

Part A. PERSONAL INFORMATION

CVA date

01/04/2025

First and Family name	Antonio José Cuesta Vázquez		
Social Security, Passport, ID number	XXXXXX	Age	XX
Researcher numbers	Researcher ID	AAA-6261-2019	
	Orcid code	0000-0002-4153-9470	

A.1. Current position

Name of University/Institution	Universidad de Córdoba		
Departament	Física		
Address and Country	Córdoba, Andalucía, España		
Phone number	XXXXXX	E-mail	XXXXXX
Current position	Profesor Titular de Universidad	From	2023
Espec. cod. UNESCO	2101.00, 2101.04, 2212.00		
Key words	Cosmology, Neutrino Cosmology, Dark Energy, Baryon Acoustic Oscillations, Large Scale Structure of the Universe, Galaxy Redshift Surveys, Bayesian Inference, Monte Carlo Methods, Dark Matter, Cosmological Simulations		

A.2. Education

PhD	University	Year
Licenciado en Física	Universidad de Granada	2005
Doctor en Física	Universidad de Granada	2010

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

Indicator	Measure
Number of citations	17177
H index	51
Publications	72
Average citations per year over the past 5 years	1236.6
1st quartile publications	70
Average citations per publication	238.5
Six-year research periods	2
Date of the latest six-year period	01/01/2024

Part B. CV SUMMARY

Education: Graduated in Physics (Universidad de Granada, 2005). Two Master degrees: Máster Universitario en Métodos y Técnicas Avanzadas en Física (Universidad de Granada, 2007) and Máster Universitario en Profesorado en Enseñanza Secundaria Obligatoria y Bachillerato, Formación Profesional y Enseñanzas de Idiomas (Universidad de Sevilla, 2018).

PhD studies: FPU Scholarship, Ministerio de Educación y Ciencia. Instituto de Astrofísica de Andalucía (IAA-CSIC). PhD thesis: "The Properties of Virialized Dark Matter Halos: Signals from the Large Scale Structures". Doctor "Cum Laude" (Universidad de Granada, 2010). Advisor: Francisco Prada.

Postdocs and Research visits: Postdoctoral Research Associate at Yale University from 2010 to 2013; Postdoctoral Researcher at Institut de Ciències del Cosmos, Universitat de Barcelona from 2013 to 2016. Research visits to Lawrence Berkeley National Laboratory (4 months in 2008) and Harvard-Smithsonian Center for Astrophysics (4 months in 2009 plus 2 1/2 months in 2015).

Publications: 72 articles in peer-reviewed international journals, more than 17,000 citations in total, h-index 51 (source: Web of Science).

Main research contributions: 1) Analysis and description of dark matter halo properties in large cosmological simulations, focusing on their shape, spin, and density and velocity profiles, towards a consensus definition on the mass of a dark matter halo. 2) Postdoctoral researcher (2010-2016) of the Baryon Oscillation Spectroscopic Survey, which is part of Sloan Digital Sky Survey III. This survey obtained a precise measurement of the dark energy equation of state as well as of the clustering of galaxies at redshifts $z < 0.8$, focusing on the measurement of the distance-redshift relation using baryon acoustic oscillations. 3) Study of the cosmic distance ladder, especially on the discrepancy between the rate of expansion in the Local Universe and in the Early Universe, known as the Hubble tension. 4) Cosmological constraints on neutrino mass, including the information from galaxy clustering measurements. 5) Phenomenology of non-standard neutrino physics models in the thermal history of the Early Universe, and their implications on the Hubble tension.

Referee of the journals "Monthly Notices of the Royal Astronomical Society", "Journal of Cosmology and Astroparticle Physics" and "Physics of the Dark Universe".

Teaching at University of Córdoba (2017 - present) and University of Sevilla (2017 to 2018): Astrophysics and Cosmology, Nuclear and Particle Physics, Atomic and Molecular Physics, Classical and Quantum Mechanics, Optics (Lab), and Machine Learning. 1366 hours overall.

Advisor in 2 Master Thesis and 13 Bachelor Thesis at University of Córdoba.

Accreditations: Profesor Titular de Universidad ANECA (2022).

Assessment of Research and Teaching Activity: 2 six-year research periods (2006-2012, 2013-2018), 1 five-year teaching period (2017-2022).

Outreach activities: Parque de las Ciencias de Granada (1999), 100 horas de Astronomía (2009), Pessics de Ciència (2014), Grandes Preguntas sobre el Universo (2014), VII Ciclo de Conferencias de la Facultad de Ciencias UCO (2018), Ciencia en el Bulevar (2018), La Noche Europea de I@s Investigador@s (2018, 2024), Semana de la Ciencia (2018, 2024), Paseo por la Ciencia (2018, 2019, 2021, 2022, 2023, 2024), El Cielo del Mes (2019), Mi Física Favorita: Edición Especial Tabla Periódica (2019), UCOsmos: una ventana al Universo (2023), Fronteras de la Física (2023), IX Jornadas Andaluzas de Astronomía RADA (2024), Café con Ciencia (2024), Cienciafictionados (2025).

Part C. RELEVANT MERITS

C.1. Publications (including books)

Sanz-Wuhl, Santiago; Gil-Marín, Héctor; Antonio J. Cuesta; Verde, Licia. BAO cosmology in non-spatially flat background geometry from BOSS+eBOSS and lessons for future surveys. *Journal of Cosmology and Astroparticle Physics*. 05, pp. 1-41 (2024).

Xu, Kun; Jing, Y. P.; Zhao, Gong-Bo; Antonio J. Cuesta. Evidence for baryon acoustic oscillations from galaxy-ellipticity correlations. *Nature Astronomy*. 7, pp. 1259-1264 (2023).

Antonio J. Cuesta; Illana-Calero, José Ignacio; Masip, Manuel. Photon to axion conversion during Big Bang Nucleosynthesis. *Journal of Cosmology and Astroparticle Physics*. 11, pp. 1-11 (2023).

Antonio J. Cuesta; Gómez-Santamaría, Mario Emilio; Illana-Calero, José Ignacio; Masip, Manuel. Cosmology of an axion-like majoron. *Journal of Cosmology and Astroparticle Physics*. 04, pp. 1-17 (2022).

Zhao, Gong-Bo; Raveri, Marco; Pogossian, Levon; Wang, Yuting; Crittenden, Robert G.; Handley, Will J.; Percival, Will J.; Beutler, Florian; Brinkmann, Jonathan; Chuang, Chia-Hsun; Antonio J. Cuesta; Eisenstein, Daniel J.; Kitaura, Francisco-Shu; Koyama, Kazuya; L'huillier,

Benjamin; Nichol, Robert C.; Pieri, Matthew M.; Rodríguez-Torres, Sergio; Ross, Ashley J.; Rossi, Graziano; Sánchez, Ariel G.; Shafieloo, Arman; Tinker, Jeremy L.; Tojeiro, Rita; Vazquez, Jose A.; Zhang, Hanyu. Dynamical dark energy in light of the latest observations. *Nature Astronomy*. 1, pp. 627-632 (2017).

Alam, Shadab; Ata, Metin; Bailey, Stephen; Beutler, Florian; Bizyaev, Dmitry; Blazek, Jonathan A.; Bolton, Adam S.; Brownstein, Joel R.; Burden, Angela; Chuang, Chia-Hsun; Antonio J. Cuesta; et al. The clustering of galaxies in the completed SDSS-III Baryon Oscillation Spectroscopic Survey: cosmological analysis of the DR12 galaxy sample. *Monthly Notices of the Royal Astronomical Society*. 470, pp. 2617-2652 (2017).

Antonio J. Cuesta; Niro, Viviana; Verde, Licia. Neutrino mass limits: robust information from the power spectrum of galaxy surveys. *Physics of the Dark Universe*. 13, pp. 77-86 (2016).

Antonio J. Cuesta; Vargas-Magaña, Mariana; Beutler, Florian; Bolton, Adam S.; Brownstein, Joel R.; Eisenstein, Daniel J.; Gil-Marín, Héctor; Ho, Shirley; McBride, Cameron K.; Maraston, Claudia; et al. The clustering of galaxies in the SDSS-III Baryon Oscillation Spectroscopic Survey: baryon acoustic oscillations in the correlation function of LOWZ and CMASS galaxies in Data Release 12. *Monthly Notices of the Royal Astronomical Society*. 457, pp. 1770-1785 (2016).

Audren, Benjamin; Bellini, Emilio; Antonio J. Cuesta; Gontcho A Gontcho, Satya; Lesgourgues, Julien; Niro, Viviana; Pellejero-Ibanez, Marcos; Pérez-Ràfols, Ignasi; Poulin, Vivian; Tram, Thomas; Tramonte, Denis; Verde, Licia. Robustness of cosmic neutrino background detection in the cosmic microwave background. *Journal of Cosmology and Astroparticle Physics*. 03, pp. 1-20 (2015).

Antonio J. Cuesta; Verde, Licia; Riess, Adam; Jiménez, Raúl. Calibrating the cosmic distance scale ladder: the role of the sound horizon scale and the local expansion rate as distance anchors. *Monthly Notices of the Royal Astronomical Society*. 448, pp. 3463-3471 (2015).

C.2. Research projects and grants

AST22_00001. Análisis de la estadística de la distribución de galaxias en la estructura a gran escala mediante grandes cartografiados astronómicos. Junta de Andalucía. Conserjería de Universidad, Investigación e Innovación. 2021-2025. 116,083 EUR. Principal Investigator.

PID2022-140440NB-C21. Física de Astropartículas y QCD. Agencia Estatal de Investigación. Ministerio de Ciencia e Innovación. 2023-2026. 153,250 EUR. Researcher (PI: Manuel Masip).

PID2019-107844GB-C21. Física de Astropartículas y QCD. Agencia Estatal de Investigación. Ministerio de Ciencia e Innovación. 2020-2023. 89,540 EUR. Researcher (PI: Manuel Masip).

AYA2014-58747-P. Cosmología Física en la época de grandes cartografiados. Ministerio De Economía Y Competitividad. 2015-2018. 227,480 EUR. Researcher (PI: Licia Verde).

NNX11AF43G. Reconstructing baryon oscillations: Enhancing the dark energy reach of future redshift surveys. NASA. 2011-2015. Researcher (PI: Nikhil Padmanabhan).

FP7-IDEAS-Phys.LSS-240117. Cosmological Physics with future large-scale structure surveys. European Research Council. 2009-2015. 1,395,000 EUR. Researcher (PI: Licia Verde).

AYA2008-00758. Super Ifu Deployable Experiment: A common use spectrograph for Gran Telescopio Canarias. Ministerio de Educación y Ciencia. 2009-2010. 314,600 EUR. Researcher (PI: Francisco Prada).