and blue galaxies (in collaboration with Univ. Florida): its kinematics, current star formation rate, dust distribution and metallicity (PPAK in 3.5m@CAHA), to understand the mechanisms that give rise to intense star formation in this type of galaxies, (3) two-dimensional study of star formation rate based on the extinction-corrected Hα emission in CALIFA sample of galaxies (co-tutoring the doctoral thesis of Dr. Cristina Catalán, presented in 2017). I´ve been also co-tutoring the doctoral thesis of Dr. Mario Chamorro (presented in april 2023) related to the stellar populations and the interstellar medium in nearby galaxies with MEGARA@GTC instrument.

Publications: My research work has been recognized with 3 six-year periods of research (last period 2013-2018) with 57 publications (source Scopus), 36 of which are refereed scientific works indexed in the first quartile of the JCR with a total of more than 2500 citations (in the Q1 publications) and an *h* index of 15 (WoS). The results of my research have derived in more than 70 contributions to national and international conferences.

Projects and management: I have participated in numerous research projects following open and competitive national calls financed by "Ministerio de Ciencia, Innovación y Universidades", "Ministerio de Economía y Competitividad", as well as by the Community of Madrid (in total 23 projects). I have been co-IP of one of these projects "Scientific exploitation and technological synergies of MEGARA" for 3 years (2016-2019).

My research has also had an important instrumental component by participating since 2010 in the scientific and instrumental team of MEGARA (Multi-Spectrograph in GTC of High Resolution for Astronomy, since 2017 in operation for scientific community) led by the UCM (IP: A. Gil de Paz) and in which I have managed the work related to the Control package of this instrument. Among the responsibilities of the position I have held in this instrumental project, there is the coordination and management of different tasks related to: the development of the data reduction software, instrument simulator, exposure time calculator, positioning tool for MOS, control mechanisms and control system of the instrument.

I am a researcher collaborating in the activities related to the Laboratory of Advanced Scientific Instrumentation (LICA), a strategic action of the Campus of Excellence of Moncloa of the Faculty of Physics at UCM. Since its creation at the end of 2010, LICA has generated several direct university-business contracts through research projects under Art. 83 of the L.O.U. I have participated in ten projects of this type, leading one of them.

I am a member of the scientific and instrumental team of UCM that participates in the international collaboration for the design and construction of the multi-object optical spectrograph MOSAIC for the ESO's E-ELT telescope (preliminary design phase) as technical control manager at the UCM. I also participate in the scientific and instrumental team of TARSIS@3.5m-CAHA, the new integral field spectrograph for CAHA observatory, being responsible for the Post-processing Software WP.

Part C. Accomplishments

C.1. Publications (only the most relevant, see in this link the complete list)

- Chamorro-Cazorla et al. 2023. *MEGADES: MEGARA Galaxy Discs Evolution Survey. Data Release I: central fields*. A&A in press.
- Chamorro-Cazorla et al. 2022. *Stellar populations with MEGARA: The inner regions of NGC 7025*. A&A, Volume 657, id.A95, 15 pp.
- Catalán-Torrecilla et al. 2020. *Spatially Resolved Analysis of Neutral Winds, Stars, and Ionized Gas Kinematics with MEGARA/GTC: New Insights on the Nearby Galaxy UGC 10205*. ApJ, Volume 890, Issue 1, id.5, 15 pp.
- Dullo, et al, 2019. *High-resolution MEGARA Integral-field Unit Spectroscopy and Structural Analysis of a Fast-rotating, Disky Bulge in NGC 7025.* ApJ, Volume 871, Issue 1, article id. 9, 12 pp.
- Catalán-Torrecilla et al. 2017. *Star Formation in the Local Universe from the CALIFA Sample. II. Activation and Quenching Mechanisms in Bulges, Bars, and Disks*. ApJ, Volume 848, Issue 2, article id. 87, 17 pp.
- García-Benito, R. et al. (2015), 6/75. *CALIFA, the Calar Alto Legacy Integral Field Area survey. III. Second public data release*, A&A, 576, id.A135, 30 pp
- Catalán Torrecilla et al. (2015), 3/75. *Star formation in the local Universe from the CALIFA sample. I. Calibrating the SFR using integral field spectroscopy data*, A&A, Vol. 584, id.A87, 34 pp

C.2. Research Projects and Grants

Dates	Title (PI, Institution; role of applicant	Budget, funding source
2023-2026	*TARSIS, el nuevo instrumento para el telescopio de 3.5 m del Observatorio de Calar Alto: preparación científica, diseño y construcción.* (IP: A. Gil de Paz, IP2: Catalán-Torrecilla C.	731,25 k€, MCIN PID2022-138621NB-I00
2022-2025	*MOSAIC-ELT* (IP: Gallego, J.; UCM)	893,9 k€, MCIN
2022-2025	*Spanish contribution to the preliminary design of MOSAIC for the ELT* (IP: Gallego, J.; UCM)	726,8 k€, MCIN (PCI2022-135023-2)
2019-2021	*Deciphering galaxy evolution with 2D spectroscopy* (IP: Gil de Paz, A., Gallego, J.; UCM)	240 k€, MCIN Retos (RTI2018-096188-B-I00)
2020-2022	*Red para el estudio del Universo de bajo brillo superficial* (IP: Gil de Paz, A.; UCM)	15 k€, MCIN, "Europa Investigación 2020" (EIN2020-112312)
2020-2022	*Entrenando a una nueva generación de astrónomos de instrumentación en el campo de la evolución de las galaxias para explotar de manera* (IP: Gallego, J.; UCM)	15 k€, MCIN, "Europa Investigación 2020" (EIN2020-112351)
2019-2022	*TEC2SPACE-CM. Desarrollo y explotación de nuevas tecnologías para instrumentación espacial en la Comunidad de Madrid (IP:* Najarro de la Parra, F. CSIC*)*	895 k€ Comunidad Autónoma de Madrid P2018/NMT-4291
2017-2020	*Red para la Explotacion Científica de MEGARA (GTC) en España (Maegnet)* (IP: Gil de Paz, A.; UCM)	10 k€ MINECO AYA2017-90589-REDT
2016-2019	*Explotación científica y sinergias tecnológicas de MEGARA* (IP: A.Gil de Paz & **A. Castillo-Morales**, UCM)	465 k€, MINECO (AYA2016-75808-R)
2014-2017	*Astrofísica Extragaláctica de precisión: preparando la explotación científica de MEGARA@GTC.* IP: A. Gil de Paz&N.Cardiel, UCM)	549 k€, MINECO (AYA2013-46724-P)
2015-2018	*SpaceTec: Desarrollo de nuevas tecnologías para instrumentación espacial en la Comunidad de Madrid* (IP: Mas Hesse, M.; CSIC/CAB)	648 k€, Comunidad Autónoma de Madrid (S2013/ICE-2822)
2013-2014	*Hacia la explotacion científica de MEGARA.* (IP: J. Gallego, UCM)	35 k€, MINECO (AYA2012-30717)
2010-2013	*Multi-wavelength galaxy surveys: Stars, dust and gas at different redshifts* (IP: J.Gallego, UCM)	507 k€, MINECO (AYA2009-10368)

C.3 Contracts

- *Contrato para la realización del Diseño final del instrumento MEGARA para el Gran Telescopio de Canarias y Contrato para la fabricación y puesta en marcha del instrumento MEGARA para el GTC*. IP: Gil de Paz, A. (UCM). Period: 28/04/2014 – 30/04/2018. Budget: 4.5M€

- Contracts developed in the Laboratory of Advanced Scientific Instrumentation (LICA), Faculty of Physics at Complutense University of Madrid, under the framework of Art. 83 of the L.O.U.

Period/Project	Title (IP, affiliation)	Budget/Client
Feb.2020-May 2020/ Project 56-2020	*Calibración fotométrica de 90 fotómetros TESS-W (IP: J. Gallego, J. Zamorano, UCM)*	1080 €/ García Sánchez, A.
Dec.2019-Dec. 2020/ Project 603-2019	*Tareas para la integración y pruebas de criostatos de flujo continuo (IP: A. Gil de Paz UCM)*	3000 €/ Fractal S.L.N.E
June.2019-Aug.2019/ Project 274-2019	*Calibración fotométrica de 50 fotómetros TESS-W (IP: J. Zamorano, UCM)*	600 €/ García Sánchez, A.
June.2019-April.2021/ Project 343-2019	*Preparación para la integración del instrumento SCORPIO para el telescopio Gemini (IP: A. Gil de Paz, UCM)*	129 k€/ Southwest Research Institute
Dic.2018-Dic.2019/ Project 410-2018	*Caracterización de dos cámaras de alta sensibilidad* (IP J. Zamorano, UCM)	2000 € /SATLANTIS MICROSATS S.L.
En.2018-Dic.2020/ Project 413-2017	*Integración del instrumento OCTOCAM para el telescopio Gemini.*(PI: A. Gil de Paz, UCM)	45000 € /Fractal S.L.N.E.
Sept.2013-Dic.2013/ Project 217-2013	*Instalación y caracterización del detector CCD del instrumento CARMENES en el cristotato del Laboratorio de Instrumentación Científica Avanzada.*(PI: A. Gil de Paz, UCM)	5000 € / Fractal S.L.N.E.
Sept.2012-Oct.2012/ Project 251-2012	*Caracterización de las redes VPH del espectrógrafo ARES del telescopio OMI-RC8 del Observatori Astronòmic del Montsec* (PI: A. Gil de Paz, UCM)	1200 € / Fractal S.L.N.E.
Sept.2012-Oct.2012/ Project 252-2012	*Integración y pruebas de ESTRANGIS: un sistema de fibras ópticas para la alimentación de un espectrógrafo de doble brazo visible/infrarojo...* (PI: **A. Castillo-Morales**, UCM)	1400 € /Fractal S.L.N.E.
Feb. 2011-May.2011/ Project 90-2011	*Caracterización de las prestaciones de un criostato de una cámara astronómica* (PI: J. Zamorano Calvo, UCM)	1200 € / Fractal S.L.N.E.

C.4 Teaching activities

Throughout my teaching career I have participated in 15 academic years (three five-year terms), teaching more than 1600 hours in Physics Degree, Engineering Degree and Astrophysics Master's courses, of which around 1400 hours are of theoretical nature. The total number of subjects taught is 45. The number of different subjects taught is 9 (grouping subjects of similar but not identical content). Positive and excellent evaluations through DOCENTIA program (Diploma of Teaching Excellence, 2015, 2018).

C.5. Academic positions at Complutense University of Madrid

– Vice-dean of Students of the Physics Faculty (since 2020)

C.6 Professional training

Co-supervisor of PhD Thesis: Mario Chamorro Cazorla, 2023, *Poblaciones estelares y el medio interestelar en galaxias cercanas con el instrumento MEGARA@GTC*

Co-Supervisor of PhD Thesis: Cristina Catalán Torrecilla, 2017, *Estudio bidimensional de trazadores de la tasa de formación estelar en galaxias de la muestra CALIFA*

Co-Supervisor of PhD Thesis: Francisco Ocaña González, 2017, *Técnicas de detección y caracterización de la materia interplanetaria próxima a la Tierra desde observatorios en tierra*

I have been responsible for the supervision and co-direction of 6 Master's Degree Final Projects, 1 Project-oriented study and 21 Degree Final Projects.

CV Date 02/09/2024

Part A. PERSONAL INFORMATION

First Name	Carolina	
Family Name	Kehrig	
Sex	Female	Date of Birth
ID number Social Security, Passport		
URL Web		
Email Address	[redacted]	
Open Researcher and Contributor ID (ORCID)	0000-0003-1231-1482	

CURRICULUM NARRATIVE SUMARY

Mi investigación, basada en espectroscopia bidimensional (o Integral Field Spectroscopy; IFS), se centra en estudiar galaxias enanas cercanas con alto ritmo de formación de estrellas (o star-forming dwarf galaxies; SFDs) en particular aquellas muy deficientes en metales y que muestran una fuerte ionización, como es la emisión del HeII. Estos sistemas son los que se parecen más a las galaxias primitivas, y representan un atajo para investigar la época de la reionización del Universo. Durante mi doctorado, defendido en 2007, continue ampliando mi conocimiento sobre el análisis de los datos de IFS de SFDs. Desde entonces, mi investigación se ha llevado a cabo en institutos reconocidos internacionalmente. En 2008 curse en la Universidad de Michigan (EEUU) con una beca de la National Science Foundation. En 2009 marché al Leibniz-Institut fur Astrophysik Potsdam tras haber ganado la prestigiosa Beca de la fundación Alexander Von Humboldt. Allí reforcé mi experiencia en IFS, convirtiéndome en miembro del equipo científico de la colaboración internacional CALIFA. En 2011 me incorporé al IAA-CSIC donde sigo investigando hasta el día de hoy. En 2019 obtuve la prestigiosa beca Severo Ochoa-IAA. En 2022, obtuve la plaza de Cientifica Titular (CT) por concurso y oposicion en el IAA-CSIC. Soy una experta en mi campo y una astrofísica reconocida en la comunidad internacional. Lidero el estudio de las SFDs con fuerte ionización y muy deficientes en metales no solamente en el IAA sino también en colaboraciones internacionales (e.g.:, Kehrig+2008,2013,2015,2016,2018,2020,2021). También dirigí un grupo de trabajo sobre el gas ionizado en galaxias E/SO dentro de la colaboración CALIFA (Kehrig+2012 + Co-autora en 4 artículos). Coordinadora del MOSAIC Science Working Group: “First light galaxies and reionization”. Lidero casos científicos para IFUs de vanguardia como MEGARA-GTC. Co-PS de la colaboración TARSIS/CATARSIS. He dado un buen número de charlas invitadas/ contribuciones orales. He participado como miembro del LOC/SOC en varios congresos/ workshops internacionales. Ad-Honorem miembro invitada del nuevo Grupo de Investigacion en Astrofisica de la Universidad Nacional de Asuncion (Paraguay; desde 08/2021)

-Maternidad: en 02/04/2018 me converti en la madre soltera de Bruno Kehrig

-Productividad: 92 artículos con árbitro (96% en Q1); 143 publicaciones con y sin árbitro (Fuente SAO/NASA ADS); 3 sexenios evaluados positivamente

-Liderazgo: Autora principal en 20 refereed papers (primera en 11, segunda/tercera en 9). IP y colaboradora de propuestas exitosas para grandes telescopios de 8-10 metros; (co)directora de 1 estudiante de doctorado + 3 estudiantes de máster

-Impacto: > 6028 citas (> 5963 en artículos con árbitro); H-index=39

-Internacionalizacion: coordinadora del SWG de MOSAIC "First light galaxies and reionization". Co-PS de TARSIS/CATARSIS. IP del proyecto ("A study of very low metallicity HII galaxies using Integral Field Spectroscopy") para la obtención de la Alexander Von Humboldt Fellowship. Revisora invitada de artículos para las revistas A&A, MNRAS, ApJ. Árbitro invitada de propuestas de observación para HST, JWST, y ESO

-Ponente invitada habitualmente: 10 charlas/seminarios invitados: por ej:, charlas invitadas en el Carnegie Observatories (USA,2015), en el MIAPP-Excellence Cluster Universe (Munich,2016), y en el EWASS 2017 (Praga). Colloquium invitado en LAM (Francia; 06/2017) y una charla invitada en el XII workshop internacional Estallidos - Starbursts in galaxies

(10/2019). Seminario en el IAA (10/2019). Charla en IAU Symposium 316: Massive stars Near and Far (05/2021)

-Organización de eventos: Miembro del LOC/SOC en congresos y escuelas internacionales; e.g.: miembro del SOC del workshop: "Spectroscopic Surveys with the ELT: A gigantic step into the deep" (10/2017); miembro del LOC del workshop "Public surveys and new instrumentation for CAHA" (03/2020); Chair y profesora del IAA Severo Ochoa curso "An Introduction to IFU Spectroscopy" (06/2021); miembro del LOC del "IAA-CSIC SO Advanced School on Galaxy Evolution" (05/2022)

-Divulgación: Entrevistada por CanalSur TV y RNE (directo en red nacional). Notas de prensa (ej:, webs del IAA, CAHA y RTVE); Publicación de artículos en la Revista de divulgación del IAA; Participación en mesa redonda con alumnado de sexto de primaria en conmemoración del Día Internacional de la Mujer y la Niña en la Ciencia (02/2021)

1. RESEARCH, KNOWLEDGE TRANSFER AND EXCHANGE ACTIVITIES

1.1. PROJECTS AND CONTRACTS FOR RESEARCH AND KNOWLEDGE TRANSFER AND EXCHANGE

1.1.1. Projects

1 **Project**. PID2019-107408GB-C44, ESTALLIDOS DE FORMACION ESTELAR A LO LARGO DE LA EVOLUCION EL UNIVERSO. Agencia estatal de investigacion. J.M.Vilchez. (Instituto de Astrofísica de Andalucía). 01/06/2020-31/05/2023. 145.200 €. Team member.

2 **Project**. P18-FR-2664, Estudiando galaxias jóvenes con tecnología de vanguardia: piezas clave de la evolución del Universo.. Junta de Andalucia. J.Iglesias-Paramo. (Instituto de Astrofísica de Andalucía). 01/01/2020-31/12/2022. 94.800 €. Team member.

3 **Project**. AYA2013-47742-C4-1-P, El papel de los estallidos de formación estelar en la formación y evolución de galaxias: Estallidos 5. MICINN/MINECO. J.M.Vilchez. (Instituto de Astrofísica de Andalucía). 01/01/2014-30/06/2017. 158.510 €. Team member.

4 **Project**. AYA2010-21887-C04-01, ESTALLIDOS Y SU HUELLA EN LA EVOLUCIÓN CÓSMICA DE LAS GALAXIAS. MICINN/MINECO. J.M. Vilchez. (Instituto de Astrofísica de Andalucía). 01/01/2011-31/12/2014. 277.816 €. Team member.

5 **Project**. AST-0806476, Radiative feedback from starburst galaxies. National Science Foundation. S.Oey. (University of Michigan). 01/09/2008-31/08/2012. 455.127,62 €. Team member.

6 **Project**. Alexander von Humboldt Research Fellowship ("A Study of Very Low Metallicity HII Galaxies Using Integral Field Spectroscopy"). AvH Foundation. C.Kehrig. (Astrophysikalisches Institut Potsdam). 01/07/2009-30/06/2011. 72.200 €. Principal Investigator; Researcher; Fund Manager.

7 **Project**. ICTS-2009-10, Proyecto de Legado de Calar Alto: Espectroscopia 3D de 1000 Galaxias. MICINN/MINECO. S.F. Sanchez. 01/01/2009-31/05/2011. 181.000 €. Team member.

1.2. RESULTS AND DISSEMINATION OF RESEARCH AND KNOWLEDGE TRANSFER AND EXCHANGE ACTIVITIES

1.2.1. Research activity

AC: corresponding author. (nº x / nº y): position / total authors. If applicable, indicate the number of citations

1 **Scientific paper**. Zinchenko, I. A.; Sobolenko, M.; Vilchez, J. M.; Kehrig, C.2024. Characterizing chemical abundance ratios in extremely metal-poor star-forming galaxies in DESI EDR. A&A (in print).

2 **Scientific paper**. Arroyo, A.; Kehrig, C.; J. Iglesias-Paramo; et al.2024. Unraveling the kinematics of IZw18: A detailed study of ionized gas with MEGARA/GTC. A&A, V.687, id.A77.

3 **Scientific paper**. Arroyo, A.; Iglesias-Paramo, J.; Kehrig, C.; et al.2023. A MUSE/VLT spatially resolved study of the emission structure of Green Pea galaxies. A&A, V.677, id.A114.

4 **Scientific paper**. Kehrig, C.; et al.2021. On the contribution of the X-ray source to the extended nebular HeII emission in IZW18. ApJ Letters, Volume 908, L54, 7 pp.

5 **Scientific paper**. Kehrig, C.; et al.2020. Mapping the ionized gas of the metal-poor HII galaxy PHL 293B with MEGARA. MNRAS, V.498, Issue 2, pp.1638-1650.

6 **Scientific paper**. Perez-Montero, E.; Kehrig, C.; et al.2020. Photon leaking or very hard ionizing radiation ? Unveiling the nature of HeII-emitters using the softness diagram. A&A, V.643, A80.

7 **Scientific paper**. Kehrig C.; et al.2018. The extended He II ?4686 emission in the extremely metal-poor galaxy SBS 0335 - 052E seen with MUSE. MNRAS, V.480, Issue 1, p.1081-1095.

8 **Scientific paper**. Guerrero M.A.; et al. (includes Kehrig C.). 2018. The inside-out planetary nebula around a born-again star. Nature Astronomy, Volume 2, p. 784-789.

9 **Scientific paper**. Kehrig C.; et al.2016. Spatially resolved integral field spectroscopy of the ionized gas in IZw18. MNRAS, V.459, Issue 3, p.2992-3004.

10 **Scientific paper**. Kehrig C.; et al.2015. The extended HeII4686-emitting region in IZw18 unveiled: clues for peculiar ionizing sources. ApJ Letters, V.801, L28.

11 **Scientific paper**. Kehrig C.; Perez-Montero E.; Vilchez J.M.; Brinchmann J.; Kunth D.; Garcia-Benito R.; Crowther P.; et.al.2013. Uncovering multiple Wolf-Rayet star clusters and the ionized ISM in Mrk 178: the closest metal-poor Wolf-Rayet H II galaxy. MNRAS, V.432, Issue 4, p.2731-2745.

12 **Scientific paper**. Kehrig C.; Monreal-Ibero A.; Papaderos P.; et al; et.al.2012. The ionized gas in the CALIFA early-type galaxies I. Mapping two representative cases: NGC 6762 and NGC5966. A&A, v.540, A11.

13 **Scientific paper**. Kehrig C.; Oey M. S.; Crowther P. A.; et al; Roth K.2011. Gemini GMOS spectroscopy of HeII nebulae in M 33. A&A, v.526, A128.

14 **Scientific paper**. Kehrig C.; Telles E.; Cuisinier F.2004. Spectrophotometry of Star-forming Regions in H II Galaxies. AJ, V.128, pp. 1141-1151.

15 **Conference proceeding**. Kehrig C.; et.al.2007. The Near-IR [SIII] Lines in a Sample of Star-Forming Galaxies: Chemical Abundances. Galaxy Evolution Across the Hubble Time. Proceedings of the International Astronomical Union 2, IAU Symposium 235, p.315. F. Combes & J. Palous.

16 **Congress.** INVITED Talk: Intense HeII emission in nearby galaxies: Probing spatially resolved highly-ionized, metal-poor gas. XII workshop Estallidos – Starbursts in galaxies: From PhD students to international partners. 2019. Spain. Participatory - invited/keynote talk. Workshop.

17 **Congress.** INVITED Talk: The properties of metal-poor Wolf-Rayet galaxies - the cases of Mrk178 and IZw18. EWASS 2017 Symposium: "A multi-messenger look at the origin of gamma-ray bursts". European Astronomical Society. 2017. Czech Republic. Participatory - invited/keynote talk. Conference.

18 **Congress.** INVITED Colloquium: Nebular HeII emission and ionized gas properties in star-forming galaxies. Weekly Seminars at the Laboratoire d'Astrophysique de Marseille. Laboratoire d'Astrophysique de Marseille. 2017. France.

19 **Congress.** INVITED Talk: Spatially resolved physical-chemical properties for metal-poor star-forming galaxies with Wolf-Rayet features. Chemical Abundances in Gaseous Nebulae. Universidade do Vale do Paraiba. 2016. Brazil. Participatory - invited/keynote talk. Workshop.

20 **Congress.** INVITED Talk: Chemical Composition and Ionization Structure of Star-Forming Regions. The 4th MIAPP programme: "Chemical Evolution of Galaxies". Munich Institute for Astro- and Particle Physics - Excellence Cluster Universe. 2016. Germany. Participatory - invited/keynote talk. Workshop.

21 **Congress.** ;. INVITED Seminar: Metal-poor Wolf-Rayet galaxies unveiled from integral field spectroscopy. Journal Club Talks at the IAP. Institut d'Astrophysique de Paris (IAP). 2015. France.

22 **Congress.** INVITED Talk: On the origin of the nebular HeII emission in galaxies. 3rd Joint CNRS-CSIC Workshop. CNRS-CSIC. 2015. Spain. Participatory - invited/keynote talk. Workshop.

23 **Congress.** INVITED Talk: Understanding HeII Emission using Local Metal-Poor Galaxies. The First Carnegie Symposium in Honor of Leonard Searle: Understanding Nebular Emission in High-Redshift Galaxies. Carnegie Observatories. 2015. United States of America. Participatory - invited/keynote talk.

1.2.2. Transfer and exchange of knowledge and professional activity

Actividad de carácter profesional

Cientifica Titular: Instituto de Astrofísica de Andalucía. 2023- actual. Full time.

Narrative explanation of the contribution

Funciones desempeñadas

In 2023 I took up my permanent position as "Cientifica Titular" at the IAA-CSIC. I am expert on integral field spectroscopy of metal-poor, high-ionizing star-forming dwarf galaxies. 92 refereed articles (20 as main author: 11 as first author + 9 as second/third author) collect > 5963 citations with H-index=39. From 2019 to 2022 I worked as IAA Severo-Ochoa Fellow. Coordinator for the MOSAIC SWG "First light galaxies and reionisation". MOSAIC is a multi-object and multi-integral field spectrograph that will use the widest possible FOV provided by the ELT. Co-Project Scientist of the CATARSIS/TARSIS (Tetra-ARm Super-Ifu Spectrograph) collaboration. Invited reviewer for HST, JWST and ESO proposals. Invited to review A&A, MNRAS, ApJ papers. Member of the science teams of MOSAIC/ELT, MEGARA/GTC, TARSIS/CATARSIS, J-PAS, X-Shooting Ullyses. Head of successful observing proposals for e.g. GTC-10.4m, 6.5m Magellan Telescopes. Supervisor of 1 PhD student and supervised 3 Masters projects. 10 invited talks/seminars in international conferences and laboratories. Invited Ad-Honorem member of the Astrophysics Research Group for the Universidad Nacional de Asuncion (Paraguay). LOC/SOC member of international meetings. Chair-lecturer at the IAA-SO course "An Introduction to IFU Spectroscopy" (06/2021) -NOTE- Motherhood: In 2018 I became a single mother of my son, Bruno Kehrig; Dec./2017-Jan/2018: sick leave due to pregnancy complications; Mar.-Aug. 2018: Maternity and breastfeeding leave

2 **Severo-Ochoa Fellow:** Instituto de Astrofísica de Andalucía. 06/2019. Temporary employment contract.

3 **Humboldt independent postdoctoral fellow:** Astrophysikalisches Institut Potsdam. 01/07/2009. Fellowship.

4 **Postdoctoral Researcher (National Science Foundation funds):** University of Michigan. 21/01/2008. Temporary employment contract.

3. LEADERSHIP

3.2. SUPERVISION OF DOCTORAL THESES AND MASTER'S THESES

1 **Trabajo Fin de Master:** Abundancias quimicas en galaxias. 07/2020.

2 **Trabajo Fin de Master:** Estudio multifrecuencia de la galaxia IZw18. 16/12/2015.

3 **Trabajo Fin de Master:** Espectroscopia de campo integral de la galaxia Wolf-Rayet/Seyfert Mrk1073. 09/12/2014. Sobresaliente (Nota 9).

4 **Doctoral thesis:** The evolution of Extreme Emission line Galaxies (undergoing; starting date: 01/09/2019).

CURRICULUM VITAE ABREVIADO (CVA)

Part A. PERSONAL INFORMATION

First name	JOSÉ ALBERTO		
Family name	RUBIÑO MARTÍN		
Gender (*)	Male	Birth date (dd/mm/yyyy)	[redacted]
Social Security, Passport, ID number	[redacted]		
e-mail	[redacted]	URL Web	
Open Researcher and Contributor ID (ORCID) (*)	0000-0001-5289-3021		

(*) Mandatory

A.1. Current position

Position	Research Professor		
Initial date	05/03/2021		
Institution	Instituto de Astrofísica de Canarias (IAC)		
Department/Center	Research Division		
Country	Spain	Teleph. number	[redacted]
Key words	Cosmic Microwave Background. Large scale structure of the Universe. Cosmology. Radio foregrounds. Galaxy Clusters.		

A.2. Previous positions (research activity interruptions, indicate total months)

Period	Position/Institution/Country/Interruption cause
2013-2014	Severo Ochoa Advanced fellow / IAC / Spain / obtaining permanent position as staff researcher in 09/12/2014
2008-2013	Ramon y Cajal fellow / IAC / Spain
2005-2008	Postdoctoral researcher / IAC / Spain / obtaining RyC
2002-2004	Postdoctoral researcher / MPA / Germany
1998-2002	Astrofísico Residente / IAC / Spain

A.3. Education

PhD, Licensed, Graduate	University/Country	Year
Degree in Physics	Universidad de Granada	1998
PhD in Astrophysics	Universidad de La Laguna	2002

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

José Alberto Rubiño-Martín is Research Professor at the Instituto de Astrofísica de Canarias (IAC). He did his degree in Physics at the University of Granada (1993-1998), and his PhD in Astrophysics at the University of La Laguna (1998-2002). He is IAC staff member since 2014. In the past, he was “Severo Ochoa Advanced Fellow” (2014) and "Ramon y Cajal" researcher (2008-2013) at the IAC, Postdoctoral researcher at the IAC (2005-2008), and Postdoctoral researcher at the Max-Planck Institut fuer Astrophysik in Munich, Germany (2002-2004), where he was working in the group of Prof. R. Sunyaev. His research area is Cosmology, and in particular, he works in the study of the Cosmic Microwave Background, the large-scale structure of the Universe, physical processes that emit in radio wavelengths, galaxy clusters, and the physics of the early Universe.

Since 2001, he has participated in multiple R&D projects. In particular, since 2010, he was:

- Local PI (IAC node) of the Consolider Ingenio 2010 “Exploring the Physics of Inflation” (CSD2010-00064, PI: E. Martínez). Period: 2011-2017. Budget: 4 MEur.
- PI of ESP2013-48362-C2-1-P (2014-2016). Budget: 145.000 Eur.
- PI of AYA2014-60438-P (2015-2017). Budget: 370.260 Eur.

- PI of infrastructure projects (IACA13-3E-2336, IACA15-BE-3707, EQC2018-004918-P). Budget: 1.554.070 Eur.
- PI of RADIOFOREGROUNDS (G.A. 687312). Period: 2016-2018. Budget: 1.5 MEur.
- Co-PI of AYA2017-84185-P (2018-2020). Budget: 254.100 Eur.
- Co-PI of PID2020-120514GB-I00 (2021-2023). Budget: 249.865 Eur.
- Local PI at IAC of RadioForegroundsPlus (GA 101135036). Period: 2024-2026. Budget of the IAC node: 275.000 Eur. Total budget of the project: 1.497.000 Eur

He is co-author of 280 refereed papers, with more than 81.000 citations and H-index of 104 (Source: NASA/ADS). He also author of a book, editor of two books, and has participated in more than 50 conferences. Among them, there are several invited plenary talks (e.g. EWASS 2012, RSEF 2013, SEA2018).

He is PI of the Tenerife Microwave Spectrometer (TMS), Project Scientist of the QUIJOTE experiment, and "Planck Scientist" and LFI Core Team member within the ESA's Planck satellite. Within Planck, he was coordinator of the Planck Working Group WG5 ("Clusters and secondary anisotropies"). He is a member of the "Euclid NIR Consortium" and of the SKA cosmology group. He is co-I of the LSPE-STRIP and GroundBIRD collaborations, and member of LiteBIRD. He has Survey Builder status for the WEAVE-Clusters survey. He is involved in defining strategies and setting priorities for European CMB research. In particular, he is one of the (two) national contact points in Spain for the European CMB roadmap (E-CMB).

He coordinated RADIOFOREGROUNDS (G.A. 687312), devoted to the characterization of the physical properties of polarized emissions in the microwave domain using QUIJOTE and Planck data. He led two large observing programs in the Canary Islands Observatories (ITP13 and LP15). He is now the local PI at IAC for RadioForegroundsPlus (GA 101135036), aiming to combine Planck, QUIJOTE, C-BASS and S-PASS to provide the best possible description of the polarized emissions in the microwave domain.

He has supervised 14 PhD theses (12 already defended and 2 in progress), 4 Erasmus, 3 MSc and 2 BSc students. He is teaching in the Master of Astrophysics at the University of La Laguna: Radioastronomy (2010-2014, 2021-now) and Spectro-polarimetry (2015-now). In 2018 he obtained the Gruber prize in Cosmology and the RAS Group Achievement Award as member of the Planck Collaboration. He is member of: Sociedad Española de Astronomía (SEA), International Astronomical Union (IAU) and Real Sociedad Española de Física (RSEF). He is reviewer for MNRAS, ApJ, Physical Review D and A&A, and Scientific Evaluator for ANEP. He is member of the Comisión Nacional de Astronomía (CNA) and the RIA Working Group "Infraestructuras en Radioastronomía".

Part C. RELEVANT MERITS

C.1. Publications (selected 10)

1. Rubiño-Martin, Guidi, Génova-Santos et al. (2023), "QUIJOTE scientific results – IV. A northern sky survey in intensity and polarization at 10-20 GHz with the multifrequency instrument", MNRAS 519, 3383. Citations=20.
2. Planck Collaboration (2020), "Planck 2018 results. VI. Cosmological parameters", A&A 641, A6. Citations=11698. (181 authors in alphabetical order, 151/181).
3. Barrena, Streblyanska, Ferragamo, Rubiño-Martin et al. (2018), "Optical validation and characterization of Planck PSZ1 sources at the Canary Islands observatories. I. First year of ITP13 observations", A&A 616, A42. Citations=22.
4. Génova-Santos, Rubiño-Martin, Pelaez-Santos et al. (2017), "QUIJOTE scientific results - II. Polarisation measurements of the microwave emission in the Galactic molecular complexes W43 and W47 and supernova remnant W44", MNRAS 464, 4107. Citations=55.
5. Planck Collaboration (2016), "Planck 2015 results. XIII. Cosmological parameters", A&A 594, A13. Citations=11671. (264 authors in alphabetical order, 219/264).
6. Génova-Santos, Rubiño-Martin, Rebolo et al. (2015), "QUIJOTE scientific results - I. Measurements of the intensity and polarisation of the anomalous microwave emission in the Perseus molecular complex", MNRAS 452, 4169. Citations=65.

7. Planck Collaboration (2014), *"Planck 2013 results. XVI. Cosmological parameters",* A&A 571, A16. Citations=7748. (263 authors in alphabetical order, 220/263).
8. Planck Collaboration (2013), "Planck intermediate results. XI. The gas content of dark matter halos: the Sunyaev-Zeldovich-stellar mass relation for locally brightest galaxies", A&A 557, A52. Citations: 155. (203 authors in alphabetical order. C.A.: J.A. Rubiño).
9. López-Caraballo, Rubiño-Martín, Rebolo & Génova-Santos (2011), "*Constraints on the Polarization of the Anomalous Microwave Emission in the Perseus Molecular Complex from Seven-year WMAP Data*", ApJ 729, 25. Citations=50.
10. Rubiño-Martín, Chluba, Fendt & Wandelt (2010), "*Estimating the impact of recombination uncertainties on the cosmological parameter constraints from cosmic microwave background experiments*", MNRAS, 403, 439. Citations=64.

C.2. Congress.

- Invited speaker at "Cosmic Magnetism in Voids and Filaments", 23-27 Jan 2023, Bologna (Italy). Talk title: "Constraints on Primordial Magnetic Fields with Faraday Rotation".
- Invited speaker at "Towards the European Coordination of the CMB programme", 12-13 Sep 2019, Paris (France). Talk: "QUIJOTE: status and future plans".
- Invited speaker at "XIII Meeting of the SEA", 16-20 Jul 2018, Salamanca (Spain). Talk: "Cosmology with the Cosmic Microwave Background: results from Planck and QUIJOTE"
- Invited speaker at "Towards a next space probe for CMB observations and cosmic origins exploration", 17-20 May 2016, Ginebra (Switzerland). Talk: "The QUIJOTE experiment".
- Invited speaker at "Planck 2014: the microwave sky in temperature and polarization", 1-5 Dec 2014, Ferrara (Italy). Talk: "The QUIJOTE experiment".
- Invited plenary speaker at "XXXIV Reunión Bienal de la RSEF", July 2013, Valencia (Spain). Talk: "The Planck mission: cosmology results".
- Invited plenary speaker at "EWASS 2012", July 2012, Rome (Italy). Talk: "Galaxy cluster physics and cosmology with Planck".

C.3. Research projects.

- **RadioForegroundsPlus (G.A. 101135036)**: HORIZON-CL4-2023-SPACE-01 (European Union and British UKR). Period: 2024-2026. Budget: 1.497.000 Eur. Funding for IAC node: 275.000 Eur. Role: Local PI of IAC node.
- **PID2020-120514GB-I00:** "Cosmología de precisión con el fondo cósmico de microondas". MINECO. Convocatoria 2020. Institutions involved: IAC. Period: 1/01/2021 to 31/12/2023. Budget: 249.865 Eur. Role: Principal Investigator.
- **AYA2017-84185-P:** "Cosmología de precisión con el fondo cósmico de microondas: QUIJOTE, PLANCK y otros experimentos de microondas en el Observatorio del Teide". MINECO. Convocatoria 2017. Institutions involved: IAC. Period: 1/01/2018 to 31/12/2020. Budget: 210.000 Eur. Role: Principal Investigator.
- **RADIOFOREGROUNDS (G.A. 687312)**: "Ultimate modelling of Radio foregrounds: a key ingredient for cosmology". H2020-COMPET-05-2015. Period: 2016-2018. Budget: 1.534.438 Eur. Funding for IAC node: 325.000 Eur. Role: coordinator.
- **AYA2014-60438-P**: "Cosmología de precisión con PLANCK, QUIJOTE y EUCLID". MINECO, Convocatoria 2014. Institutions involved: IAC. Period: 01/01/2015 to 31/12/2017. Budget: 306.000 Eur. Role: Principal Investigator.
- **ESP2013-48362-C2-1-P**: "Cosmología con las misiones espaciales Euclid y PLANCK". MINECO, Convocatoria 2013. Institutions involved: IAC, UPCT. Period: 01/01/2014 to 30/06/2016. Budget: 145.000 Eur. Role: Principal Investigator.
- **CSD2010-00064**: "EPI: Explorando la Física de la Inflación". MICINN, Consolider Ingenio 2010. Institutions involved: IAC, IFCA, DICOM, UGR, UPV. Period: 01/01/2011 to 26/06/2017. Total budget: 4.000.000 Eur. Coordinator: E. Martínez-González (IFCA). Role: local PI at IAC node. Budget for IAC node: 1.744.839,63 Eur.

C.4. Contracts, technological or transfer merits.

C.5. Supervision (students, postdocs, …)

- PhD students: 14 in total. Two as solely supervisor: Carlos H. López-Caraballo (2013) and Alba E. Peláez-Santos (2019). Co-supervised: Beatriz Ruiz-Granados (2009), Inés Flores-Cacho (2010), Denis Tramonte (2017), Marcos Pellejero (2018), Antonio Ferragamo (2019), Alejandro Aguado (2021), Federica Guidi (2021), José Ramón Bermejo-Climent (2021), Paz Alonso (2022), Mateo Fernández (2023). In progress: Raúl González (expected 2024) and Angela Arriero (expected 2025).
- Erasmus students: Riccardo Vignaga (2011-2012); Björn Sörgel (2012-2013), Denis Tramonte (2012-2013), Felice Martire (2019).
- Summer student at IAC: Laia Casamiquela Floriach (2010).
- Postdoctoral researchers (PD) working under my direct supervision: D. Adak, R. Barrena, A. Fasano, H.Lietzen, C. López-Caraballo, F. Poidevin, B. Ruiz-Granados, C. Scóccola, A. Streblyanska, F. Vansyngel.
- Line manager of the engineering team for QUIJOTE and TMS at the IAC, involving one Instrument Manager and six engineers.

C.6 Evaluation and reviewing activities. Panels.

- Reviewer for MNRAS, ApJ, Physical Review D and A&A.
- **2021 – now**. Member of "Comisión Nacional de Astronomía" (Vocal Cosmología).
- **2019 – now**. Member of RIA Working Group "Infraestructuras en Radioastronomia".
- **2012 – now**. Scientific Evaluator, ANEP (Spanish Agency of Evaluation).
- **2013 – 2015**. Member of Time Allocation Committee (CAT-IAC) for night time in the Canary Islands Observatories. IAC, Tenerife, Spain.
- **2015 – 2018**. Editorial Board, Planck Collaboration.
- **2016 – 2018**. Member of Time Allocation Committee (TAC-OAJ) for night time in the Observatorio de Javalambre (OAJ). CEFCA, Teruel, Spain.

C.7 Organization of schools and scientific meetings.

- "CMB foregrounds for B-mode studies", Tenerife, October 2018. Chairman.
- "Cosmology School in the Canary Islands", Fuerteventura, September 2017. Chairman.
- "Meeting on Fundamental Cosmology", Fuerteventura, June 2014. Chairman.
- "Cosmology across cultures", Granada 2012. Member of SOC. Editor of proccedings.
- XIX Winter School of Astrophysics, Tenerife 2007. Chairman. Editor of proccedings.

C.8 Teaching

- **2020 – now**. Lecturer – Radioastronomy, 1 ETCS/year. University of La Laguna.
- **2014 – now**. Lecturer – Spectropolarimetry, 1.5 ETCS/year. University of La Laguna.
- **2007 – 2014**. Lecturer – Cosmology, 3 ECTS/year. University of Granada.
- **2006 – 2014**. Lecturer – Radioastronomy, 1.5 ETCS/year. University of La Laguna.

C.9 Institutional responsibilities at the IAC

- **2016 – 2022**. Member of the Severo Ochoa Coordination Committee at the IAC. Represeting the "Cosmology and Astroparticles" research line.
- **2014 – now**. Member of the Instrumentation Committee at the IAC.
- **2012 – 2014**. Member of the Working Group for Equality and Parity at the IAC.

C.10 Prizes and awards

- **2018**. Gruber prize in Cosmology (as member of Planck Collaboration).
- **2018**. RAS Group Achievement Award (as member of Planck Collaboration).
- **2013**. PhysicsWorld. Top10 Breakthrough of the Year 2013 (as Planck Collaboration).

C11 Books

- "The Cosmic Microwave Background", Canary Islands Winter School of Astrophysics XIX. Cambridge University Press (2010). Edited by J.A. Rubiño, R. Rebolo and E. Mediavilla. ISBN 978-0-521-76453-7.
- "El fondo cósmico de microondas". RBA (2017). ISBN 978-84-473-8673-4.

Fecha del CVA 18/07/2024

Parte A. DATOS PERSONALES

Nombre	María Begoña		
Apellidos	García Lorenzo		
Sexo (*)	Mujer	Fecha de nacimiento (dd/mm/yyyy)	[redacted]
DNI, NIE, pasaporte	[redacted]		
Dirección email	[redacted]	URL Web	
Open Researcher and Contributor ID (ORCID) (*)	0000-0002-7228-7173		

A.1. Situación profesional actual

Puesto	Investigadora Científica OPI		
Fecha inicio	05/03/2021		
Organismo/ Institución	Instituto de Astrofísica de Canarias (IAC)		
Departamento/ Centro	Área de Investigación		
País	España	Teléfono	[redacted]
Palabras clave	Desarrollo instrumental y experimental. Instrumentación científica avanzada- Turbulencia atmosférica. Alta resolución espacial. Óptica adaptativa. Espectroscopia de campo integral. Formación y evolución de galaxias. Cinemática y dinámica de galaxias. AGN.		

A.2. Situación profesional anterior (incluye interrupciones en la carrera investigadora)

Periodo	Puesto/ Institución/ País / Motivo interrupción
02/2018-03/2021	Coordinadora de Proyectos / IAC / España
03/2014-01/2018	Coordinadora del Área de Instrumentación / IAC / España
06/2012-03/2014	Científico Titular OPI / IAC / España
01/2007-05/2012	Ramón y Cajal / IAC / España
11/2005-12/2006	Ingeniero Promoción de Observatorios / IAC / España
06/2005-11/2005	Permiso maternindad (16 semanas)
01/2003-06/2005	Ingeniero Promoción de Observatorios / IAC / España
01/2000-12/2002	Astrónoma de soporte/Isaac Newton Group of Telescopes (PPAC) / UK
10/1997-12/1999	Astrónoma de soporte / IAC / España
10/1993-09/1996	Astrofísico residente / IAC / España

A.3. Formación Académica

Grado/Master/Tesis	Universidad/Pais	Año
Doctora Ciencias Físicas	Universidad de La Laguna / España	1997

Licenciada Ciencias Físicas, Especialidad astrofísica	Universidad de La Laguna / España	1993

Parte B. RESUMEN DEL CV *(máx. 5.000 caracteres, incluyendo espacios):*

Mi carrera profesional ha combinado siempre aspectos científicos, técnicos e instrumentales. Los primeros 10 años, me centré en desarrollar técnicas de espectroscopia de campo integral (IFS). Mi tesis doctoral (1993-97, IAC/ULL) fue la primera en España en aplicar esta técnica en Astrofísica, en concreto al estudio de la región central de la galaxia NGC1068 (ej. García-Lorenzo et al. 1999, ApJ, 518, 190). Técnicamente, participé en el desarrollo de sistemas IFS con fibras ópticas y desarrollé paquetes informáticos específicos para el tratamiento de datos 3D (ej. García-Lorenzo et al. 2002, ASPC, 282, 501). Científicamente, apliqué las técnicas de IFS a diversos campos (ej., AGNs, García-Lorenzo et al. 2001, A&A, 378, 787; lentes gravitatorias, Motta et al. 2002, ApJ, 574, 719; galaxias enanas compactas azules, García-Lorenzo et al. 2008, ApJ, 677, 201; galaxias anfitrionas de QSOs, García-Lorenzo et al. 2005, ApJ, 621, 146; objetos Herbig-Haro, López et al. 2010, MNRAS, 406, 2193). Fui una de las promotoras de la red europea EURO3D para la formación de jóvenes científicos en el uso de la IFS en Europa. Desde 2010, participé activamente en la colaboración CALIFA (ej. Sánchez et al. 2016, A&A, 594, 36), centrándome en aspectos cinemáticos (ej. García-Lorenzo et al. A&A 2015, A&A, 573, 59).

Siendo astrónoma de soporte (1998-2002), extendí mis intereses científico-técnicos a las técnicas de alta resolución espacial, fundamentales para la explotación científica de los grandes telescopios. En 2003, me uní a los grupos de Calidad del Cielo y Alta Resolución Espacial del IAC para realizar estudios de óptica atmosférica aplicados al desarrollo de sistemas de óptica adaptativa (AO). Participé en la construcción de varios instrumentos (ej. Rodríguez-Hernández et al. 2007, SPIE, 6747,0), desarrollé paquetes informáticos específicos y nuevas técnicas de extracción de información (ej. García-Lorenzo & Fuensalida 2006, MNRAS, 372, 1483) y trabajé en la caracterización de la estructura turbulenta de la atmósfera en los observatorios de Canarias (ej. García-Lorenzo & Fuensalida 2011, MNRAS, 416, 2123). Los resultados se utilizaron para definir los parámetros de diseño de varios sistemas de AO, ej.: 1) del experimento EDiFiSE, corazón de mi proyecto Ramón y Cajal (2007-2011); 2) del sistema de AO para GTC (GTCAO); 3) del experimento CANARY de la U. de Durham, relacionado con técnicas para el ELT; 4) del sistema de AO del TMT para Mauna Kea, verificando su validez para el observatorio del Roque de los Muchachos; y 5) del sistema AO para el EST, usando perfiles de las primeras y últimas horas de las noches para cálculos de AO diurnos.

En 2011 obtuve el certificado I3 y en 2012 fui nombrada Científica Titular de OPI. Entre 2014 y 2018, fui la Coordinadora del Área de Instrumentación del IAC, liderando un equipo de 55 ingenieros y 25 técnicos de distintas especialidades, gestionando las infraestructuras del Área (talleres, laboratorios, etc) y supervisando la marcha de unos 20 proyectos instrumentales de distinto alcance. En este periodo, participé en la elaboración de los planes estratégicos del IAC y de los observatorios de Canarias e impulsé un número importante de iniciativas científico-técnicas.

Desde el año 2015 lidero la participación del IAC en el consorcio internacional que desarrolla HARMONI, instrumento para el ELT. El equipo del IAC en HARMONI incluye a una veintena de ingenieros, técnicos y científicos. Además, participo en un grupo internacional liderado por ESO para definir los parámetros astroclimáticos de referencia para la operación del ELT.

En mi trayectoria, he dirigido 4 tesis doctorales en el campo de la Formación y Evolución de Galaxias (la última en 2022). Habitualmente dirijo estudiantes de grado y máster en proyectos científico-técnicos. Participo en el programa de tutores del IAC, y en programas de divulgación científico-técnica para estudiantes de Primaria y Secundaria. He arbitrado artículos para revistas (ej., MNRAS, A&A, Optics express) y he formado parte de paneles de evaluación para las Agencias Nacionales españolas ANEP y SGPI, el Fondecyt chileno, y la National Science Foundation americana. De 2015 a 2021, fui miembro de la Comisión Nacional de Astronomía y desde marzo de 2024 soy la coordinadora de la Red de Infraestructuras de Astronomía.

He completado 4 sexenios de investigación (el último en 2019), alcanzando un índice h de 31. He sido investigadora principal de 11 proyectos aprobados en convocatorias competitivas, obteniendo financiación superior a 2500 KEuros en suma.

Mi actividad científica se centra principalmente en desvelar los mecanismos desencadenantes (internos/externos) de AGN de baja y moderada luminosidad en el Universo local (ej. del Moral-Castro, García_Lorenzo et al. 2020, A&A, 639,9, Barrera-

Ballesteros, García-Lorenzo et al. 2015, A&A, 582, 21). Las propiedades de las galaxias cercanas definen el marco para estudiar sus homólogas a alto desplazamiento al rojo (ej. García-Lorenzo et al. 2022, A&A, 659, 79). Las mismas propiedades galácticas que estamos revelando en las galaxias cercanas serán accesibles a distancias cosmológicas gracias a la resolución espacial sin precedentes de HARMONI+ELT.

Parte C. LISTADO DE APORTACIONES MÁS RELEVANTES -

C.1. Publications *("peer review" since 2022)*

1.- García-Lorenzo, B.; Esparza-Arredondo, D.; Acosta-Pulido, J. A.; Castro-Almazán, J. A. 2024. Integral field spectroscopy supports atmospheric optics to reveal the finite outer scale of the turbulence, 2024A&A...687A..40G (10.1051/0004-6361/202348364)

2.- Esposito, F. Et al. (**9**/24). 2024. AGN feedback in the Local Universe: Multiphase outflow of the Seyfert galaxy NGC 5506, 2024A&A...686A..46E (10.1051/0004-6361/202449245)

3.- Leist, M. T. Et al. (17/35). 2024. Deconvolution of JWST/MIRI Images: Applications to an AGN Model and GATOS Observations of NGC 5728, 2024AJ....167...96L (10.3847/1538-3881/ad1886)

4.- Peralta de Arriba, L. (6/19). 2024. A radio-jet-driven outflow in the Seyfert 2 galaxy NGC 2110?, 2023A&A...675A..58P (10.1051/0004-6361/202245408)

5.- del Valle-Espinosa, M. G. et al. (**6**/7). 2023. Spatially-resolved chemodynamics of the starburst dwarf galaxy CGCG 007-025: Evidence for recent accretion of metal-poor gas, 2023MNRAS.522.2089D (10.1093/mnras/stad1087)

6.- Ramos Almeida et al. (**14**/14). 2023. Absence of nuclear PAH emission from a compact starburst: the case of the type-2 quasar Mrk 477, 2023A&A...669L...5R (10.1051/0004-6361/202245409)

7.- Angthopo, J.; del Moral-Castro, I.; Ferreras, I.; **García-Lorenzo, B.**; Ramos Almeida, C. 2022. Testing the role of AGN on the star formation and metal enrichment of 'twin galaxies', MNRAS. 515-1, pp.378-394 (10.1093/mnras/stac1655)

8.- García-Lorenzo, B.; Monreal-Ibero, A.; Pereira-Santaella, M.; Thatte,N.; Ramos Almeida, C.; Galbany, L.; Mediavilla, E.2022. HARMONI view of the host galaxies of active galactic nuclei around cosmic noon. Resolved stellar morpho-kinematics and the M_{BH}-σ* relation, A&A. 659, pp.A79-A79 (10.1051/0004-6361/202141400)

C.2. Proyectos o líneas de investigación más relevantes en los que ha participado

1.- *Ref:* C17.I02.P02.S04 IAC (ESO-HARMONI), *Title*: Apoyo al desarrollo en el IAC de la preóptica (IPO) y el control electrónico (ICE) de HARMONI (IPOICE) (2021). *PI*: **B. García-Lorenzo** (IAC). *Start-End*: 01/01/2021-31/12/2025. *Amount*: 985.000 €.

2.- *Ref:* CEX2019-000920-S, *Title*: Programa de Excelencia Severo Ochoa. *Funding body*: Ministerio de Ciencia e Innovación (2019). *PI*: Rafael Rebolo López (IAC). *Start-End*: 01/01/2020-31/12/2024. *Amount*: 4.000.000 €. *Role*: Researcher/guarantor.

3.- *Ref*: PID2019-107010GB-100. *Title*: Participación del IAC en el Desarrollo del instrumento HARMONI para el ELT:"Fase D". *Funding body*: Ministerio de Ciencia e innovación (2019). *PI*: **B. García Lorenzo** (IAC). *Start-End*: 01/06/2020-31/05/2024. *Amount*: 762.300 €.

4.- *Ref*: ProID2020010048. *Title*: Tecnologías criogénicas para instrumentación de grandes dimensiones. *Funding body*: Agencia Canaria de Investigación, innovación y Sociedad de la Información. *PI*: **B. García Lorenzo**. *Start-End*: 01/01/2020-30/09/2022. *Amount*: 70.000€

5.- *Ref*: EQC2018-004904-P. *Title*: Criostato de gran tamaño para verificación de instrumentación científica para telescopios de clase 10m o superior. *Funding body*: Ministerio de Ciencia, Innovación y Universidades. *PI*: **B. García Lorenzo** (IAC). *Start-End date*: 01/2018-12/2020. *Amount*: 250.000 €

6.- *Ref*: AYA2015-68217-P. *Title*: Participación Española en el Desarrollo del instrumento HARMONI para el ELT:"Fases B y C". *Funding body*: Ministerio de Economía y Competitividad. *PI*: **B. García Lorenzo**. *Start-End date*: 01/2016-12/2019 *Amount*: 550.187 €

7.- *Ref*: IACA15-BE-3830. *Title*: Equipamiento crio-mecánico especializado para el desarrollo de instrumentación astronómica, Funding body: Ministerio de Economía y Competitividad. *PI*: **B. García-Lorenzo** (IAC). *Start-End*: 01/2016-12/2018. *Amount*: 187.822 €

8.- *Ref*: AYA2013-41656-P. *Title*: Participación del IAC en el desarrollo del instrumento HARMONI para el ELT: "Interim Study". *Funding body*: Ministerio de Economía y Competitividad. *PI*: **B. García Lorenzo** (IAC) *Start-End*: 01/2014-12/2015.*Amount*: 111.320 €

9.- *Ref*: AYA2012-39408-C02-02. *Title*: Participación del IAC en el desarrollo de HARMONI: un instrumento de primera generación para el E-ELT. *Funding body*: Ministerio de Ciencia e Innovación.*PI*: **B. García Lorenzo** (IAC) *Start-End*: 01/01/2013-30/06/2014.*Amount*: 93.600€

C.3. Participación en actividades de transferencia de tecnología/conocimiento y explotación de resultados

1.- *Title*: Diseño, fabricación y suministro de un criostato de pruebas para la pre-óptica de HARMONI. *CPV Code*: 31640000-Máquinas y aparatos con una función propia., 38970000-Investigación, ensayos y simuladores científico-técnicos. *Entity*: IAC. *Type of entity*: Public Research Body. *Responsible*: Elvio Hernández Suárez. *Publication date*: 24/08/2019

2.- *Title*: Design, construction and commissioning of the HARMONI Instrument and Preliminary Design of the associated LTAO system on the European Extremely Large Telescope (E-ELT). *Co-Investigators*: N. Thatte (PI), Ó. González, K. O'Brien, B. Neichel, N. Bouché**, B. García-Lorenzo**, S. Arribas and M. Mateo. *Partners*: University of Oxford, STFC-UKATC, Durham University, CNRS-LAM, CNRS-CRAL, IAC, CAB (CSIC-INTA), and University of Michigan

C.4. Responsabilidades Institucionales

Comité	Institución	Fecha
Coordinadora de la Red de Infraestructura de Astronomía	Ministerio de Ciencia, Innovación y Universidades	03/2024-…
Comité de Biblioteca IAC	Instituto de Astrofísica de Canarias	02/2018-…
Comisión Nacional de Astronomía	Ministerio de Fomento	09/2015-03/2021
Coordinadora de Instrumentación	Instituto de Astrofísica de Canarias	03/2014-02/2018
Comité de Seguimiento de GTC	Gran Telescopio Canarias	03/2014-01/2018
Comité de Dirección IAC	Instituto de Astrofísica de Canarias	01/2014-02/2018
Comité de Coordinación Severo Ochoa	Instituto de Astrofísica de Canarias	06/2014-01/2018
Comité de Usuarios de GTC	Gran Telescopio Canarias	12/2010-02/2013
Comité de Investigación	Instituto de Astrofísica de Canarias	01/2013-03/2015