



Ángel Berihuete Macías

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Summary of CV

This section describes briefly a summary of your career in science, academic and research; the main scientific and technological achievements and goals in your line of research in the medium -and long- term. It also includes other important aspects or peculiarities.

All my professional career is related to education (secondary and higher) and research. I started teaching mathematics in a secondary school (1998-2010) and developing tasks as a mentor and Head of Studies in those years. By the end of 2009 I joined the staff of the University of Cádiz holding different positions: assistant professor (2009-2019), associate professor (2019-present). During these years I have been positively evaluated and in 2018 I succeeded in obtaining the Docentia accreditation with mention of excellence.

I have developed most of my research in Statistical Inference and Artificial Intelligence applied to Bayesian hierarchical models. The involvement in multidisciplinary teams in the field of Astrophysics has given to me high-impact publications as shown by the quality indicators in recent years. In these teams I have had the opportunity to design complex astrophysical models implemented for large databases. Specifically, we modeled Bayesian hierarchical models using probabilistic programming with multivariate observations from different sources (telescopes/space missions). This kind of models needs high-capacity computing environments (RES facilities) and the use of advanced programming libraries (Tensorflow for instance).



General quality indicators of scientific research

This section describes briefly the main quality indicators of scientific production (periods of research activity, experience in supervising doctoral theses, total citations, articles in journals of the first quartile, H index...). It also includes other important aspects or peculiarities.

I have developed my research career on statistical modeling and inference on problems with high complexity in terms of probabilistic programming and computational cost. The articles "Properties of ultra-cool dwarfs with Gaia. An assessment of the accuracy for the temperature determination" (Sarro et al., 2013) and "Ultracool dwarfs in Gaia DR3" (Sarro et al., 2023) show this kind of models, and how these parametric analysis have been part of the studies for the Data Processing and Analysis Consortium linked to Gaia satellite (ESA). Other projects like DANCe (Hervé Bouy, PI) and SVO (Enrique Solano, PI) have also succeeded in applying these methodologies to heterogeneous large datasets in high performance computing environments.



Ángel Berihuete Macías

Surname(s): **Berihuete Macías**
Name: **Ángel**
ORCID: **0000-0002-8589-4423**
ScopusID: **36707043800**
ResearcherID: **K-1244-2013**

Current professional situation

Employing entity: Universidad de Cádiz **Type of entity:** University
Professional category: Profesor contratado doctor
City employing entity: Cádiz, Andalusia, Spain
Phone: 956016087
Start date: 25/07/2019
Dedication regime: Full time

Previous positions and activities

	Employing entity	Professional category	Start date
1	Universidad de Cádiz	Profesor Ayudante Doctor	15/10/2015
2	Universidad de Cádiz	Profesor Sustituto Interino	16/12/2009
3	Colegio La Salle Santa Natalia	Profesor de Secundaria	01/09/1998

1 **Employing entity:** Universidad de Cádiz **Type of entity:** University
Professional category: Profesor Ayudante Doctor
Start-End date: 15/10/2015 - 24/07/2019

2 **Employing entity:** Universidad de Cádiz **Type of entity:** University
Professional category: Profesor Sustituto Interino
Start-End date: 16/12/2009 - 14/10/2015

3 **Employing entity:** Colegio La Salle Santa Natalia
City employing entity: Colegio La Salle Santa Natalia, Andalusia, Spain
Professional category: Profesor de Secundaria
Start-End date: 01/09/1998 - 01/07/2010 **Duration:** 4396 days



Education

University education

1st and 2nd cycle studies and pre-Bologna degrees

University degree: Higher degree

Name of qualification: Licenciado en Matemáticas Especialidad Estadística e Investigación Operativa

Degree awarding entity: Universidad de Sevilla **Type of entity:** University

Date of qualification: 1997

Doctorates

Doctorate programme: Doctor por la Universidad de Cádiz

Degree awarding entity: UNIVERSIDAD DE CÁDIZ. ESTADISTICA E INVESTIGACIÓN OPERATIVA

Date of degree: 2010

Thesis title: MODELOS ASTROESTADISTICOS DE REDUCCION DE LA DIMENSION APLICADOS AL ANALISIS DE SEÑALES ESPECTRALES ORIGINADOS EN LA SUPERFICIE SOLAR

Thesis director: Jimenez-Jimenez, Andres; Alvarez-Gonzalez, Francisco

Teaching experience

Experience supervising doctoral thesis and/or final year projects

- 1 Project title:** T-test versus estimación Bayesiana: aplicación a dos poblaciones independientes.
Entity: Universidad de Cádiz **Type of entity:** University
Student: Ana Hercberg Moreno
Date of reading: 2019
- 2 Project title:** Aplicación del análisis de la imagen para la estima de la biomasa de tres especies de misidáceos (Rhopaliphthalmus tartessicus, Noemysis integer y Mesodopsis slabberi)
Entity: Universidad de Cádiz **Type of entity:** University
Student: Javier Díaz Pérez
Date of reading: 2014
- 3 Project title:** Estadística Bayesiana robusta con aplicaciones a datos reales
Entity: Universidad de Cádiz **Type of entity:** University
Student: Marta Sánchez Sánchez
Date of reading: 2014
- 4 Project title:** Estimación paramétrica en el modelo de formación estelar SB99 desde la perspectiva de la Inferencia Bayesiana.
Entity: Universidad de Cádiz **Type of entity:** University



Student: Rubén Fedriani López

Date of reading: 2014

5 Project title: Software para la detección automática de elementos explosivos en la superficie solar

Entity: Escuela Técnica Superior de Ingeniería
Informática

Type of entity: University Centres and Structures and
Associated Bodies

Student: Ana María García Grandes

Date of reading: 2011

Participation in innovative teaching projects

1 Project title: TRABAJO SOCIAL COMUNITARIO PARA LA PAZ. OPEN COURSE WARE

Number of participants: 2

Amount awarded: 1.155 €

Funding entity: OTROS DEPARTAMENTOS

Type of entity: University Department

End date: 30/09/2015

Duration: 364 days

2 Project title: EVALUACIÓN MULTIDISCIPLINAR EN EL GRADO DE TURISMO

Name of the main researcher: MANUEL ARANA JIMÉNEZ

Number of participants: 2

Amount awarded: 350 €

Funding entity: Universidad de Cádiz

Type of entity: University

3 Project title: PROMOCIÓN DEL BILINGÜISMO EN EL ÁMBITO DE LA ESTADÍSTICA Y LAS MATEMÁTICAS

Name of the main researcher: ALBERTO VIGNERON TENORIO

Number of participants: 3

Funding entity: Universidad de Cádiz

Type of entity: University

Awards received for innovation in the field teaching

1 Name of the prize: Promoción del bilingüismo en el ámbito de la Estadística y las Matemáticas

Awarding entity: Universidad de Cádiz

City awarding entity:

Conferral date: 21/04/2016

2 Name of the prize: Trabajo Social comunitario para la paz. Open Course Ware

Awarding entity: Universidad de Cádiz

City awarding entity:

Conferral date: 21/04/2016



Scientific and technological experience

Scientific or technological activities

R&D projects funded through competitive calls of public or private entities

- 1** **Name of the project:** El Observatorio Virtual Español. Explotación científico-técnica de archivos astronómicos
Geographical area: National
Degree of contribution: Researcher
Entity where project took place: Centro de Astrobiología **Type of entity:** State agency
Name principal investigator (PI, Co-PI....): Enrique Solano Márquez
Nº of researchers: 1
Type of participation: Team member
Code according to the funding entity: PID2020_112949GB-100
Start-End date: 01/09/2021 - 01/09/2024 **Duration:** 1460 days
Total amount: 287.625 €
- 2** **Name of the project:** El Observatorio Virtual Español. Explotación científico-técnica de archivos astronómicos
Geographical area: National
Degree of contribution: Researcher
Entity where project took place: Centro de Astrobiología **Type of entity:** State agency
Name principal investigator (PI, Co-PI....): Enrique Solano Márquez
Nº of researchers: 1
Funding entity or bodies: Ministerio de Economía y Competitividad
Type of participation: Team member
Code according to the funding entity: AYA2017-84089-P
Start-End date: 01/01/2018 - 31/12/2020 **Duration:** 1460 days
Total amount: 145.200 €
- 3** **Name of the project:** El Observatorio Virtual Español. Explotación científico-técnica de archivos astronómicos
Geographical area: National
Degree of contribution: Researcher
Entity where project took place: Centro de Astrobiología **Type of entity:** State agency
Name principal investigator (PI, Co-PI....): Enrique Solano Márquez
Nº of researchers: 1
Funding entity or bodies: Ministerio de Economía y Competitividad
Type of participation: Team member
Code according to the funding entity: AYA2014-55216-P



Start-End date: 01/01/2015 - 31/12/2017
Total amount: 72.600 €

Duration: 1460 days

4 Name of the project: Probing the Origin and Properties of young Stars

Geographical area: National

Degree of contribution: Researcher

Entity where project took place: Centro de Astrobiología

Type of entity: State agency

Name principal investigator (PI, Co-PI....): Estelle Moraux

Nº of researchers: 1

Type of participation: Team member

Code according to the funding entity: PICS-232656CSIC

Start-End date: 01/01/2015 - 31/12/2017

Duration: 1460 days

Total amount: 10.000 €

5 Name of the project: El Observatorio Virtual Español. Explotación Científico-Técnica de los centros de datos astronómicos. Desarrollo y operación de los archivos VO de GTC, Calar Alto y Joan Oro

Geographical area: National

Degree of contribution: Researcher

Entity where project took place: Centro de Astrobiología

Type of entity: State agency

Name principal investigator (PI, Co-PI....): Enrique Solano Márquez

Nº of researchers: 1

Funding entity or bodies:

Ministerio de Economía y Competitividad

Type of participation: Team member

Code according to the funding entity: AYA2011-24052CSIC

Start-End date: 01/01/2012 - 31/12/2015

Duration: 1460 days

Total amount: 381.876,79 €

6 Name of the project: El Observatorio Virtual Español. Desarrollo y gestión de los centros de datos científicos-VO de GTC, COROT y Calar Alto

Geographical area: National

Degree of contribution: Researcher

Entity where project took place: Centro de Astrobiología

Type of entity: State agency

Name principal investigator (PI, Co-PI....): Enrique Solano Márquez

Nº of researchers: 1

Funding entity or bodies:

Ministerio de Economía y Competitividad

Type of participation: Team member

Code according to the funding entity: AYA2008-02156

Start-End date: 01/01/2009 - 01/01/2011

Duration: 1460 days

Total amount: 474.802,79 €

7 Name of the project: BÚSQUEDA DE OPORTUNIDADES PARA LA TRANSFERENCIA

Geographical area: Regional

Entity where project took place: UNIVERSIDAD DE CÁDIZ - VICERRECTORADO DE TRANSFERENCIA E INNOVACIÓN TECNOLÓGICA

Name principal investigator (PI, Co-PI....): Ángel Berihuete Macías

Nº of researchers: 1



Code according to the funding entity: AT2016-075

Start date: 05/10/2016

Total amount: 350 €

- 8** **Name of the project:** XXXVI Congreso Nacional de Estadística e Investigación Operativa y de las X Jornadas de Estadística Pública
Geographical area: Regional
Entity where project took place: UNIVERSIDAD DE CÁDIZ - VICERRECTORADO DE INVESTIGACIÓN
Name principal investigator (PI, Co-PI....): Ángel Berihuete Macías
Nº of researchers: 1
Code according to the funding entity: MV2016-137
Start date: 05/09/2016 **Duration:** 2 days
Total amount: 350 €
- 9** **Name of the project:** Dance meeting
Geographical area: Regional
Entity where project took place: UNIVERSIDAD DE CÁDIZ - VICERRECTORADO DE INVESTIGACIÓN
Name principal investigator (PI, Co-PI....): Ángel Berihuete Macías
Nº of researchers: 1
Code according to the funding entity: OC2016-021
Start date: 01/06/2016 **Duration:** 1 day
Total amount: 960 €
- 10** **Name of the project:** XXXV Congreso Nacional de Estadística e Investigación Operativa IX Jornadas de Estadística Pública
Geographical area: Regional
Entity where project took place: UNIVERSIDAD DE CÁDIZ - VICERRECTORADO DE INVESTIGACIÓN Y TRANSFERENCIA
Name principal investigator (PI, Co-PI....): Ángel Berihuete Macías
Nº of researchers: 1
Code according to the funding entity: MV2015-018
Start date: 26/05/2015 **Duration:** 3 days
Total amount: 350 €
- 11** **Name of the project:** Estancia en Max-Planck-Institut fur Astronomie
Geographical area: Regional
Entity where project took place: UNIVERSIDAD DE CÁDIZ - VICERRECTORADO DE INVESTIGACIÓN Y TRANSFERENCIA
Name principal investigator (PI, Co-PI....): Ángel Berihuete Macías
Nº of researchers: 1
Code according to the funding entity: EST2013-012
Start date: 01/04/2013 **Duration:** 91 days
Total amount: 2.550 €
- 12** **Name of the project:** XXXIII Congreso Nacional de Estadística e Investigación Operativa
Geographical area: Regional
Entity where project took place: UNIVERSIDAD DE CÁDIZ - VICERRECTORADO DE INVESTIGACIÓN Y TRANSFERENCIA
Name principal investigator (PI, Co-PI....): Ángel Berihuete Macías
Nº of researchers: 1
Code according to the funding entity: MV2012-021

**Start date:** 17/04/2012**Duration:** 3 days**Total amount:** 360 €**R&D non-competitive contracts, agreements or projects with public or private entities**

- 1** **Name of the project:** Estudios de asesoramiento estadístico
Name principal investigator (PI, Co-PI....): Alfonso Suarez Llorens; Ángel Berihuete Macías
Start date: 20/07/2020 **Duration:** 2 months
Total amount: 4.191,51 €
- 2** **Name of the project:** APLICACIÓN DEL MODELO JERARQUICO BAYESIANO DE ASIGNACION LATENTE DE DIRICHLET (LDA) EN LA BUSQUEDA DE PATRONES DENTRO DE TEXTOS OBTENIDOS DE DIRERENTES REDES SOCIALES EN INTERNET
Name principal investigator (PI, Co-PI....): Ángel Berihuete Macías
Nº of researchers: 3
Code according to the funding entity: OT2014/061
Start date: 01/06/2014 **Duration:** 182 days - 1 hour
Total amount: 3.630 €
- 3** **Name of the project:** DESIGUALDAD Y POBREZA EN ANDALUCIA: UN ESTUDIO COMPARATIVO CON RESPECTO A LOS PAISES DE LA UNION EUROPEA (PERIODO 2004-2010)
Entity where project took place: Universidad de Cádiz
Degree of contribution: Researcher
Entity where project took place: Universidad de Cádiz **Type of entity:** University
Name principal investigator (PI, Co-PI....): MIGUEL ANGEL SORDO DIAZ
Nº of researchers: 3
Code according to the funding entity: OT2012/085
Start date: 01/10/2012 **Duration:** 545 days
Total amount: 14.108,6 €

Scientific and technological activities

Scientific production

Publications, scientific and technical documents

- 1** Collaboration, Gaia; Ángel Berihuete Macías. Gaia Data Release 3. Chemical cartography of the Milky Way. *Astronomy & Astrophysics*. 674 - A38, pp. 1 - 50. 2023. ISSN 0004-6361
Type of production: Scientific paper
Impact source: SCOPUS
Impact index in year of publication: 1,999
- 2** Collaboration, Gaia; Ángel Berihuete Macías. Gaia Data Release 3. Exploring and mapping the diffuse interstellar band at 862 nm. *Astronomy & Astrophysics*. 674 - A40, pp. 1 - 25. 2023. ISSN 0004-6361
Type of production: Scientific paper
Impact source: SCOPUS
Impact index in year of publication: 1,999
- 3** Collaboration, Gaia; Ángel Berihuete Macías. Gaia Data Release 3. The extragalactic content. *Astronomy & Astrophysics*. 674 - A41, pp. 1 - 33. 2023. ISSN 0004-6361
Type of production: Scientific paper
Impact source: SCOPUS
Impact index in year of publication: 1,999
- 4** Collaboration, Gaia; Ángel Berihuete Macías. Gaia Data Release 3: The Galaxy in your preferred colours: Synthetic photometry from Gaia low-resolution spectra. *Astronomy & Astrophysics*. 674 - A33, pp. 1 - 58. 2023. ISSN 0004-6361
Type of production: Scientific paper
Impact source: SCOPUS
Impact index in year of publication: 1,999
- 5** Basalobre-ruza, Olga; Ángel Berihuete Macías. KOBESim: A Bayesian observing strategy algorithm for planet detection in radial velocity blind-search surveys. *Astronomy & Astrophysics*. 669 - A18, pp. 1 - 14. 2023. ISSN 0004-6361
Type of production: Scientific paper
Impact source: SCOPUS
Impact index in year of publication: 1,999
- 6** Olivares, Javier; Ángel Berihuete Macías. The cosmic DANCe of Perseus. I. Membership, phase-space structure, mass, and energy distributions. *Astronomy & Astrophysics*. 671 - A1, pp. 1 - 28. 2023. ISSN 0004-6361
Type of production: Scientific paper
Impact source: SCOPUS
Impact index in year of publication: 1,999



- 7** Sarro-Baro, Luis Manuel; Ángel Berihuete Macías; MIGUEL GARCIA TORRES. Ultracool Dwarfs in Gaia DR3. *Astronomy & Astrophysics*. 669 - A139, pp. 1 - 25. 2023. ISSN 0004-6361
Type of production: Scientific paper
Impact source: SCOPUS
Impact index in year of publication: 1,999
- 8** Miret-roig, Núria; Bouy, Hervé; Ángel Berihuete Macías. A rich population of free-floating planets in the Upper Scorpius young stellar association. *Nature Astronomy*. 6 - 1, pp. 89 - 97. 2022. ISSN 2397-3366
Type of production: Scientific paper
Impact source: ISI
Impact index in year of publication: 15.647
- 9** Collaboration, Gaia; MIGUEL GARCIA TORRES; Ángel Berihuete Macías. Gaia Early Data Release 3-The celestial reference frame (Gaia-CRF3). *Astronomy & Astrophysics*. 667 - A148, pp. 1 - 30. 2022. Available on-line at: <<https://www.aanda.org/articles/aa/abs/2022/11/aa43483-22/aa43483-22.html>>. ISSN 0004-6361
Type of production: Scientific paper
Impact source: ISI
Impact index in year of publication: 6.24
- 10** Bouy, Hervé; Ángel Berihuete Macías. Infrared spectroscopy of free-floating planet candidates in Upper Scorpius and Ophiuchus. *Astronomy & Astrophysics*. 664 - A111, pp. 1 - 14. 2022. ISSN 0004-6361
Type of production: Scientific paper
Impact source: ISI
Impact index in year of publication: 6.24
- 11** Lillo-box, Jorge; Ángel Berihuete Macías; ANA GUIJARRO ROMÁN. The KOBE experiment: K-dwarfs Orbiting by habitable Exoplanets: Project goals, target selection, and stellar characterization. *Astronomy & Astrophysics*. 667 - A102, pp. 1 - 12. 2022. ISSN 0004-6361
Type of production: Scientific paper
Impact source: ISI
Impact index in year of publication: 6.24
- 12** Ángel Berihuete Macías; Marta Sánchez Sánchez; ALFONSO SUAREZ LLORENS. A Bayesian Model of COVID-19 Cases Based on the Gompertz Curve. 9 - 3:228, pp. 1 - 16. 2021. ISSN 2227-7390
Type of production: Scientific paper
Impact source: ISI
Impact index in year of publication: 2.592
- 13** Galli, Phillip A. B.; Ángel Berihuete Macías. Chamaeleon DANCe - Revisiting the stellar populations of Chamaeleon I and Chamaeleon II with Gaia-DR2 data. *Astronomy & Astrophysics*. 646 - A46, pp. 1 - 19. 2021. ISSN 0004-6361
Type of production: Scientific paper
Impact source: ISI
Impact index in year of publication: 6.24
- 14** Olivares, Javier; Ángel Berihuete Macías. Miec: A Bayesian hierarchical model for the analysis of nearby young open clusters. *Astronomy & Astrophysics*. 649 - A159, pp. 1 - 19. 2021. ISSN 0004-6361
Type of production: Scientific paper

Impact source: ISI

Impact index in year of publication: 6.24

- 15** Galli, Phillip A. B.; Ángel Berihuete Macías. X1-Fornacis cluster DANCe: Census of stars, structure, and kinematics of the cluster with Gaia-EDR3. *Astronomy & Astrophysics*. 654 - A122, pp. 1 - 15. 2021. ISSN 0004-6361

Type of production: Scientific paper

Impact source: ISI

Impact index in year of publication: 6.24

- 16** Galli, Phillip A.b; Ángel Berihuete Macías. Corona-Australis DANCe. I. Revisiting the census of stars with Gaia-DR2 data. *Astronomy & Astrophysics*. 634 - A98, pp. 1 - 15. 2020. ISSN 0004-6361

Type of production: Scientific paper

Impact source: ISI

Impact index in year of publication: 5.802

- 17** Olivares, Javier; Ángel Berihuete Macías. Kalkayotl: A cluster distance inference code. *Astronomy & Astrophysics*. 644 - A7, pp. 1 - 13. 2020. ISSN 0004-6361

Type of production: Scientific paper

Impact source: ISI

Impact index in year of publication: 5.802

- 18** Galli, Phillip A.b.; Ángel Berihuete Macías. Lupus DANCe. Census of stars and 6D structure with Gaia-DR2 data. *Astronomy & Astrophysics*. 643 - A148, pp. 1 - 18. 2020. ISSN 0004-6361

Type of production: Scientific paper

Impact source: ISI

Impact index in year of publication: 5.802

- 19** Collaboration, Gaia; MIGUEL GARCIA TORRES; Ángel Berihuete Macías. Gaia Data Release 2-Variable stars in the colour-absolute magnitude diagram. *Astronomy & Astrophysics*. 623 - A110, pp. 1 - 20. 2019. ISSN 0004-6361

Type of production: Scientific paper

Impact source: ISI

Impact index in year of publication: 5.636

- 20** Miret-roig, Nuria; Bouy, Hervé; Olivares, Javier; Sarro, Luis Manuel; Tamura, M.; Allen, L.; Bertin, E.; Serre, S.; Ángel Berihuete Macías; Beletsky, Y.; Barrado, David; Huélamo, Núria; Cuillandre, J.-c.; Moraux, Estelle. IC 4665 DANCe - I. Members, empirical isochrones, magnitude distributions, present-day system mass function, and spatial distribution. *Astronomy & Astrophysics*. 631 - A57, pp. 1 - 23. 2019. ISSN 0004-6361

Type of production: Scientific paper

Impact source: ISI

Impact index in year of publication: 5.636

- 21** Olivares, Javier; Bouy, Hervé; Sarro, Luis Manuel; Miret-roig, Nuria; Ángel Berihuete Macías; Bertin, E.; Barrado, David; Huélamo, Nuria; Tamura, M.; Allen, L.; Beletsky, Y.; Serre, S.; Cuillandre, J.c.. Ruprecht 147 DANCe - I. Members, empirical isochrone, luminosity, and mass distributions. *Astronomy & Astrophysics*. 625 - A115, 2019. ISSN 0004-6361

Type of production: Scientific paper

Impact source: ISI

Impact index in year of publication: 5.636

- 22** Collaboration, Gaia; Ángel Berihuete Macías. Gaia Data Release 2. Kinematics of globular clusters and dwarf galaxies around the Milky Way. *Astronomy & Astrophysics*. 616 - A12, pp. 1 - 49. 2018. ISSN 0004-6361

Type of production: Scientific paper

Impact source: ISI

Impact index in year of publication: 6.209

- 23** Collaboration, Gaia; MIGUEL GARCIA TORRES; Ángel Berihuete Macías. Gaia Data Release 2. Mapping the Milky Way disc kinematics. *Astronomy & Astrophysics*. 616 - A11, pp. 1 - 40. 2018. ISSN 0004-6361

Type of production: Scientific paper

Impact source: ISI

Impact index in year of publication: 6.209

- 24** Collaboration, Gaia; MIGUEL GARCIA TORRES; Ángel Berihuete Macías. Gaia Data Release 2. Observations of solar system objects. *Astronomy & Astrophysics*. 616 - A13, 2018. ISSN 0004-6361

Type of production: Scientific paper

Impact source: ISI

Impact index in year of publication: 6.209

- 25** Collaboration, Gaia; MIGUEL GARCIA TORRES; Ángel Berihuete Macías. Gaia Data Release 2. Summary of the contents and survey properties. *Astronomy & Astrophysics*. 616 - A1, pp. 1 - 22. 2018. ISSN 0004-6361

Type of production: Scientific paper

Impact source: ISI

Impact index in year of publication: 6.209

- 26** Collaboration, Gaia; MIGUEL GARCIA TORRES; Ángel Berihuete Macías. Gaia Data Release 2. The celestial reference frame (Gaia-CRF2). *Astronomy & Astrophysics*. 616 - A14, 2018. ISSN 0004-6361

Type of production: Scientific paper

Impact source: ISI

Impact index in year of publication: 6.209

- 27** Collaboration, Gaia; MIGUEL GARCIA TORRES; Ángel Berihuete Macías. Gaia Data Release 2: Observational Hertzsprung-Russell diagrams. *Astronomy & Astrophysics*. 616 - A10, pp. 1 - 29. 2018. ISSN 0004-6361

Type of production: Scientific paper

Impact source: ISI

Impact index in year of publication: 6.209

- 28** Olivares, Javier; Moraux, Estelle; Sarro, Luis Manuel; Bouy, Hervé; Ángel Berihuete Macías; Barrado, David; Huelamo, Nuria; Bertin, E.; Bouvier, Jerome. The seven sisters DANCe III. Projected spatial distribution. *Astronomy & Astrophysics*. 612 - A70, pp. 1 - 39. 2018. ISSN 0004-6361

Type of production: Scientific paper

Impact source: ISI

Impact index in year of publication: 6.209

- 29** Olivares, Javier; Ángel Berihuete Macías. The seven sisters DANCe IV. Bayesian Hierarchical model. Astronomy & Astrophysics. 617 - A15, pp. 1 - 29. 2018. ISSN 0004-6361
Type of production: Scientific paper
Impact source: ISI
Impact index in year of publication: 6.209
- 30** Ángel Berihuete Macías; CARMEN DOLORES RAMOS GONZALEZ; MIGUEL ANGEL SORDO DIAZ. Welfare, Inequality and Poverty Analysis with rtip: An Approach Based on Stochastic Dominance. The R Journal. 10 - 1, pp. 328 - 341. 2018. ISSN 2073-4859
Type of production: Scientific paper
Impact source: ISI
Impact index in year of publication: 2.682
- 31** Ángel Berihuete Macías. Enabling data science in the Gaia mission archive: The present-day mass function and age distribution. Astronomy and Computing. 19, pp. 1 - 15. 2017. ISSN 2213-1337
Type of production: Scientific paper
Impact source: ISI
Impact index in year of publication: 2.754
- 32** MIGUEL GARCIA TORRES; Ángel Berihuete Macías. Gaia Data Release 1. Open cluster astrometry: performance, limitations, and future prospects. Astronomy & Astrophysics. 601 - A19, pp. 1 - 65. 2017. Available on-line at: <https://www.aanda.org/articles/aa/full_html/2017/05/aa30552-17/aa30552-17.html>. ISSN 0004-6361
Type of production: Scientific paper
Impact source: ISI
Impact index in year of publication: 5.565
- 33** MIGUEL GARCIA TORRES; Ángel Berihuete Macías. Gaia Data Release 1. Testing the parallaxes with local Cepheids and RR Lyrae stars. Astronomy & Astrophysics. 605 - A79, pp. 1 - 29. 2017. Available on-line at: <<https://www.aanda.org/component/article?access=doi&doi=10.1051/0004-6361/201629925>>. ISSN 0004-6361
Type of production: Scientific paper
Impact source: ISI
Impact index in year of publication: 5.565
- 34** MIGUEL ANGEL SORDO DIAZ; Ángel Berihuete Macías; CARMEN DOLORES RAMOS GONZALEZ; HECTOR MANUEL RAMOS ROMERO. On a property of Lorenz curves with monotone elasticity and its application to the study of inequality by using tax data. SORT: Statistics and Operations Research Transactions. 41 - 1, pp. 55 - 72. 2017. ISSN 2013-8830
Type of production: Scientific paper
Impact source: ISI
Impact index in year of publication: 1.344
- 35** MIGUEL GARCIA TORRES; Ángel Berihuete Macías. Gaia Data Release 1. Summary of the astrometric, photometric, and survey properties. Astronomy & Astrophysics. 595 - A2, pp. 1 - 23. 2016. Available on-line at: <<http://www.aanda.org/component/article?access=doi&doi=10.1051/0004-6361/201629512>>. ISSN 0004-6361
Type of production: Scientific paper
Impact source: ISI
Impact index in year of publication: 5.014

- 36** MIGUEL GARCIA TORRES; Ángel Berihuete Macías. The Gaia mission. *Astronomy & Astrophysics*. 595 - A1, pp. 1 - 36. 2016. Available on-line at: <http://www.aanda.org/component/article?access=doi&doi=10.1051/0004-6361/201629272>. ISSN 0004-6361
Type of production: Scientific paper
Impact source: ISI
Impact index in year of publication: 5.014
- 37** Marcos, Marta; Calafat, Francisco M; Ángel Berihuete Macías; Dangendorf, Sonke. Long-term variations in global sea level extremes. *Journal of Geophysical Research*. 120 - 12, pp. 8115 - 8134. 2015. Available on-line at: <http://onlinelibrary.wiley.com/doi/10.1002/2015JC011173/full>. ISSN 0148-0227
Type of production: Scientific paper
Impact source: ISI
Impact index in year of publication: 3,318
- 38** Ángel Berihuete Macías. The Seven Sisters DANCe: I. Empirical isochrones, luminosity, and mass functions of the Pleiades cluster. *Astronomy & Astrophysics*. 2015. Available on-line at: <http://www.aanda.org/articles/aa/abs/2015/05/aa25019-14/aa25019-14.html>. ISSN 0004-6361
Type of production: Scientific paper
Impact source: ISI
Impact index in year of publication: 5,185
- 39** Ángel Berihuete Macías. Cluster membership probabilities from proper motions and multi-wavelength photometric catalogues I. Method and application to the Pleiades cluster. *Astronomy & Astrophysics*. 563 - A45, pp. 1 - 14. 2014. Available on-line at: <http://www.aanda.org/articles/aa/abs/2014/03/aa22413-13/aa22413-13.html>. ISSN 0004-6361
Type of production: Scientific paper
Impact source: ISI
Impact index in year of publication: 4.378
- 40** Ángel Berihuete Macías. Complementing Gaia from the ground. The DANCE survey. *Memorie della Società Astronomica Italiana*. 85, pp. 719 - 724. 2014. Available on-line at: <http://sait.oat.ts.astro.it/MmSAI/85/PDF/719.pdf>. ISSN 1824-016X
Type of production: Scientific paper
Impact source: SCOPUS
Impact index in year of publication: 0,381
- 41** Ángel Berihuete Macías. Implementation of statistical classification methods in stellar catalogs. *Boletín de Estadística e Investigación Operativa*. 29 - 1, pp. 3 - 20. 2013. ISSN 2387-1725
Type of production: Scientific paper
- 42** MARIA DULCE NASCIMENTO DA COSTA SUBIDA; Ángel Berihuete Macías; PILAR DRAKE MOYANO; JULIAN BLASCO MORENO. Multivariate methods and artificial neural networks in the assessment of the response of infaunal assemblages to sediment metal contamination and organic enrichment. *Science of the Total Environment*. 450-451, pp. 289 - 300. 2013. Available on-line at: <http://www.sciencedirect.com/science/article/pii/S0048969713001721>. ISSN 0048-9697
Type of production: Scientific paper
Impact source: ISI
Impact index in year of publication: 3.163

- 43** Bailer-jones, C. A. L.; Andrae, R.; Arcay, B.; Astraatmadja, T.; Bellas-velidis, I.; Ángel Berihuete Macías; Bijaoui, A.; Carrión, C.; Dafonte, Carlos; Damerdj, Y.; Dapergolas, A.; De Laverny, P.; Delchambre, L.; Drazinos, P.; Drimmel, R.; Frémat, Y.; Fustes, Diego; MIGUEL GARCIA TORRES; Guédé, C.; Heiter, U.; Janotto, A. M.; Karampelas, A.; Kim, D. W.; Knude, J.; Kolka, I.; Kontizas, E.; Kontizas, M.; Korn, A. J.; Lanzafame, A. C.; Lebreton, Y.; Lindstrom, H.; Liu, C.; Livanou, E.; Lobel, A.; Manteiga, Minia; Martayan, C.; Ordenovic, Ch; Pichon, B.; Recio-blanco, Alejandra; Rocca-volmerange, B.; Sarro-Baro, Luis Manuel; Smith, Kester; Sordo, R.; Soubiran, C.; Surdej, J.; Thévenin, F.; Tsalmantza, P.; Vallenari, A.; Zorec, J.. The Gaia astrophysical parameters inference system (Apsis). Pre-launch description. *Astronomy & Astrophysics*. 559 - A74, pp. 1 - 20. 2013. Available on-line at: <<http://www.aanda.org/articles/aa/abs/2013/11/aa22344-13/aa22344-13.html>>. ISSN 0004-6361
Type of production: Scientific paper
Impact source: ISI
Impact index in year of publication: 4.479
- 44** Ángel Berihuete Macías. Properties of ultra-cool dwarfs with Gaia. An assessment of the accuracy for the temperature determination. *Astronomy & Astrophysics*. 550 - A44, pp. 1 - 16. 2012. ISSN 0004-6361
Type of production: Scientific paper
Impact source: ISI
Impact index in year of publication: 5,1
- 45** Ángel Berihuete Macías. Statistical techniques for the detection and analysis of solar explosive events. *Astronomy & Astrophysics*. 528, 2011. Available on-line at: <<http://www.aanda.org/articles/aa/pdf/2011/04/aa14894-10.pdf>>. ISSN 0004-6361
Type of production: Scientific paper
Impact source: ISI
Impact index in year of publication: 4.587
- 46** Ángel Berihuete Macías; Ríos-guerra, Olga; Ordóñez-bermejo, Brenda; Gouda-carreira, Alejandro. Valoración de limpaço socioeconómico del aeripuerto de Jerez en el término municipal. *Trabajos multidisciplinares en el grado de Turismo*. pp. 251 - 268. 2014.
Type of production: Book chapter **Format:** Book
Degree of contribution: Author or co-author of chapter in book
- 47** Ángel Berihuete Macías; JUAN ANTONIO GARCIA RAMOS; CARMEN DOLORES RAMOS GONZALEZ. Estadística Descriptiva y Probabilidad para Criminólogos. EDITORIAL UCA, 2018. ISBN 978-84-9828-704-2
Type of production: Scientific book or monograph
Degree of contribution: Author or co-author of entire book
- 48** Ángel Berihuete Macías; CARMEN DOLORES RAMOS GONZALEZ; MIGUEL ANGEL SORDO DIAZ. Bienestar, desigualdad y pobreza en Andalucía. Un estudio comparativo con el resto de España a partir de las encuestas de condiciones de vida 2006 y 2012. Centro De Estudios Andaluces, 2014. Available on-line at: <<http://www.centrodeestudiosandaluces.es/index.php?mod=publicaciones&id=2740&cat=18&tip=1&idm=>>>.
- 49** Ángel Berihuete Macías; CARMEN DOLORES RAMOS GONZALEZ. Desigualdad y pobreza en Andalucía. Un estudio comparativo con respecto a los países de la Unión Europea (período 2005-2010).2014. Available on-line at: <https://www.centrodeestudiosandaluces.es/datos/factoriaideas/IFO10_14.pdf>.

Works submitted to national or international conferences

- 1** **Title of the work:** A hierarchical Bayesian model to explain the early evolutionary stages of open clusters
Name of the conference: XXXVI Congreso Nacional de Estadística e Investigación Operativa
Type of event: Conference
City of event: Toledo, Universidad de Castilla-La Mancha,
Date of event: 05/09/2016
Ángel Berihuete Macías; Olivares, Javier; Sarro, Luis Manuel; Bouy, Hervé; Moraux, Estelle.
- 2** **Title of the work:** rtip: paquete para el análisis de la pobreza y la desigualdad
Name of the conference: XXXVI Congreso Nacional de Estadística e Investigación Operativa
Type of event: Conference
City of event: Toledo,
Date of event: 05/09/2016
CARMEN DOLORES RAMOS GONZALEZ; Ángel Berihuete Macías; MIGUEL ANGEL SORDO DIAZ.
- 3** **Title of the work:** The COSMIC-DANCE project: Unravelling the origin of the mass function
Name of the conference: Highlights on Spanish Astrophysics IX
Type of event: Conference **Geographical area:** Others
City of event: Bilbao,
Date of event: 18/07/2016
Ángel Berihuete Macías.
- 4** **Title of the work:** Long term variations in global sea level extremes
Name of the conference: European Geosciences Union General Assembly
Type of event: Conference
City of event: Austria / Vienna,
Date of event: 17/04/2016
Ángel Berihuete Macías.
- 5** **Title of the work:** Hierarchical Bayesian approach for estimating physical properties in spiral galaxies: Age Maps for M74
Name of the conference: 4TH INTERNATIONAL CONFERENCE ON MATHEMATICAL MODELING IN PHYSICAL SCIENCES
Type of event: Conference **Geographical area:** Others
City of event: Mykonos, ALEJANDROPOLIS, GRACIA,
Date of event: 05/06/2015
MARIA CARMEN SANCHEZ GIL; Ángel Berihuete Macías; EMILIO JAVIER ALFARO NAVARRO; ENRIQUE PEREZ JIMENEZ.
- 6** **Title of the work:** Aplicación de diferentes técnicas estadísticas para la estimación de parámetros físicos de estrellas de baja masa en el marco de la misión espacial GAIA
Name of the conference: XXXV Congreso Nacional de Estadística e IO
Type of event: Conference
City of event: Pamplona,
Date of event: 26/05/2015
Ángel Berihuete Macías; ALFONSO SUAREZ LLORENS; Sánchez-sánchez, Marta.

- 7** **Title of the work:** Elasticidades de las curvas de Lorenz y ordenación de las distribuciones truncadas
Name of the conference: XXXV Congreso Nacional de Estadística e IO
Type of event: Conference
City of event: Pamplona,
Date of event: 26/05/2015
CARMEN DOLORES RAMOS GONZALEZ; MIGUEL ANGEL SORDO DIAZ; HECTOR MANUEL RAMOS ROMERO; Ángel Berihuete Macías.
- 8** **Title of the work:** MULTIVARIATE METHODS AND ARTIFICIAL NEURAL NETWORKS IN THE ASSESSMENT OF THE RESPONSE OF INFAUNAL ASSEMBLAGES TO SEDIMENT METAL CONTAMINATION AND ORGANIC ENRICHMENT
Name of the conference: PRIMO 17 "Pollutant Responses in Marine Organisms"
Type of event: Conference
City of event: FARO, PORTUGAL,
Date of event: 05/05/2013
MARIA DULCE NASCIMENTO DA COSTA SUBIDA; Ángel Berihuete Macías; PILAR DRAKE MOYANO; JULIAN BLASCO MORENO.
- 9** **Title of the work:** Aplicación a catálogos estelares de técnicas estadísticas de reducción de la dimensión y clasificación
Name of the conference: XXXIII Congreso Nacional de Estadística e Investigación Operativa
Type of event: Conference
Date of event: 17/04/2012
Ángel Berihuete Macías.
- 10** **Title of the work:** Medidas complementarias para la decisión en el pronóstico del número de Wolf
Name of the conference: XXXIII Congreso Nacional de Estadística e Investigación Operativa
Type of event: Conference
Date of event: 17/04/2012
Ángel Berihuete Macías.
- 11** **Title of the work:** PROYECTOS DE MINERIA DE DATOS, DESCUBRIMIENTO DE CONOCIMIENTO Y ESTADISTICA EN GRANDES ARCHIVOS
Type of event: Conference **Geographical area:** National
City of event: SANTANDER, ESPAÑA,
Date of event: 01/01/2008
Sarro-Baro, Luis Manuel; Ángel Berihuete Macías. "PROYECTOS DE MINERIA DE DATOS, DESCUBRIMIENTO DE CONOCIMIENTO Y ESTADISTICA EN GRANDES ARCHIVOS". En: Highlights of Spanish Astrophysics VI. pp. 20 - 20. ISBN 2011hsa6.conf..637B
- 12** **Title of the work:** COMPLEJIDAD COMPUTACIONAL DE CLASIFICADORES ESTADISTICOS Y NEURONALES
Name of the conference: XXIX CONGRESO NACIONAL DE ESTADÍSTICA E INVESTIGACIÓN OPERATIVA Y DE LAS III JORNADAS PÚBLICAS (29) (29.2006.TENERIFE)
Type of event: Conference **Geographical area:** National
City of event: TENERIFE,
Date of event: 01/01/2006
ANDRES JIMENEZ JIMENEZ; JOSE MARIA GUTIERREZ PEREZ; Ángel Berihuete Macías.
"COMPLEJIDAD COMPUTACIONAL DE CLASIFICADORES ESTADISTICOS Y NEURONALES". En: ACTAS DE XXIX CONGRESO NACIONAL DE ESTADÍSTICA E INVESTIGACIÓN OPERATIVA. pp. 103 - 103.

- 13** **Title of the work:** FEATURE SELECTION IN SUMER SPATIAL SPECTRA USING WAVELET DECOMPOSITION AND ICA
Type of event: Conference
Sarro-Baro, Luis Manuel; Ángel Berihuete Macías. "FEATURE SELECTION IN SUMER SPATIAL SPECTRA USING WAVELET DECOMPOSITION AND ICA". En: CLASSIFICATION AND DISCOVERY IN LARGE ASTRONOMICAL SURVEYS. pp. 302 - 306.
- 14** **Title of the work:** LAS REDES NEURONALES AUTOORGANIZADAS COMO COMPLEMENTO AL ANÁLISIS DE COMPONENTES PRINCIPALES
Type of event: Conference
FRANCISCO ALVAREZ GONZALEZ; ANDRES JIMENEZ JIMENEZ; Ángel Berihuete Macías. "LAS REDES NEURONALES AUTOORGANIZADAS COMO COMPLEMENTO AL ANÁLISIS DE COMPONENTES PRINCIPALES". En: XXVI CONGRESO NACIONAL DE ESTADÍSTICA E INVESTIGACIÓN OPERATIVA. pp. 191 - 191. ISBN 84-8439-080-2
- 15** **Title of the work:** LOS OBSERVATORIO VIRTUALES ASTRONOMICOS COMO NUEVO CAMPO DE LA PALICACION DE LA MINERIA DE DATOS
Name of the conference: CONGRESO NACIONAL DE ESTADÍSTICA E INVESTIGACIÓN OPERATIVA SEIO Y IV JORNADAS DE ESTADÍSTICA PÚBLICA (30) (30.2007.VALLADOLID, ESPAÑA)
Type of event: Conference **Geographical area:** National
City of event: VALLADOLID, ESPAÑA,
Ángel Berihuete Macías; Sarro-Baro, Luis Manuel; ANDRES JIMENEZ JIMENEZ; FRANCISCO ALVAREZ GONZALEZ; JOSE MARIA GUTIERREZ PEREZ. "LOS OBSERVATORIO VIRTUALES ASTRONOMICOS COMO NUEVO CAMPO DE LA PALICACION DE LA MINERIA DE DATOS". En: ACTAS DEL XXX CONGRESO NACIONAL DE ESTADÍSTICA E INVESTIGACIÓN OPERATIVA Y IV JORNADAS DE ESTADÍSTICA PÚBLICA 2007. pp. 103 - 103. ISBN 978-84-690-7249-3

Works submitted to national or international seminars, workshops and/or courses

Title of the work: Time varying trends in sea level extremes
Name of the event: Global and Regional Sea Level Variability and Change
Date of event: 10/06/2015
Ángel Berihuete Macías.

Science outreach activities

- 1** **Title of the work:** El papel del razonamiento probabilístico en la Inteligencia Artificial (UNED)
Type of event: Media interviews
Ángel Berihuete Macías.
- 2** **Title of the work:** Inequality, Welfare and Poverty Indices and Curves using the EU-SILC Data
City organizing entity: - CÁDIZ, CADIZ, CAMPUS DE PUERTO REAL UNIVERSIDAD DE CÁDIZ, ESPAÑA,
Ángel Berihuete Macías; CARMEN DOLORES RAMOS GONZALEZ; MIGUEL ANGEL SORDO DIAZ.
- 3** **Title of the work:** rtip: Inequality, Welfare and Poverty Indices and Curves using the EU-SILC Data
City organizing entity: CASEM - Universidad de Cádiz,
Ángel Berihuete Macías; CARMEN DOLORES RAMOS GONZALEZ; MIGUEL ANGEL SORDO DIAZ.



Other achievements

Stays in public or private R&D centres

Entity: MAX PLANCK INSTITUTE FOR ASTRONOMY

City of entity: ALEMANIA HEIDELBERG,

Start date: 01/04/2013

Duration: 90 days

Provable tasks: Estancia en MAX PLANCK INSTITUTE FOR ASTRONOMY. ALEMANIA HEIDELBERG

Acquired skills developed: * Inference of the parameters: shape, size and orientation of the outer bulge, disks, and halo from the perspective of Bayesian inference. * Verification of the intergalactic extinction distribution from the fitted model above. * Verification of the structural and kinematics properties of the central region of the galaxy (fitted model) with simulations obtained by GOG.

Obtained grants and scholarships

Name of the grant: A Bayesian perspective to estimate parameters in galaxy modeling using hierarchical models

Awarding entity: European Science Foundation

Amount of the grant: 5.700 €

Conferral date: 01/04/2013

Other types of collaboration with researchers or technologists

Name principal investigator (PI, Co-PI....): Ángel Berihuete Macías

Description of the collaboration: COSMIC-DANCE

City: Laboratoire d'astrophysique de Bordeaux,

Start date: 02/01/2017

Relevant results: Participación como investigador activo en la aplicación de modelos jerárquicos Bayesianos.

Editorial councils

Name of the editorial council: Director de la colección de Manuales de Matemáticas y Física

Affiliation entity: Universidad de Cádiz

Start date: 03/09/2018