



Dr. Simón Díaz-García

Curriculum Vitæ

Personal information

Full name **Simón Díaz García.**
Date of birth **15th of May, 1987 → Age: 32.**
Place of birth **Nava (Asturias, Spain).**
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Scopus ID **55868973400.**
ORCID ID **<https://orcid.org/0000-0002-4662-1289>.**

Work experience

2021 Nov – **Secondary school teacher of Mathematics.**
now **Civil Servant.** IES Canarias (Tenerife, Spain).
2020 Sept – **Marie Skłodowska-Curie Global Fellow** in Astrophysics.
2021 Nov **Queen's University** (Canada, 2 yr) & **Instituto de Astrofísica de Canarias** (Spain, 1 yr).
2018 Jan – **Astrophysics postdoctoral researcher.**
2020 Jan Fellowship at **Instituto de Astrofísica de Canarias**, Tenerife, Spain.
2017 Nov-Dec **Secondary school trainee teacher** of Mathematics, Physics and Chemistry.
Oulu International School, Finland. *English-Finnish Bilingual Center.*
2012 Oct – **Marie Skłodowska-Curie Early-Stage Researcher (ESR).**
2016 Oct **PhD fellow in Astrophysics.** **University of Oulu**, Finland.
2015 April **Internship with the international publisher Springer.** Heidelberg, Germany.
2011 Jan-April **Secondary/High school trainee teacher of Mathematics.** *English-Spanish Bilingual center:*
Escultor Juan de Villanueva Public Secondary School, Asturias, Spain.

International collaboration projects

2020-2021 **GALSIZE: Galaxy Sizes** as Tracers of Dark Matter. €250k euros.
Marie Skłodowska-Curie grant 893673 European Union's Horizon 2020. PI: Dr. Díaz-García.
2021 **CAVITY: Calar Alto Void Integral-field Treasury Survey.** PI: Prof. Pérez.
2019-2021 **WEAVE-Apertif.** PI: Prof. Falcón-Barroso.

- 2018–2019 ***The structure and evolution of galaxies and their central regions.*** €180k euros. Spanish Ministry of Science and European Fund FEDER, AYA2016-76219-P. PI: Prof. Knapen.
- 2018–present **SUNDIAL: SURvey Network for Deep Imaging Analysis & Learning.** €3.6M euros. Marie Skłodowska-Curie grant 721463 European Union's Horizon 2020. PI: Prof. Peletier.
- 2012–present ***Spitzer Survey of Stellar Structure in Galaxies (S⁴G)***. PI: Profs. Sheth & Salo.
- 2012–2015 **DAGAL: Detailed Anatomy of GALaxies.** €3.4M euros. Marie Skłodowska-Curie grant 289313. EU 7th Framework (People Programme). PI: Prof. Knapen.

Education

Doctor in Astronomy and Astrophysics

2012–2016 **PhD in Astrophysics**, *University of Oulu*, Finland.

Thesis ***Signatures of secular evolution in disk galaxies.***

Supervisors Prof. Heikki Salo & Dr. Eija Laurikainen.

Thesis link <http://jultika.oulu.fi/files/isbn9789526213187.pdf> (introduction only)

Master in Astronomy and Astrophysics

2011–2012 **Master of Physics and Mathematics (FISYMAT), Astronomy and Astrophysics specialty**, *University of Granada*, Spain, 8.94/10, 6 outstanding grades & 1 distinction.

Thesis ***Molecular gas and star formation within bars of spiral galaxies.*** Mark: 10/10.

Supervisors Dr. Isabel Pérez & Dr. Ute Lisenfeld.

Master in Education

2010–2011 **Master of teacher training in obligatory secondary and upper secondary school education, vocational training and languages. Mathematics specialty**, *University of Oviedo*, Spain, 8.4/10, 8 outstanding grades.

Thesis ***Programación didáctica de Matemáticas I e innovación: una ejemplificación del trabajo en competencias desde el aula de Matemáticas en 1º de Bachillerato de Ciencias y Tecnología.*** Mark: 9.5/10.

Supervisor Dr. Luis José Rodríguez Muñiz.

Bachelor+Master in Mathematics

2005–2010 **Degree (5 yr) of Mathematics**, *University Complutense of Madrid*, Spain, 7.38/10, 5 outstanding grades & 2 distinctions, *Erasmus* student in the University of Leeds (U.K. 2008/09).

High school

1998–2005 **General Certificate of Secondary Education**, *Asturias*, Spain, 9.6/10 (with distinction).

Publications

http://adsabs.harvard.edu/cgi-bin/abs_connect?author=Diaz-Garcia,+Simon.

<https://orcid.org/0000-0002-4662-1289>

374 citations in ADS on 27/01/2022. Articles in 7 yr (4 yr as PhD student & 3 yr as postdoc):

Refereed, as first author (7 papers)

- 2021 **Díaz-García, S.**, Lisenfeld, U., Pérez, I., Zurita, A., Verley, A., Combes, F., Espada, D., Leon, S., Martínez-Badenes, V., Sabater, J., Verdes-Montenegro, L., *Molecular gas and star formation within 12 strong galactic bars observed with IRAM-30m, A&A*, 654, A135, (18+16 pages).

- 2020 **Díaz-García, S.**, Moyano, F. D., Comerón, S., Knapen, J. H., Salo, H., Bouquin, A. Y. K., *The distribution of star formation in galactic bars as seen with H α and stacked GALEX UV imaging*, **A&A**, 644, A38, (17+17 pages, 12 citations).
- 2020 **Díaz-García, S.** & Knapen, J. H., *Gas fractions and depletion times in galaxies with different degrees of interaction*, **A&A**, 635, A197, (6 pages, 9 citations).
- 2019 **Díaz-García, S.**, Salo, Knapen, J. H., Herrera-Endoqui, M., *The shapes of spiral arms in the S⁴G survey and their connection with stellar bars*, **A&A**, 631, A94, (18+11 pages, 20 citations).
- 2019 **Díaz-García, S.**, Díaz-Suárez, S., Knapen, J. H., Salo, H., *Inner and outer rings are not strongly coupled with stellar bars*, **A&A**, 625, A146, (16+4 pages, 9 citations).
- 2016 **Díaz-García, S.**, Salo, H., Laurikainen, E., *Stellar mass distribution of S⁴G disk galaxies and signatures of bar-induced secular evolution*, **A&A**, 596, A84, (22 pages, 29 citations).
- 2016 **Díaz-García, S.**, Salo, H., Laurikainen, E., Herrera-Endoqui, M., *Characterization of galactic bars from 3.6 μ m S⁴G imaging*, **A&A**, 587, A160, (28+12 pages, 71 citations).

[Submitted, as first author \(1 paper\)](#)

- 2021 **Díaz-García, S.** et al., *Linking star formation thresholds and truncations in the thin and thick disks of the low-mass galaxy UGC 7321*, **A&A letters**, (submitted on 14/10/2021).

[Refereed, as second author \(1 paper\)](#)

- 2015 Herrera-Endoqui, M., **Díaz-García, S.**, Laurikainen, E., Salo, H., *Catalogue of the morphological features in the Spitzer Survey of Stellar Structure in Galaxies (S⁴G)*, **A&A**, 582, A86, (16 pages, 52 citations). *Contribution: Measurement of the sizes and position angles of hundreds of stellar bars.*

[Refereed, as contributing author \(8 papers\)](#)

- 2022 Watkins, A. E. , Salo, H., Laurikainen, E., **Díaz-García, S.**, Comerón, S., Janz, J., Su, A. H., Buta, R., Athanassoula, E., Bosma, A., Ho, L., Holwerda, B. W., Kim, T. , Knapen, J. H., Laine S., Menéndez-Delmestre, K., Peletier R. F., Sheth K., and Zaritsky D., *Stellar masses, sizes, and radial profiles for 465 nearby Universe early-type galaxies: an extension to the Spitzer Survey of Stellar Structure in Galaxies (S⁴G)*, **A&A** (accepted for publication; in press), (21 pages). *Contribution: Completeness and analysis of sample and connected literature.*
- 2022 Rautio, R. P. V., Watkins, A. E., Comerón, S., Salo, H., **Díaz-García, S.**, and Janz, J. *The multifarious ionization sources and disturbed kinematics of extraplanar gas in five low-mass galaxies*, **A&A** (accepted for publication; in press), (21 pages). *Contribution: Observations with the Nordic Optical Telescope.*
- 2017 Font, J., Beckman, J.E., Martínez-Valpuesta, I., Borlaff, A., James, P., **Díaz-García, S.**, García-Lorenzo, B., Camps-Fariña, A., Gutierrez, L., Amram, P., *Kinematic clues to bar evolution for galaxies in the local universe: why the fastest rotating bars are rotating most slowly*, **ApJ**, 835, 279. A86, (21 pages, 27 citations). *Contribution: Quantitative characterisation of stellar bars.*
- 2016 Erroz-Ferrer, S., Knapen, J. H., Leaman, R., **Díaz-García, S.**, and 9 coauthors, *H α kinematics of S⁴G spiral galaxies - III. Inner rotation curves*, **MNRAS**, 458, 1199, (17 pages, 23 citations). *Contribution: I calculated the disk component of the circular velocity using 3.6 μ m photometry and contaminant-free mass maps. I performed several tests to study the uncertainty related to the thickness of the disk and the mass-to-light ratio, and I obtained all the bar parameters.*
- 2015 Seidel, M. K., Falcón-Barroso, J., Martínez-Valpuesta, I., **Díaz-García, S.**, Laurikainen, E., Salo, H., Knapen, J. H., *The BaLROG project - I. Quantifying the influence of bars on the kinematics of nearby galaxies*, **MNRAS**, 451, 936, (20+18 pages, 32 citations). *Contribution: I carried out all the bar length and strength measurements based on photometry, and I derived gravitational torques from a set of N-body simulations. I also carried out tests to determine the optimal way to measure the bar-induced perturbation strength from kinematics.*

- 2015 Erroz-Ferrer, S., Knapen, J. H., Leaman, R., Cisternas, M., Font, J., Beckman, J. E., Sheth, K., Muñoz-Mateos, J. C., **Díaz-García, S.**, and 9 coauthors, *H_α kinematics of S^4G spiral galaxies - II. Data description and non-circular motions*, **MNRAS**, 451, 1004, (23 pages, 20 citations). *Contribution: I calculated bar lengths and strengths.*
- 2015 Sánchez-Menguiano, Pérez, I., Zurita, A., Martínez-Valpuesta, I., Aguerri, J. A. L., Sánchez, S. F., Comerón, S., **Díaz-García, S.**, *On the morphology of dust lanes in galactic bars*, **MNRAS**, 450, 2670, (7 pages, 9 citations). *Contribution: bar parameter quantification.*
- 2013 Cisternas, M., Gadotti, D., Knapen, J. H., Kim, T., **Díaz-García, S.**, and 21 coauthors, *X-Ray Nuclear Activity in S^4G Barred Galaxies: No Link between Bar Strength and Co-occurent Supermassive Black Hole Fueling*, **ApJ**, 776, 50, (16 pages, 41 citations). *Contribution: characterisation of non-axisymmetries.*

Non refereed (9 conference proceedings)

- 2021 **Díaz-García, S.**, Moyano, F. D., Comerón, S., Knapen, J. H., Salo, H., Bouquin, A., *Distribution of star formation in galactic bars as seen in the S^4G survey*, **Proceedings of the American Astronomical Society meeting n. 237**, id. 527.02, Vol. 53, 2021n1i527p02 (in press).
- 2020 **Díaz-García, S.**, Salo, H., Knapen, J. H., Herrera-Endoqui, M., *Do galactic bars drive the formation of inner/outer rings and spiral arms?*, **Proceedings of the XIV Scientific Meeting of the Spanish Astronomical Society** (in press) (6 pages).
- 2020 **Díaz-García, S.**, Moyano, F. D., Comerón, S., Knapen, J. H., Salo, H., *A trimodality in the distribution of star formation in galactic bars*, **Proceedings of the XIV Scientific Meeting of the Spanish Astronomical Society** (in press) (6 pages).
- 2020 **Díaz-García, S.** & Knapen, J. H., *On the nature of starburst galaxies at low-z and their connection with interactions*, **Proceedings of the XIV Scientific Meeting of the Spanish Astronomical Society** (in press) (6 pages).
- 2019 **Díaz-García, S.**, Knapen, J. H., Salo, H., Herrera-Endoqui, M., Díaz-Suárez, S., *Rings and spiral arms: are they coupled with bars?*, **Proceedings of the International Astronomical Union**, Symposium No. 355, in press, (4 pages).
- 2017 **Díaz-García, S.**, Salo, H., Laurikainen, E., *The stellar mass distribution of S^4G disk galaxies*, **Proceedings of the International Astronomical Union**, Symposium No. 321, 281D, (3 pages).
- 2017 **Díaz-García, S.**, Salo, H., Laurikainen, E., *The halo-to-stellar mass ratio in the S^4G* , **Proceedings of the International Astronomical Union**, Symposium No. 321, 260D, (1 page).
- 2016 **Díaz-García, S.**, Salo, H., Laurikainen, E., Leaman, R., *The (dark) halo-to-stellar mass ratio in the Spitzer Survey of Stellar Structure in Galaxies (S^4G)*, **Proceedings of the XII Scientific Meeting of the Spanish Astronomical Society** (in press). 2016arXiv161101844D, (6 pages).
- 2016 Seidel, M. K., Falcón-Barroso, J., Martínez-Valpuesta, I., **Díaz-García, S.**, Laurikainen, E., Salo, H., Knapen, J. H., *BaLROG: The Influence of Bars on the Dynamical Structure in Nearby Galaxies*, **ASP proceedings**, Vol. 507, (4 pages).

Publication of PhD thesis introduction (review)

- 2016 **Díaz-García, S.**, *Signatures Of Secular Evolution In Disk Galaxies*, **Astronomy Thesis Collection | Zenodo**, 2016PhDT.....168D, 0.5281/zenodo.817418, (126 pages, 1 citation).

Science outreach

- 2017 **Díaz-García, S.**, *Un viaje cósmico desde Nava hacia los confines del Universo*, Revista del Círculo “Amigos de Nava”, Vol. n° 4, (11 pages).

Research interests

Stellar structures in disk galaxies: **stellar bars** and resonance structures. Interplay between bars and rings, spirals, bulges, and AGN. **Secular evolution of disk galaxies**. **Star formation** within disk galaxies and within

bars. Link between galaxy interactions and starbursts. **Dynamics of galaxies. Dark matter.** Scaling relations. Coupling between baryonic and dark matter. **The high-redshift Universe and the evolution of galaxies as a function of z .** Big Data. **Computer science techniques applied to big astronomical surveys (e.g. LSST).** Deep imaging. **Supervised/Unsupervised machine learning.** Education, science outreach, and **knowledge transfer.** Methods of teaching science (the genetic method). Contribution of communications and information technologies to education. History of science.

Supervision

Graduate level

- 2021 Feb-now **Supervisor of Charlie O’Sullivan**, Graduate student from University of Surrey (England, U.K.), exchange program with Queen’s University (Ontario, Canada): *"Understanding galaxy structural bi-modalities in the local Universe"*.
- 2020 **Supervisor of Jeremy Favaro**, Graduate student from Queen’s University (Ontario, Canada),
Sept-now Honours Project [PHYS 590]: *"Constraining Scale Heights in Disk Galaxies"*, to be continued as master’s thesis for the next 2 years.
- 2019 Sept-Dec **Supervisor of Amirnezam Amiri**, Msc. student from Kharazmi University (Tehran, Iran),
PhD at University of Florence (Italy) in Nov 2019, temporarily involved in project: *"Measuring sizes of disk galaxies based on gas density thresholds for star formation"*.
- 2019 July-September **Supervisor of IAC summer student Facundo David Moyano**, (from Universidad de la Plata, Argentina; now PhD – in ERC project – at Université de Genève, Switzerland, recommended by myself), Project: *"Star formation within bars of nearby galaxies"*, (section of an article published in A&A in 2020, student is 2nd author), Instituto de Astrofísica de Canarias.
- 2018 July-September **Supervisor of IAC summer student Sergio Díaz Suárez**, (coming from Universidad de la Laguna; then joined Pablo de Olavide University, and now PhD at Universitat Illes Balears), Project: *"Automated morphological classification of galaxies using Machine Learning techniques"* (section of an article published in A&A in 2019, student is 2nd author), IAC.
- 2018 January **Training School: Applications of Computer Science Techniques in Galaxy Science (~ 40h)**, by *SUNDIAL H2020 Innovative Training Network*, Groningen, The Netherlands. Supervisor of PhD students (groups of three) in tutorials and scientific projects.

Secondary school level

- 2017 Nov-Dec **Supervision of a highly gifted student (Mathematics)**, *Oulu International School, Finland*.

Teaching

Graduate level

- 2019 Dec **Participation as a lecturer on Master’s degree in Astrophysics at University of La Laguna**, subject: *Complementary Research Activities (1h)*.
- 2018 October **Training School: SUNDIAL observing school La Palma (~ 60h)**, by *SUNDIAL H2020 Innovative Training Network*, La Palma, Canary Islands, Spain. Lecturer and tutorial supervisor of ~ 15 PhD students in astronomical observations with the Isaac Newton Telescope (INT).

Under-graduate level

- 2019 Dec **Lecturer on Bachelor’s degree in Physics at University of La Laguna**, subject: *End-of-degree project, seminar: "The evolution of disk galaxies in the era of large photometric and spectroscopic surveys" (1h)*.
- 2019 **Sessions i) "Remote use of the 0.6m SARA-CTIO telescope (Cerro Tololo, Chile) to image astrophysical objects" (2h) and ii) "Careers in Astrophysics" (2h)**, as part of the course Tähtitieteen perusteet (*"Basics of Astronomy"*), University of Oulu, Finland.

Secondary/High-school level

- 2021 Nov-now **Maths teacher at IES Canarias (Tenerife, Spain)** , 1 & 3 ESO, 1 & 2 Bachiller (ages ~ 12-18).
- 2017 Nov-Dec **Teacher of Mathematics, Physics, and Chemistry (and in-class support) at Oulu International School (OIS, Finland)** , Grades 5-9th (ages ~ 10-16). Also, leader of outreach sessions in Astronomy and Astrophysics at OIS.
- 2011 **Teacher of Mathematics (and in-class support) at Escultor Juan de Villanueva Public Secondary School (Spain):**
January-April
 - **Upper secondary programme** → 2 bilingual groups in 1st year (age ~ 12-13) and 2 groups (bilingual & learning disorders) in 3th year (age ~ 14-15).
 - **High school** → Group in 1st year (age ~ 16-17).
- 2002-2010 **Private classes of Physics and Mathematics** at different levels (Secondary & High School+University). Asturias, Spain.

Research visits

- Oct 2019 **University of Granada (UGR, Spain)**. *Topics:* Analysis of star formation rates and efficiencies within bars. Invited by UGR (1 week). *Host:* Prof. Lisenfeld.
- Oct-Nov 2018 **University of Oulu (Finland)**. *Topics:* Completion of the S⁴G survey with i-band imaging of nearby galaxies and structural analysis of stellar bars, rings, and spiral arms. Funded by FINCA & Feb-April 2019 visitor programme. *Host:* Prof. Salo.
- April 2015 **Max Planck Institut für Astronomie in Heidelberg (Germany)**. *Topics:* a) Observational constraints on stellar-to-halo mass ratio, and b) the thickness of galaxies in cosmological simulations. *Host:* Prof. van de Ven, Dr. Leaman, and Dr. Martig.
- July 2014 **Laboratoire d'Astrophysique de Marseille (France)**. *Topic:* Stretching of B/P bulges in the deprojection of barred galaxies: the impact on the calculation of gravitational torques as seen in N-body simulations. *Host:* Prof. Athanassoula.
- February 2014 **Instituto de Astrofísica de Canarias (Tenerife, Spain)**. *Topic:* Imprints of secular evolution in the kinematics of disk galaxies: bar-driven non-circular motions as seen with (IFU) observations and N-body models. *Hosts:* Prof. Falcón-Barroso and Dr. Martínez-Valpuesta.

Evaluation panels

- Since 2019 **Referee** for international journals of the first quartile in Astrophysics (6 papers):
 - *Monthly Notices of the Royal Astronomical Society (MNRAS)* → 3 articles.
 - *Astronomy & Astrophysics (A&A)* → 2 articles.
 - *Publications of the Astronomical Society of the Pacific (PASP)* → 1 article.

Conference organisation

- 2019 July **Local Organizing Committee (LOC)**, *Symposium IAU 355: "The Realm of the low-surface brightness Universe"*, Tenerife, Spain.
- 2018 **Local Organizing Committee (LOC)**, *XXX Winter School of Astrophysics: "Big Data analysis in astronomy"*, IAC and University of La Laguna, Tenerife, Spain.

Grants and awards

Postdoctoral

- 2021 **Juan de la Cierva Incorporación 2021** fellowship by *Spanish Ministry of Education*.
- 2020 **Marie Skłodowska-Curie Global Fellowship** by **Horizon 2020 Framework Programme** of the EU. **GALSIZE: Galaxy Sizes as Tracers of Dark Matter**. 250k euros. P.I.: Dr. Díaz-García.

2017 **Postdoctoral fellowship GALAXIES 2017** by **Instituto de Astrofísica de Canarias**. AYA2016-76219-P (2 yr).

2017 **Postdoctoral grant *Atracción de Talento Investigador*** (young doctors category) by **Comunidad de Madrid** (Spain) (4 yr, 80 k euros, awarded, I declined the offer).

PhD

2012-2015 **Early-stage researcher fellowship** by *People Programme (Marie Curie Actions)* of the European Union. *Initial Training Network DAGAL: Detailed Anatomy of GALaxies*. <http://www.dagalnetwork.eu/> P.I.: Prof. Knapen.

Travel

2018-2019 Grant from visitor programme for top-level researchers by **Finnish Centre for Astronomy with ESO (FINCA)** (2000 euros).

2016 **Oulun Yliopiston Akateemiset** (350 euros).

Masters

2012 **Grant for the best six records** of students (1800 euros) enrolled in the master's program by the Faculty of Science of the University of Granada, Spain.

2012 **Selected for AstroMundus** international master's degree programme.

2012 **Merit-based grant for the master's degree** by *Fundación para el desarrollo de la formación en las zonas mineras del carbón*, Spain.

2011 **Yearly grant for the Master's degree** by the *Spanish Ministry of Education*.

Bachelor

2008 **Erasmus grant** (Leeds, U.K.) by *Comunidad de Madrid* and *Ministry of Education*.

2005-2010 **Five yearly grants for the Bachelor degree** by the *Spanish Ministry of Education*.

Languages

2011 **Merit-based grant for a weekly intensive course (40h) in English (C1)** (Menéndez Pelayo International University, A Coruña) by the *Spanish Ministry of Education*.

2010 **Merit-based grant for a monthly intensive course (60h) in English in Dublin** (Alpha College of English, C1 level according to CEF) by *Fundación para el desarrollo de la formación en las zonas mineras del carbón*, Spain.

2007 **Merit-based grant for an intensive course (3 weeks, 45h) in English (B2 level) in London** (Princes College) by *Spanish Ministry of Education*.

Others

2004 **Distinction at secondary and high school: best student record of the year**.

2004-2005 **As a chess player: best team of the year** in the 2004 Sports Gala in Nava, Asturias (Spain). **Winner of the 2005 Chess Tournament** (15min/player) in Nava.

Communication skills

Oral presentations at conferences

2021 **American Astronomical Society meeting n. 237**, Online, U.S.A., "*Distribution of star formation in galactic bars as seen in the S⁴G survey*".

2019 **SUNDIAL Network Midterm Meeting**, Ghent, Belgium, "*Rings and spiral arms are not strongly coupled with stellar bars*".

2018 **SUNDIAL Work Package 2 meeting**, Tenerife, Spain, "*On the stellar structure in disk galaxies and the footprints of secular evolution. Insights from Machine Learning*".

- 2018 **Galactic Rings: Signposts of Secular Evolution in Disk Galaxies**, Alabama, USA, "Bars, rings, and signatures of secular evolution as seen in the S^4G survey".
- 2016 **XII Meeting of the Spanish Astronomical Society**, Bilbao, Spain, "Stellar mass distribution of S^4G disk galaxies and signatures of bar-induced secular evolution".
- 2016 **Formation and evolution of galaxy outskirts**, IAU 321 Symposia, Toledo, Spain, "The mass distribution of S^4G galaxies".
- 2015 **3rd DAGAL workshop**, Heidelberg, Germany, "Stellar bars in the S^4G and the mass distribution of disk galaxies".
- 2014 **2nd DAGAL workshop**, Tenerife, Canary Islands, Spain, "Bar characterization from S^4G imaging: gaining insight into the secular evolution of disk galaxies".
- 2013 **The Role of Bars in Galaxy Evolution**, Granada, Spain, "Bar strengths from the $3.6\ \mu\text{m}$ images of the S^4G sample".
- 2013 **1st DAGAL workshop**, Oulu, Finland, "Bar strengths".

Posters at conferences

- 2021 **European Astronomical Society Annual Meeting**, Virtual, EU, "Star formation main sequence and Kennicutt-Schmidt law within 12 strong galactic bars observed with IRAM-30m".
- 2021 **European Astronomical Society Annual Meeting**, Virtual, EU, "Galaxy-galaxy interactions and starbursts".
- 2021 **American Astronomical Society meeting n. 237**, Online, U.S.A., "Distribution of star formation in galactic bars as seen in the S^4G survey".
- 2020 **XII Meeting of the Spanish Astronomical Society**, Bilbao, Spain, "Stellar mass distribution of S^4G disk galaxies and signatures of bar-induced secular evolution".
- 2020 **The Realm of the Low Surface Brightness Universe**, IAU 355 Symposia, Tenerife, Spain, "Rings and spiral arms are not strongly coupled with stellar bars".
- 2019 **The Realm of the Low Surface Brightness Universe**, IAU 355 Symposia, Tenerife, Spain, "Rings and spiral arms are not strongly coupled with stellar bars".
- 2018 **The Physics of Galaxy Scaling Relations and the Nature of Dark Matter**, Kingston, Ontario, Canada, "The dark halo-to-stellar mass ratio in S^4G galaxies".
- 2016 **Physics Days**, Oulu, Finland, "The mass distribution of S^4G disk galaxies".
- 2016 **Formation and evolution of galaxy outskirts**, IAU 321 Symposia, Toledo, Spain. "The mass distribution of S^4G disk galaxies".
- 2014 **Decoding the Assembly History of Galaxies**, Leiden, The Netherlands, "Galactic bars in the S^4G sample and the mass distribution of disk galaxies".
- 2013 **The Role of Bars in Galaxy Evolution**, Granada, Spain, "What drives star formation in bars?"(second author).

Invited seminars

- 2021 **"Mass distribution of S^4G disk galaxies and signatures of secular evolution"**, Department for Physics, Engineering Physics, and Astrophysics at Queen's University, Canada.
- 2020 **"The distribution of star formation in galactic bars"**, Department of Theoretical Physics and Cosmology at the University of Granada, Spain.
- 2019 **"Self-Organising Maps applied to the S^4G : an example of the use of unsupervised machine learning techniques to analyse large galaxy surveys"**, Seminars of the group "Traces of Galaxy Formation", Instituto de Astrofísica de Canarias, Spain.
- 2018 **"Bars, rings, and spirals as seen in the S^4G survey"**, University of Oulu, Finland.

- 2018 **"Mass distribution of S⁴G disk galaxies and signatures of secular evolution"**, *Seminars of the group "Traces of Galaxy Formation"*, Instituto de Astrofísica de Canarias, Spain.
- 2016 **"Signatures of secular evolution in disk galaxies"**, *Physics department at the University Complutense of Madrid*, Spain.
- 2016 **"Signatures of secular evolution in disk galaxies"**, *Department of Theoretical Physics and Cosmology at the University of Granada*, Spain.
- 2016 **"Disks and bulges in a Cosmic Time"**, *Astronomy Research Unit at the University of Oulu*.
- 2015 **"The mass distribution of S⁴G disk galaxies"**, *University of Oulu*.
- 2014 **"Properties of the bars in the Spitzer Survey of Stellar Structure in Galaxies"**, *Laboratoire d'Astrophysique de Marseille*, France.
- 2014 **"Bar characterization from S⁴G imaging: gaining insight into the secular evolution of disk galaxies"**, *Instituto de Astrofísica de Canarias*, Spain.
- 2012 **"Molecular gas and star formation within bars of spiral galaxies"**, *University of Oulu*.
- Science outreach**
- 2019 **Interview with newspaper *La Nueva España* on the future of astronomy in Spain**, <https://www.lne.es/centro/2019/08/01/pertenezco-ultima-generacion-astrofisicos-vienen/2509977.html>.
- 2019 **Talk/workshop: Introduction to the use of professional telescopes (0.6m CTIO, Cerro Tololo, Chile) and to the profession of astrophysicist**, High schools IES Escultor Juan de Villanueva and IES Rey Pelayo (Asturias, Spain) , <https://www.elcomercio.es/asturias/siero-centro/instituto-escultor-juan-20190503001002-ntvo.html?fbclid=IwAR3NcYKVbzh0P9VDuDLCAJcXRHSryyxbSsu3wKEkyrhTndbjzNqO-WfhNg>.
- 2017 **Talk: "Origen y evolución de las galaxias. Un viaje cósmico desde Nava hacia los confines del Universo"**, Casa de Cultura de Nava (Asturias, Spain). Astronomy dissemination session for a general audience.
- 2017 **Article: "La misión Parker de la NASA": collaboration with newspapers *La Nueva España*, *La Provincia*, *Faro de Vigo*, etc**, <http://www.lne.es/suscriptor/siglo-xxi/2017/06/04/nuevo-sol-mision-parker-nasa/2115220.html>.
- 2017 **Interview with the general-interest Spanish newspaper *El Comercio***, <http://www.elcomercio.es/asturias/siero-centro/201702/16/resolver-materia-oscura-seria-20170216001301-v.html>.
- 2016 **Talks: "A day in the life of an astronomer"**, IES Peñamayor, Nava (Asturias, Spain). Astronomy dissemination session in Primary School (*age: ~ 5-11*).
- 2016 **Talk: "On the galaxies in the universe"**, IES Peñamayor, Nava (Asturias, Spain). Astronomy dissemination session in High School (*age: ~ 16-18*).
- 2014 **Interview with the general-interest Spanish newspaper *La Opinión de Tenerife* (Canary Islands, Spain): "En busca de barras en el Universo conocido"**.
- 2014 **Interview with the general-interest Spanish newspaper *La Nueva España* (Asturias, Spain): "Un galáctico de Nava"**.

Telescopes

Successful observing proposals:

A) As a Principal Investigator:

- 2021 **The connection between star formation thresholds and truncations in UGC 7321, 3 h dark/grey time (1st semester)**, William Herschel Telescope (WHT, 4.2 m), PFQHY instrument, Roque de Los Muchachos Observatory, La Palma, Canary Islands, Spain.

- 2020 **Dwarf Galaxies as Probes of Fundamental Galaxy Trends**, 21 h dark time (1st semester), Gran Telescopio Canarias (GTC, 10.4 m), MEGARA instrument, Roque de Los Muchachos Observatory, La Palma, Canary Islands, Spain.
- 2019 **Completing the census of stellar structure in the local Universe**, 32.62 h dark time (1st semester), Liverpool Telescope (LT, 2 m), I0:0 instrument, Roque de Los Muchachos Observatory, La Palma, Canary Islands, Spain.
- 2018 **A complete census of stellar structure in galaxies in the local Universe**, 7 dark/grey nights (2nd semester), SARA-CTIO (0.6 m), Andor camera, Cerro Tololo Observatory, Chile.
- 2018 **A complete census of stellar structure in galaxies in the local Universe**, 22.12 h dark time (2nd semester), Liverpool Telescope (LT, 2 m), I0:0 instrument, Roque de Los Muchachos Observatory, La Palma, Canary Islands, Spain.

B) As a Co-I:

- 2021 **Mapping the Extraplanar Diffuse Ionised Gas of Edge-On Galaxies**, PI: Dr. Sebastien Comerón, 42 h requested, Nordic Optical Telescope (NOT, 2.5 m), ALFOSC instrument, Roque de Los Muchachos Observatory, La Palma, Spain.
- 2020 **Mapping the Extraplanar Diffuse Ionised Gas of Edge-On Galaxies**, PI: Dr. Sebastien Comerón, 3 nights (2nd semester), Nordic Optical Telescope (NOT, 2.5 m), ALFOSC instrument, Roque de Los Muchachos Observatory, La Palma, Spain.
- 2019 **Completing the census of stellar structure in the local Universe - fulfilling the legacy of the S⁴G and addressing the fundamental question of how galaxies quenching inter-relates with their structure**, PI: Dr. Joachim Janz, 4 nights (2nd semester), New Technology Telescope (NTT, 3.58 m), EFOSC2 instrument, ESO, La Silla, Chile.
- 2018 **A complete census of stellar structure in the Local Universe - fulfilling the legacy of the S⁴G and addressing the fundamental question of how galaxies quenching interrelates with their structure**, PI: Dr. Joachim Janz, 3 nights (2nd semester), New Technology Telescope (NTT, 3.58 m), EFOSC2 instrument, ESO, La Silla, Chile.
- 2014 **Deep imaging of spiral galaxies with Cepheid and TRGB measured distances**, PI: Dr. Johan Knapen, 2 dark nights (1st semester), Isaac Newton telescope (INT, 2.5 m), WFC instrument, Roque de Los Muchachos Observatory, La Palma, Spain.

C) As a PI for educational purposes:

- 2018 **Science outreach activities for high school students using CTIO. An introduction to the use of professional optical telescopes to observe astrophysical objects**, 3 dark/grey nights (1st semester), SARA-CTIO (0.6 m), Andor camera, Cerro Tololo Observatory, Chile.

Observational experience:

- 2021 **Optical photometry of UGC 7321 (H α narrow-band+R-band)**, with PFQHY @ William Herschel Telescope (WHT, 4.2 m), 3 hours, PI: Díaz-García, S.
- 2021 **Spectra of VCC1614 (8043-9635 Å)**, with MEGARA @ Gran Telescopio Canarias (GTC, 10.4 m), 2 hours, PI: Díaz-García, S.
- 2020 **Optical photometry of ESO 544-27 (H α narrow-band+R-band)**, with ALFOSC @ Nordic Optical Telescope (NOT), 3 nights, PI: Comerón, S.
- 2018-2019 **Optical photometry of galaxies (SDSS *i*-band) in the Northern Hemisphere**, with I0:0 @ the robotic Liverpool Telescope (2 m), ~ 54 hours dark time, PI: Díaz-García, S.
- 2018 **Optical photometry of galaxies (SDSS *i*-band) in the Southern Hemisphere**, with EFOSC2 @ New Technology Telescope (NTT, 3.58 m), 3 nights, PI: Janz, J.
- 2018 **Optical photometry of galaxy clusters (*r*- and *g*- band)**, with WFC @ Isaac Newton Telescope (2.54 m), 4 nights, PI: Peletier, R.

- 2018 **Optical photometry of galaxies (SDSS *i*-band) in the Southern Hemisphere**, with *SARA-CTIO* (0.6 m), Observations (7 nights) and data reduction, PI: Díaz-García, S.
- 2015 **Spectra and photometry of cataclysmic variable stars**, with *ALFOSC @ the 2.5 m Nordic Optical Telescope* (NOT, Canary Islands, Spain), PI: Neustroev, V., observations (2 nights) and data reduction and calibration.
- 2014 **Optical photometry of galaxies (UBVRI)**, observing run (2 nights, co-I) with the 2.5 m Isaac Newton telescope (Canary Islands, Spain), PI: Knapen, J.
- 2012 **Spectra and photometry of galaxies and gravitational lenses**, with the 2.2 m telescope (and *CAFOS*) at Calar Alto (Almeria, Spain), PI: Pérez, I., observations (2 nights) and data reduction and calibration.
- 2010 **Educational project PARTNeR**, observations of Jupiter magnetosphere radio emission with the 34 m NASA single dish at Robledo de Chavela (Madrid, Spain).

Training

- 2021 **CAVITY meeting**, *Virtual*.
- 2021 **CSST-Euclid-Roman Workshop**, *Virtual*.
- 20/21-19-18 **X & XI & XIII Día de Nuestra Ciencia**, IAC, Tenerife, Spain.
- 2018 **XXX Winter School of Astrophysics: "Big Data analysis in astronomy"** (~ 42h), IAC and University of La Laguna, Tenerife, Spain.
- 2018 **JWST IAC Workshop - GO1 Proposal Planning (2 days, 9h)**, La Laguna, Tenerife.
- 2018 **Python for Astronomy (10h)**, by Instituto de Astrofísica de Canarias (IAC), Tenerife.
- 2017 **Vocational Finnish language Course (Science specialty)(~ 15h)**, by Oulun Aikuiskoulutuskeskus (OAKK), Oulu, Finland.
- 2017 **General Finnish language course (~ 140h)**, by Villa Victor centre, Oulu.
- 2016 **Practical astronomy course with the Nordic Optical Telescope (~100h)**, by the Finnish Centre for Astronomy with ESO (FINCA) in Turku, Finland.
- 2015 **Training on Scientific Writing (8h)**, DAGAL workshop, Max Planck Institut für Astronomie in Heidelberg, Germany.
- 2014 **Simulations as a Tool for Observers (40h)**, DAGAL Training School, Laboratoire d'Astrophysique de Marseille, France.
- 2014 **FRACTAL Project Management Course (12h)**, DAGAL Training Course, IAC.
- 2013 **The Galaxy, Stellar Compositions and Dynamics (40h)**, IAC Winter school.
- 2013 **Fifth European Radio Interferometry School (ERIS) (40h)**, Dwingeloo, The Netherlands.
- 2013 **Workshop on Integral Field Unit observations (8h) (DAGAL Training)**, Groningen.
- 2013 **ALMA tutorial (16h)**, Tuorla Observatory, Turku.
- 2013 **Survival Finnish Courses**, University of Oulu, (1st semester).

Computer skills

- OS **LINUX** (good), **MAC OS** (good), **MICROSOFT WINDOWS** (basic)
- Programming **IDL** (Interactive Data Language) (advanced), **PYTHON** (good), **BASH** (basic), **MATLAB** (basic)
- Science tools **L^AT_EX** (good), **IRAF** (good), **DS9** (good), **GALFIT** (basic), **OPENOFFICE** (good)
- Machine Learning **SELF-ORGANIZING MAPS (SOM) TOOLBOX FOR MATLAB** (good)

Languages

English	Advanced. Conversationally fluent.	C1 based on CEF & First Certificate (FCE)
Spanish	Mother tongue.	
Finnish	Basic.	
Asturian	Intermediate.	

Additional information

- Accredited as assistant doctorate lecturer (*ayudante doctor*) by the *Spanish National Agency for Quality Assessment and Accreditation (ANECA)*.
- Accredited as a subject teacher in mathematics, physics and natural sciences, in basic and general upper secondary education, vocational education, and in liberal adult education by the *Finnish National Agency for Education (Opetushallitus)*.
- Accredited as a doctor in Spain. Certificate of equivalence of the title of Doctor of Philosophy (University of Oulu, Finland) by *Universitat de les Illes Balears (UIB)*.
- Member of the **Spanish Astronomical Society (SEA)**.
- Member of the **International Astronomical Union (IAU)**.
- Former member of the **Finnish Astronomical Society (FAS)**.
- Member of **Amnesty International** since 2019.
- **Career hiatus in Astrophysics (01/10/2016-31/12/2017).**
Occupation: outreach activities (public talks+published article), teacher of Mathematics & Physics at Oulu International School (20/11/2017-15/12/2017), professional accreditations (e.g. doctorate lecturer in Spain, 19/06/2017), postdoctoral search (winner of fellowships at Instituto de Astrofísica de Canarias and Complutense University of Madrid/Comunidad de Madrid in 2017), intensive Finnish Language courses by OAKK/Villa Victor (01/03/2017-15/12/2017), full marathon training (completed Oulu 2017 *Terwamarathon*), and more.
- Honored with **Opening speech** for traditional market **XI Mercáu Tradicional de La Puente Arriba** (Nava, Asturias) in July 2019.

References

- Please feel free to contact any of my referees for more information:
 - **Prof. Dr. Johan Knapen.** *jhk@iac.es*. IAC postdoc mentor & PI DAGAL ITN.
 - **Prof. Dr. Heikki Salo.** *heikki.salo@oulu.fi*. PhD supervisor.
 - **Prof. Dr. Stéphane Courteau.** *courteau@queensu.ca*. Queen's postdoc mentor.
 - **Prof. Dr. Sebastián Comerón.** *seb.comeron@gmail.com*. Collaborator and lecturer.
 - **Prof. Dr. Ute Lisenfeld.** *ute@ugr.es*. Master's thesis supervisor.
 - **Prof. Dr. Isabel Pérez.** *isa@ugr.es*. Master's thesis supervisor.
 - **Prof. Dr. Ivan Minchev.** *iminchev@aip.de*. PhD thesis examiner.
 - **Mrs. Karin Parker.** *karin.parker@eduouka.fi*. Mentor at Finnish school.
 - **Dr. Luis J. Rodríguez Muñiz.** *luisj@uniovi.es*. Master's supervisor (edu).
 - **Mrs. Sara Álvarez.** *alvarez.sara333@gmail.com*. Mentor at Spanish school.



LNE.ES

Simón Díaz: "En veinte años vendrán nuevos telescopios que lo revolucionarán todo"



ELCOMERCIO.ES

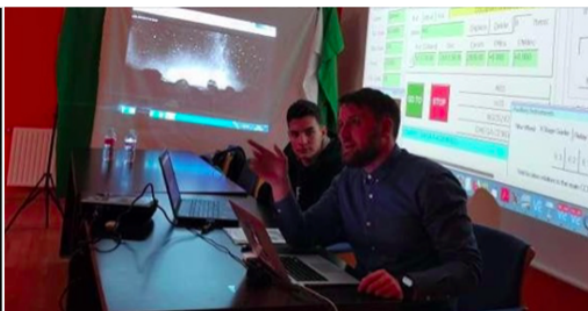
Desde Cangas a Atacama a la búsqueda de galaxias

Los alumnos del IES Rey Pelayo observan el espacio a través de un...



ELCOMERCIO.ES

El instituto Escultor Juan de Villanueva observa el cosmos en tiempo real



LNE.ES

Simón Díaz: "El futuro de la astrofísica es muy esperanzador"

El naveto mostró a los alumnos de Cangas pelotas de estrellas y nebulosa...

Press releases on my recent outreach activities using remotely the 0.6m SARA-CTIO telescope in Chile.

www.laopinion.es

La Opinión de Tenerife

Local Actualidad Deportes Economía Opinión Ocio Vida y Estilo Comunidad

Nacional Internacional Sociedad Sucesos Cultura

VOTE ESTA NOTICIA

En busca de barras en el Universo conocido

Simón Díaz es un joven astrónomo becado en el Programa Dagal, que lidera el IAC entre seis instituciones académicas de la UE

Miguel Ángel Autero | 16.02.2014 | 02:20

Polvo, gas, estrellas y materia oscura. Esos son los componentes que forman las miles de millones de galaxias que están desperdigadas por el universo. La ingente cantidad de datos matemáticos integrados en modelos físicos para su comprensión es un galimatías solo apto para unos pocos. Para investigadores que pasan años y años analizando. Y la mayor parte de ese tiempo, "los astrónomos desarrollan su labor más como mineros, obreros de laboratorio, que observando el firmamento a través de un telescopio", según señala el joven científico Simón Díaz García. Un trabajo

«Resolver la materia oscura sería uno de los avances más importantes de la ciencia»

Este joven naveto afincado en Finlandia desde hace cuatro años ofrece mañana una conferencia sobre el origen de las galaxias

Simón Díaz García. Doctor en Astrofísica

LYDIA IS **NOTICIA** Me gusta Compartir 643

16 febrero 2017 07:13

Domingo, 20 de febrero de 2017

SigloXXI La Nueva España

Barrer para casa

Simón Díaz García

Doctor en Astrofísica, naveto de 29 años e investigador especializado en galaxias y materia oscura en la Universidad de Oulu, en Finlandia

"No es descabellado pensar que el destino de la humanidad sea abandonar la Tierra"

"En un mundo globalizado la fuga de talentos es inevitable, pero España tiene que fortalecer los sistemas para captar a los más cualificados"

→ E. LACAS

El joven científico Simón Díaz García, de 29 años, nacido en Cangas de Onís (Asturias), se encuentra en la actualidad en la ciudad finlandesa de Oulu, donde la galaxia en 2012. Trabaja en el programa de doctorado de la Universidad de Oulu, en Finlandia, donde se encuentra en el primer año de su tesis doctoral. Su trabajo se centra en la búsqueda de galaxias y materia oscura. Simón Díaz García es un joven científico que ha pasado los últimos años en Finlandia, donde se encuentra en el primer año de su tesis doctoral. Su trabajo se centra en la búsqueda de galaxias y materia oscura. Simón Díaz García es un joven científico que ha pasado los últimos años en Finlandia, donde se encuentra en el primer año de su tesis doctoral. Su trabajo se centra en la búsqueda de galaxias y materia oscura.

EL COMERCIO ASTURIAS OVIEDO GUON AVILES POLITICA MUNDO ECONOMIA DEPORTES CULTURAS TECNOLOGIA GENTE PLANES

«Resolver la materia oscura sería uno de los avances más importantes de la ciencia»

Este joven naveto afincado en Finlandia desde hace cuatro años ofrece mañana una conferencia sobre el origen de las galaxias

Simón Díaz García. Doctor en Astrofísica

VÄITÖKSIÄ

SIMÓN DÍAZ-GARCÍA. Master of Science

Simón Díaz-García väittelee Oulun yliopistossa human-

Some printed press releases about my scientific projects or outreach activities.