

Joanna Sakowska

ASTROPHYSICIST · SCIENCE COMMUNICATOR

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Professional positions

Postdoctoral researcher

INSTITUTO DE ASTROFÍSICA DE ANDALUCÍA (IAA-CSIC)

Granada, Spain

2025 –

- *Research:* Extragalactic stellar streams, near-field cosmology, adoption of the ARRAKHS ESA F-class space mission.

Space skills specialist (outreach officer)

SURREY SPACE INSTITUTE

Guildford, UK

2024 – 25

- Design and delivery of space engineering courses for students and professionals transitioning into the space industry.

Pre-doctoral researcher

INSTITUTO DE ASTROFÍSICA DE CANARIAS (IAC)

Tenerife, Spain

2020

- *Research:* Automatic detection and characterisation of low-surface brightness galaxies in deep data.

Education

PhD Astrophysics

UNIVERSITY OF SURREY

Guildford, UK

2020 – 24

- *Thesis:* [Tracing the structure and evolutionary history of the Small Magellanic Cloud with galactic archaeology.](#)
- *Advisors:* Noelia E. D. Noël, Tomás Ruiz-Lara, Denis Erkal
- *Research:* Star formation histories, resolved stellar populations, Local Group dwarf galaxies

Integrated masters in Physics and Astronomy (MPhys)

UNIVERSITY OF SURREY

Guildford, UK

2016 – 20

- Awarded *First class*, the highest degree classification. Bachelors and masters degrees combined in one degree.
- Masters thesis project carried out at the IAC (ERASMUS+ work grant).
- *Advisors:* Jorge García Rojas, D. Anibal García-Hernández
- *Research:* Chemical abundance spectroscopy, planetary nebulae, stellar evolution

Fellowships

Jocelyn Bell Burnell graduate scholarship

INSTITUTE OF PHYSICS

London, UK

2020

- UK-wide [competitive PhD fellowship](#). Awarded to under-represented students in recognition of their scientific achievements, and their commitment to improving inclusion and diversity in Physics.

Diversity in Physics PhD fellowship

UNIVERSITY OF SURREY

Guildford, UK

2020

- Competitive PhD fellowship yearly awarded to one under-represented student.

Awards, grants and research stays

2026	Maria Skłodowska Curie Actions postdoctoral fellowship , <i>Seal of Excellence</i> Research project proposal score: 95%	
2025	Honorary graduand speaker , invited to give the postgraduate graduation ceremony speech	University of Surrey
2024	Travel grant , <i>Milky Clouds over Manhattan</i> specialist workshop	New York City, USA
2023	Best poster presentation, travel grant , IAU Symposium 379: <i>Dynamical Masses of Local Group Galaxies</i>	Potsdam, Germany
2022	Santander PhD travel award , competitive travel award . 4 month research stay at the University of Granada (co-funded by ERASMUS+ work).	Granada, Spain
2020	IAC pre-doctoral research award , 2 month competitive research contract .	Tenerife, Spain
2019	ERASMUS+ work placement , 10 month research stay at the IAC to complete Masters degree thesis.	Tenerife, Spain

Publications

48 journal articles, including 3 as first author and 1 conference proceeding. 985 total citations, H-index = 18. See [NASA ADS \(here\)](#) and [ORCID \(here\)](#).

Skills

Programming Expert in Python, comfortable with bash scripting, familiar with Fortran, C/C++, R
Operating systems Linux, MacOS, Windows
Languages Polish, English (native), Spanish (B2), Italian (A2)

Academic service & leadership

- 2025 – **Working Group co-coordinator**, **SMASH** (PI: D. Nidever) and **DELVE-MC** (PI: A. Drlica-Wagner)
- 2025 – **Management committee member**, European Space Agency's **ARRAKIHS** mission
- 2026 **Session chair**, DESI collaboration meeting 2026: *Milky Way dark matter session* Durham, UK
- 2025 **LOC and session chair**, IAU Symposium 403: *The Hidden Beauty of the Galactic Outskirts* Córdoba, Spain
- 2025 – **Member**, Roman Space Telescope collaboration (Milky Way, Nearby Galaxies)
- 2025 – **Member**, The Euclid consortium (Local Universe, Milky Way groups)
- 2025 – **Member**, The DESI consortium (Milky Way, Galaxy & Quasar Physics)
- 2024 – **Member**, The ARRAKIHS mission (Ground Observations team)
- 2020 – **Member**, **SMASH** and **DELVE** Dark Energy Camera surveys. DELVE builder status awarded for significant contributions to the survey. 9 observing nights with the Dark Energy Camera.
- 2026 – **Reviewer**, The Astrophysical Journal
- 2016 – 19 **Volunteer**, Physics undergraduate course representative, *gold award for outstanding service* University of Surrey
- 2017 – 18 **Volunteer**, Physics society treasurer and event organiser University of Surrey

Telescope time

- 2025 **Co-PI**, *The Extended Clusters of Andromeda - dwarf galaxies or globular clusters?*
Hubble Space Telescope Cycle 33, ID. 18020.
- 2025 **Co-PI**, *Confirming two overlooked M31 satellite candidates in the PAndAS survey footprint*
OSIRIS+ Gran Telescopio Canarias, 5.16 hours DDT time, ID. GTC2025-292.227

Teaching experience

Culminated 100+ hours of undergraduate University teaching.

Teaching assistant: Introduction to Astronomy

University of Surrey

2 TEACHING ASSISTANTS, 15-20 STUDENTS

2021 – 24

- Teaching assistant for the undergraduate computing class. Taught astrophysical research skills, focusing on using python for data analysis, data visualisation, and statistical methods.
- Organised and led telescope classes using the University's campus observatory.

Teaching assistant: The Universe

University of Surrey

3 TEACHING ASSISTANTS, 60 STUDENTS

2021

- Coursework grader and teaching assistant for the undergraduate tutorial problem class.

Selected outreach and mentoring

Mesas astronómicas (astronomical tables)

Granada, Spain

~40 STUDENTS, 14-16 YEARS OLD

2026

- Q&A session regarding stellar streams and dark matter in Spanish with local school students.

Residential summer schools

University of Surrey

~120-160 TOTAL STUDENTS, ~15-20 PHYSICS GROUP, 16-18 YEARS OLD

2017 – 24

- Lead ambassador for maths and physics; designed and supervised the research project. The role included pastoral duties and overnight care.

Outreach ambassador

University of Surrey

VARYING NUMBERS

2016 – 24

- Organised and hosted short-term work experience internships through the *Surrey Physics Academy* outreach program.
- Mixture of workshops, outreach talks or Q&A sessions in local schools (>30 students) and campus school visits (~30-120 students).
- Surrey telescope observatory tours to visiting prospective students and the public.
- Public events included stargazing events, Dark Matter Day and the Guildford World Space Week.

Mentor to EDI students

University of Surrey

~40 STUDENTS TOTAL, 16-18 YEARS OLD

2016 – 24

- Programs such as *In2Surrey* and *Aim4University*. Providing guidance on applying to University and higher education; included reading University applications, career advice, and supporting students through the application period.
- Long-term mentor to under-represented students; including first year PhD and final year undergraduate (now in industry).

Robotics & astronomy instructor

Lakewood, PA, USA

NJY CAMP SHOSHANIM, AGES 8-15

2018

- Designed and led robotics engineering and science workshops.

Talks & seminars

2026	Seminar , Galaxy talk series, <i>Institute of Astronomy</i>	Cambridge, UK
2026	Seminar , University College London	London, UK
2026	Invited talk , IAA-CSIC Severo Ochoa day	Granada, Spain
2025	Contributed talk , IAU Symposium 403: <i>The Hidden Beauty of the Galactic Outskirts</i>	Córdoba, Spain
2025	Contributed talk , <i>Dancing in the Dark: when galaxies shape galaxies</i> , symposium	Sexten, Italy
2025	Contributed talk , <i>XMC II: Clouds over Yellowstone</i> , specialist workshop (online)	Montana, USA
2025	Contributed talk , ARRAKIHS consortium annual meeting	Vienna, Austria
2024	Flash poster talk , <i>Small Galaxies, Cosmic Questions - II</i> , symposium	Durham, UK
2024	Contributed talk , <i>Milky Clouds over Manhattan</i> , specialist workshop	New York City, USA
2023	Invited talk , <i>Surrey-London Astronomy Meeting: Milky Way and Local Group science</i> , specialist workshop	Guildford, UK
2023	Flash talk , <i>The Local Group as a benchmark for Galaxy Evolution</i> , XXXIV Canary Islands Winter School of Astrophysics	Tenerife, Spain
2023	Contributed talk , <i>Galactic Archaeology with Old Stellar Populations</i> session, National Astronomy Meeting (online)	Cardiff, UK
2023	Flash poster talk , IAU Symposium 379: <i>Dynamical Masses of Local Group Galaxies</i>	Potsdam, Germany
2022	Contributed talk , <i>Satellite galaxies and tidal streams in the framework of cosmological models</i> session, European Astronomical Society meeting	Valencia, Spain
2022	Contributed talk , Doctoral College annual conference	Guildford, UK
2021	Contributed talk , <i>Exploring the Magellanic Clouds</i> symposium, National Astronomy Meeting (online)	Bath, UK
2021	Flash poster talk , <i>Institute of Physics' Conference for Astronomy and Physics Students (online)</i>	Birmingham, UK
2021	Flash poster talk , <i>The Renaissance of the Low Surface Brightness Universe</i> symposium, European Astronomical Society (online)	Leiden, Netherlands

Selected press and media appearances

- 2026 **ARRAKIHS is adopted by the European Space Agency**, Spanish national research council (CSIC)
- 2026 **Astronomers discover Andromeda XXXVI, an ultra-faint dwarf satellite galaxy**, Phys.org
- 2026 **Amateur astronomer helps discover tiny star group at the limit of what we consider a galaxy**, IFLScience
- 2023 **Feature discussing the Bell Burnell fellowship and career advice**, *Physics World Stories*
- 2020 **Bell Burnell graduate fellowship awardee interview**, *Institute of Physics*

List of publications

Citations: 985, h-index = 18, ORCID: [0000-0002-1594-1466](https://orcid.org/0000-0002-1594-1466), [NASA ADS](https://www.nasa.gov/).

FIRST AND SECOND AUTHOR

3. **Sakowska, J. D.**, Martínez-Delgado, D., Collins, M. L. M., Monelli M., et al, *Andromeda XXXVI: discovery of a new ultra-faint dwarf galaxy towards M31*, 2026, *A&A*, [arXiv: 2603.28492](https://arxiv.org/abs/2603.28492)
2. **Sakowska, J. D.**, Martínez-Delgado, D., Pearson, S., Starkenburg, T. K., et al, *Stellar streams around dwarf galaxies in the local Universe*, 2026, *A&A Letters*, [arXiv: 2511.23314](https://arxiv.org/abs/2511.23314)
1. **Sakowska, J. D.**, Noël, N. E. D., Ruiz-Lara, T., Gallart, C., et al, *Unveiling the purely young star formation history of the SMC's northeastern shell from colour-magnitude diagram fitting*, 2024, *MNRAS*, [arXiv: 2407.13876](https://arxiv.org/abs/2407.13876)

CONFERENCE BOOK PROCEEDINGS

1. **Sakowska, J. D.**, Noël, N. E. D., Ruiz-Lara, T., Gallart, C., et al, *Star Formation History of the Small Magellanic Cloud: the shell substructure*, 2025, Cambridge University Press, [arXiv: 2305.02755](https://arxiv.org/abs/2305.02755)

THIRD/FOURTH KEY AUTHOR

4. Nidever, D. L., Massana, P., Choi, Y., **Sakowska, J. D.**, et al, *DECam Local Volume Exploration Magellanic Clouds (DELVE-MC) Survey Overview*, 2026, ApJ, *submitted*
3. Martínez-Delgado, D., Romanowsky, A. J., Tang, Y., **Sakowska, J. D.**, *A pearl in the shell: An ultra-compact dwarf within the tidal debris surrounding spiral galaxy NGC 7531*, 2026, A&A, [arXiv: 2509.14038](#)
2. Martínez-Delgado, D., Stein, M., Pawlowski, M. S., **Sakowska, J. D.**, et al, *Tracing satellite planes in the Sculptor group: II. Discovery of five faint dwarf galaxies in the DESI Legacy Survey*, 2026, A&A, [arXiv: 2405.03769](#)
1. Martínez-Delgado, D., Stein, M., **Sakowska, J. D.**, Weigelt, M. M., et al, *Stellar tidal streams around nearby spiral galaxies with deep imaging from amateur telescopes*, 2025, A&A, [arXiv: 2504.02071](#)

CONTRIBUTING AUTHOR PUBLICATIONS

38. Overdeck, K. [25 authors], **Sakowska J., D.**, et al, *Discovery and Spectroscopic Characterization of a Distant, Compact Milky Way Satellite in Gemini*, 2026, OJAp, [arXiv:2606.09975](#)
37. Chiti, A., [39 authors], **Sakowska J., D.**, et al, *The DECam MAGIC Survey – Mapping the Ancient Galaxy in CaHK: Overview and Summary of Early Science*, 2026, OJAp, [arXiv:2605.26581](#)
36. Wu, S.-Y., [12 authors], **Sakowska J., D.**, et al, *Ellipsoidal modulation and multi-wavelength activity in the precataclysmic binary RX J1553.0+4457*, 2026, A&A, [arXiv:2605.02796](#)
35. Oden, S. J., [6 authors], **Sakowska J., D.**, et al, *Warped and Hooked: Mapping the Magellanic Clouds in Three Dimensions Using Red Clump Stars*, 2026, ApJ, [arXiv:2512.04200](#)
34. Heiger, M. E., [18 authors], **Sakowska J., D.**, et al, *Not-so-heavy Metal(s): Chemical Abundances in the Ultrafaint Dwarf Galaxies Eridanus IV and Centaurus I*, 2026, ApJ, [arXiv:2508.11012](#)
33. Atzberger, K., [28 authors], **Sakowska J., D.**, et al, *The DECam MAGIC Survey: Uncovering the Tidal Tails of the Crater II Dwarf Galaxy*, 2026, ApJ, [arXiv:2602.21283](#)
32. Barbosa, F. O., [26 authors], **Sakowska J., D.**, et al, *The DECam MAGIC Survey: A Wide-field Photometric Metallicity Study of the Sculptor Dwarf Spheroidal Galaxy*, 2025, ApJ, [arXiv:2504.03593](#)
31. Chiti, A., [21 authors], **Sakowska J., D.**, et al, *DELVE-ing into the Milky Way's Globular Clusters: Assessing Extratidal Features in NGC 5897, NGC 7492, and Testing Detectability with Deeper Photometry*, 2025, AJ, [arXiv:2507.11629](#)
30. Anbajagane, D., [56 authors], **Sakowska J., D.**, et al, *The DECADE cosmic shear project IV: cosmological constraints from 107 million galaxies across 5,400 deg² of the sky*, 2025, OJAp, [arXiv:2502.17677](#)
29. Anbajagane, D., [40 authors], **Sakowska J., D.**, *The DECADE cosmic shear project III: validation of analysis pipeline using spatially inhomogeneous data*, 2025, OJAp, [arXiv:2502.17676](#)
28. Anbajagane, D., [43 authors], **Sakowska J., D.**, *The DECADE cosmic shear project II: photometric redshift calibration of the source galaxy sample*, 2025, OJAp, [arXiv:2502.17675](#)
27. Anbajagane, D., [43 authors], **Sakowska J., D.**, *The DECADE cosmic shear project I: A new weak lensing shape catalog of 107 million galaxies*, 2025, The Open Journal of Astrophysics, [arXiv:2502.17674](#)
26. Schechter, P. L., [22 authors], **Sakowska J., D.**, *The DELVE Quadruple Quasar Search. I. A Lensed Low-luminosity Active Galactic Nucleus*, 2025, AJ, [arXiv:2404.14256](#)
25. Anbajagane, D., [61 authors], **Sakowska J., D.**, *The Dark Energy Camera All Data Everywhere cosmic shear project V: Constraints on cosmology and astrophysics from 270 million galaxies across 13,000 deg² of the sky*, 2025, arXiv e-prints, [arXiv:2509.03582](#)
24. Placco, V. M., [16 authors], **Sakowska J., D.**, *The DECam MAGIC Survey: Spectroscopic Follow-up of the Most Metal-poor Stars in the Distant Milky Way Halo*, 2025, ApJ, [arXiv:2506.19163](#)
23. Medoff, J., [25 authors], **Sakowska J., D.**, *DELVE-DEEP Survey: The Faint Satellite System of NGC 55*, 2025, ApJ, [arXiv:2504.18645](#)
22. Pace, A., [31 authors], **Sakowska J., D.**, 34 total authors, *Spectroscopic Analysis of Pictor II: a very low metallicity ultra-faint dwarf galaxy bound to the Large Magellanic Cloud*, 2025, OJAp, [arXiv:2506.21841](#)
21. Doliva-Dolinsky, A., [30 authors], **Sakowska J., D.**, *The NGC 3109 Satellite System: The First Systematic Resolved Search for Dwarf Galaxies Around an SMC-mass Host*, 2025, ApJ, [arXiv:2505.05570](#)
20. Casey, Q. O., [16 authors], **Sakowska J., D.**, *Deep Photometric Observations of Ultrafaint Milky Way Satellites Centaurus I and Eridanus IV*, 2025, ApJ, [arXiv:2501.04772](#)

19. Fielder, C., [27 authors], **Sakowska J., D.**, *Streams, Shells, and Substructures in the Accretion-built Stellar Halo of NGC 300*, 2025, ApJL [arXiv:2501.04089](#)
18. Tan, C. Y., [27 authors], **Sakowska J., D.**, *A Pride of Satellites in the Constellation Leo? Discovery of the Leo VI Milky Way Satellite Ultra-faint Dwarf Galaxy with DELVE Early Data Release 3*, 2025, ApJ, [arXiv:2408.00865](#)
17. Cerny, W., [35 authors], **Sakowska J., D.**, *Discovery and Spectroscopic Confirmation of Aquarius III: A Low-mass Milky Way Satellite Galaxy*, 2025, ApJ, [arXiv:2410.00981](#)
16. Teixeira, G., [13 authors], **Sakowska J., D.**, *Photometric redshifts probability density estimation from recurrent neural networks in the DECam local volume exploration survey data release 2*, 2024, AaC, [arXiv:2408.15243](#)
15. Alfradique, V., [17 authors], **Sakowska J., D.**, *A dark siren measurement of the Hubble constant using gravitational wave events from the first three LIGO/Virgo observing runs and DELVE*, 2024, MNRAS, [arXiv:2310.13695](#)
14. Heiger, M.E., [17 authors], **Sakowska J., D.**, *Reading between the (Spectral) Lines: Magellan/IMACS Spectroscopy of the Ultrafaint Dwarf Galaxies Eridanus IV and Centaurus I*, 2024, , [arXiv:2308.08602](#)
13. McNanna, M., [50 authors], **Sakowska J., D.**, *A Search for Faint Resolved Galaxies Beyond the Milky Way in DES Year 6: A New Faint, Diffuse Dwarf Satellite of NGC 55*, 2024, ApJ, [arXiv:2309.04467](#)
12. Zaborowski, [19 authors], **Sakowska J., D.**, *Identification of Galaxy-Galaxy Strong Lens Candidates in the DECam Local Volume Exploration Survey Using Machine Learning*, 2023, ApJ, [arXiv:2210.10802](#)
11. Cerny, W. [17 authors], **Sakowska J., D.**, *DELVE 6: An Ancient, Ultra-faint Star Cluster on the Outskirts of the Magellanic Clouds*, 2023, ApJL, [arXiv:2306.04690](#)
10. Cerny, W., [24 authors], **Sakowska J., D.**, *Six More Ultra-faint Milky Way Companions Discovered in the DECam Local Volume Exploration Survey*, 2023, ApJ, [arXiv:2209.12422](#)
9. Shrestha, M., [28 authors], **Sakowska J., D.**, *Limit on Supernova Emission in the Brightest Gamma-Ray Burst, GRB 221009A*, 2023, ApJL, [arXiv:2302.03829](#)
8. Cerny, W., [20 authors], **Sakowska J., D.**, *Pegasus IV: Discovery and Spectroscopic Confirmation of an Ultra-faint Dwarf Galaxy in the Constellation Pegasus*, 2023, ApJ, [arXiv:2203.11788](#)
7. Drlica-Wagner, A., [90 authors], **Sakowska J., D.**, *The DECam Local Volume Exploration Survey Data Release 2*, 2022, ApJS, [arXiv:2203.16565](#)
6. Massana, P., [5 authors], **Sakowska J., D.**, *The synchronized dance of the magellanic clouds' star formation history*, 2022, MNRAS, [arXiv:2203.09523](#)
5. Ferguson, P. S., [19 authors], **Sakowska J., D.**, *DELVE-ing into the Jet: A Thin Stellar Stream on a Retrograde Orbit at 30 kpc*, 2022, AJ, [arXiv:2104.11755](#)
4. Martínez-Vázquez, C. E., [5 authors], **Sakowska J., D.**, *RR Lyrae Stars in the Newly Discovered Ultra-faint Dwarf Galaxy Centaurus I*, 2021, AJ, [arXiv:2107.05688](#)
3. Cerny, W., [21 authors], **Sakowska J., D.**, *Eridanus IV: an Ultra-faint Dwarf Galaxy Candidate Discovered in the DECam Local Volume Exploration Survey*, 2021, ApJL, [arXiv:2107.09080](#)
2. Drlica-Wagner, A., [16 authors], **Sakowska J., D.**, *The DECam Local Volume Exploration Survey: Overview and First Data Release*, 2021, , [arXiv:2103.07476](#)
1. Nidever, D. L., [14 authors], **Sakowska J., D.**, *The Second Data Release of the Survey of the MAgellanic Stellar History (SMASH)*, 2021, AJ, [arXiv:2011.13943](#)

SELECTED WHITE PAPERS AND MISSION PROPOSALS

2. Tortora, C., [20 authors], **Sakowska J., D.**, *Unlocking the physics of dwarf galaxies in the 2040s: The case for a next-generation wide-field spectroscopic facility with fibres and IFUs*, 2025, arXiv e-prints, [arXiv:2512.18260](#)
1. Montes, M., [23 authors], **Sakowska J., D.**, *Why the Northern Hemisphere Needs a 30-40 m Telescope and the Science at Stake: A Low Surface Brightness Science Case*, 2025, arXiv e-prints, [arXiv:2512.14784](#)