

Fergus Donnan

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Research Interests

Galaxy Evolution, Dust Obscuration/Evolution, SMBH Growth, AGN/Star-formation, PAHs, Molecules, AGN Outflows, Accretion Disks

Education

- 2021–2025 **DPhil (PhD) Astrophysics**, *University of Oxford*, Oxford, UK
"The Obscured Universe: Tracing Star Formation and AGN activity across cosmic time."
Supervisors: Dimitra Rigopoulou, Ismael García-Bernete.
- 2016–2021 **MPhys (Hons) Astrophysics**, *University of St Andrews*, St Andrews, UK, 1st class
"Echo Mapping of AGN Accretion."
Supervisors: Keith Horne, Juan Hernandez Santisteban.

Research Positions

- 2025 - present **Postdoc**, *University of California San Diego*, San Diego, USA
- 2025 **Postdoc**, *University of Oxford*, Oxford, UK
- 2023 **Visiting Graduate Student**, *CAB ESAC*, Madrid, Spain
- 2020 **LEAPS Research Student**, *Leiden Observatory*, Leiden, Netherlands
- 2019 **Summer Research Project**, *University of St Andrews*, St Andrews, UK

Awards & Scholarships

- 2021 **Principal's Scholarship for Academic Excellence**, Awarded annually to the fifty final-year students, at the University of St Andrews, whose academic performances are the highest in their respective faculties.
- 2020 **Scott Lang Prize**, Most outstanding student in the Senior Honours class in Astronomy and Astrophysics.
- 2016-2021 **Deans List**, For averaging a 1st class across the academic year.
- 2020 **Medal (Astrophysics Fourth level)**
- 2019 **Medal (Astrophysics Third level)**
- 2019 **Carnegie Trust Vacation Scholarship**, Awarded to fund a place on an undergraduate research internship programme.
- 2018 **Medal (Astrophysics Second level)**

Presentations

- 2026 **Exploring the Aromatic Universe in the JWST era**, London, Canada, Contributed Talk
Spatially resolved PAH spectroscopy in the era of JWST: From kinematics of PAHs to resolved maps at cosmic noon.
- 2026 **Oxford Galaxy Evolution Seminar**, Oxford, UK, Invited Talk
Organic dust grains across cosmic scales: From resolved PAH maps at cosmic noon to velocity maps of PAHs in AGN outflows
- 2026 **Charting Cosmic Dawn**, Copenhagen, Denmark, Contributed Talk
PAHSPECS: Spatially Resolved PAH Spectroscopy at cosmic noon with MIRI MRS
- 2025 **IAC Galaxy Coffee**, Tenerife, Spain, Invited Talk
Spatially resolved PAH spectroscopy in the era of JWST: From kinematics of PAHs to resolved maps at cosmic noon.
- 2025 **CAB Extragalactic Meeting**, Madrid, Spain, Invited Talk
The Dust Obscured Universe: Unveiling Star-formation and AGN activity across cosmic time with mid-infrared spectroscopy.
- 2025 **PanDust 2025**, Tucson, USA, Contributed Poster
Spatially resolved PAH Spectroscopy in the era of JWST: From kinematics of PAHs to resolved maps at cosmic noon.
- 2025 **UCSD Astrophysics Colloquium**, San Diego, USA, Invited Talk
The Dust Obscured Universe: Unveiling Star-formation and AGN activity across cosmic time with mid-infrared spectroscopy.
- 2025 **Oxford Galaxy Evolution Seminar**, Oxford, UK, Invited Talk
The Obscured Growth of SMBHs: Revealing the nature of the most obscured galaxy nuclei in the mid-infrared.
- 2025 **Dusting Off the Secrets of the Cosmos with PRIMA Space IR Telescope**, Marseille, France, Contributed Talk
A Census of the Most Obscured Galaxy Nuclei over Cosmic Time to be revealed by PRIMA.
- 2025 **Behind a curtain of dust, V**, Kiruna, Sweden, Contributed Talk
Peeling Back the Layers of Extinction of the Most Obscured Nuclei in the Era of JWST: What is their nature and evolution?
- 2024 **Cyprus Astrophysics Workshop 2024: Luminous Infrared galaxies in the JWST era**, Nicosia, Cyprus, Invited Talk
Peeling Back the Layers of Extinction of the Most Obscured Galaxy Nuclei in the Era of JWST.
- 2024 **Oxford Astrophysics Colloquium**, Oxford, UK, Early Career Showcase
The Obscured Growth of SMBHs: Peeling Back the Layers of Extinction of the Most Obscured Galaxy Nuclei in the Era of JWST.
- 2024 **Cosmic Odysseys**, Crete, Greece, Invited Talk
Peeling back the layers of extinction of dusty galaxies in the era of JWST.
- 2023 **European Astronomical Society (EAS)**, Krakow, Poland, Contributed Talk
Revealing the most obscured galaxy nuclei in the mid-infrared: JWST/MIRI Spectroscopy of VV 114.
- 2023 **National Astronomy Meeting (NAM)**, Cardiff, UK, Contributed Talk
The most obscured galaxy nuclei with JWST/MIRI: the hidden growth of SMBHs?

- 2023 **The Restless Nature of AGN: 10 Years Later**, Naples, Italy, Contributed Poster
Reverberation mapping of PG 1119+120: Testing Super-Eddington Accretion.
- 2023 **National Observatory of Athens, AHEAD2020**, Athens, Greece (virtual), Invited
Talk
The most obscured Galactic Nuclei in the mid-IR.
- 2022 **RAS Meeting: JWST commissioning and first science from a UK perspective**, London UK, Contributed Talk
The Obscured Nucleus of VV 114E with JWST/MIRI Spectroscopy.
- 2022 **Behind a curtain of dust, IV**, Sesto, Italy, Contributed Talk
Detecting Compact Obscured Nuclei in the Mid-Infrared.

Observing Proposals

- 2025 **CO-I, Unraveling Effects of Different Modes of AGN Feedback via PAH Features**, JWST (MIRI + NIRSpec). Cycle 4, 12.2 hours, PI: L. Zhang
- 2024 **CO-I, AGN and their outflows: probing fragmentation and survival of polycyclic aromatic hydrocarbons**, JWST (NIRSpec). Cycle 3, 18.7 hours, PI: I. García-Bernete
- 2024 **CO-I, Pinpointing a VLA- invisible, bright SMG in the JWST-IRAC Deep Field**, NOEMA, Grade B, 6 hours, PI: D. Rigopoulou
- 2023 **CO-I, Unveiling the AGN-host connection with PAH molecules.**, JWST (MIRI + NIRSpec). Cycle 2, 14.3 hours, PI: I. García-Bernete
- 2023 **CO-I, A JWST high-definition view of an extremely metal-poor interstellar medium.**, JWST (MIRI). Cycle 2, 31.2 hours, PI: A. Aloisi
- 2022 **CO-I, NOEMA and JWST unveil compact obscured nuclei in the Universe**, NOEMA, Grade C, 12.2 hours, PI: I. García-Bernete
- 2022 **CO-I, NOEMA and JWST unveil compact obscured nuclei in the Universe**, NOEMA, Grade B, 26.1 hours, PI: I. García-Bernete
- 2022 **CO-I, Pinpointing a Bright SMG for JWST Monitoring of Dusty Supernovae**, NOEMA, Grade C, 12.0 hours, PI: D. Rigopoulou
- 2021 **CO-I, ALMA and JWST unveil compact obscured nuclei in the Universe**, ALMA, Grade C, 30.9 hours, PI: I. García-Bernete

Other Positions

- 2024-2025 **Journal Club Organiser**, *Galaxies Journal Club*, Department of Physics, University of Oxford
- 2022-2024 **Lab Demonstrator**, *Part B Astrophysics Practicals*, Department of Physics, University of Oxford

Publications (39, 10 First Author, h-index: 18, 793 citations)

First Author

1. **Donnan, F. R.**, Ramos Almeida, C., González Martín, O., et al., (2026) submitted
[Kinematic detection of dusty outflows from AGN: PAH kinematics of type 2 quasars with JWST/MIRI spectroscopy](#)
2. **Donnan, F. R.**, Sandstrom, K., Shivaiei, I., et al., (2026)
[PAHSPECS: Spatially Resolved PAH Spectroscopy at cosmic noon with JWST MIRI MRS.](#)
3. **Donnan, F. R.**, García-Bernete, I., Rigoupoulou, D., et al., (2026)
[GATOS N: The first direct kinematic evidence of dusty outflows from AGN through PAH kinematics of local Seyfert galaxies with JWST](#)
4. **Donnan, F. R.**, Rigoupoulou, D., García-Bernete, I., et al., (2025), *JATIS*, 11, 031606
[Census of the most obscured galaxy nuclei over cosmic time to be revealed by PRIMA.](#)
5. **Donnan, F. R.**, Rigoupoulou, D., García-Bernete, I., (2024), *MNRAS*, 532, 75
[The kinematics of Polycyclic Aromatic Hydrocarbons \(PAHs\) in Galaxies revealed by Principal Component Analysis \(PCA\) tomography with JWST/NIRSpec.](#)
6. **Donnan, F. R.**, García-Bernete I., Rigoupoulou D., et al., (2024), *MNRAS*, 529, 1386
[Peeling back the layers of extinction of dusty galaxies in the era of JWST: modelling joint NIRSpec + MIRI spectra at rest-frame 1.5-28 \$\mu\text{m}\$](#)
7. **Donnan, F. R.**, Hernández Santisteban J. V., Horne K., et al., (2023), *MNRAS*, 523, 545
[Testing super-eddington accretion on to a supermassive black hole: reverberation mapping of PG 1119+120.](#)
8. **Donnan, F. R.**, García-Bernete I., Rigoupoulou D., et al., (2023), *MNRAS*, 519, 3691
[The obscured nucleus and shocked environment of VV 114E revealed by JWST/MIRI spectroscopy.](#)
9. **Donnan, F. R.**, Rigoupoulou D., García-Bernete I., et al., (2023), *A&A*, 669, A87
[A detailed look at the most obscured galactic nuclei in the mid-infrared.](#)
10. **Donnan, F. R.**, Horne K., Hernández Santisteban J. V., (2021), *MNRAS*, 508, 5449
[Bayesian analysis of quasar light curves with a running optimal average: new time delay measurements of COSMOGRAIL gravitationally lensed quasars.](#)

Second/Third Author

11. Thatte, N., Rigoupoulou D., **Donnan, F. R.**, et al., (2025), *MNRAS*, 545, 2047
[The PAH 3.4 micron feature as a tracer of shielding in the Orion Bar and NGC 6240](#)
12. García-Bernete I., **Donnan, F. R.**, Rigoupoulou D., et al., (2025), *A&A*, 696, A135
[On unveiling Buried Nuclei with JWST: a technique for hunting the most obscured galaxy nuclei from local to high redshift.](#)
13. García-Bernete I., Rigoupoulou D., **Donnan F. R.**, , et al., (2024), *A&A*, 691, A162
[The Galaxy Activity, Torus, and Outflow Survey \(GATOS\). V: Unveiling PAH survival and resilience in the circumnuclear regions of AGN with JWST](#)

14. Rigopoulou D., **Donnan F. R.**, García-Bernete I., et al., (2024), MNRAS, 532, 1598
[Polycyclic aromatic hydrocarbon emission in galaxies as seen with JWST](#)

Co-Author

15. Veenema O., Thatte N., Rigopoulou D., et al., (2026), MNRAS, 548, stag785
[Decoupling the AGN outflow and star-forming disc kinematics in the nuclear region of NGC 7582 with JWST NIRSpec and MIRI/MRS](#)
16. Riffel R., Souza-Oliveira G., Colina L., et al., (2026), A&A, preprint
[Jet-driven shocks and turbulence in radio-loud Active Galactic Nuclei observed with JWST MIRI/MRS](#)
17. Pantoni L., Baes M., Decin L., et al., (2026), A&A, 709, A237
[MICONIC: JWST/MIRI-MRS reveals heavily reprocessed polycyclic aromatic hydrocarbons in the circumnuclear disc of Centaurus A](#)
18. Haidar H., Rosario D., Garcia-Bernete I., et al., (2026), MNRAS, 546, stag069
[GATOS XI. Excess dust heating in the narrow-line regions of nearby AGN revealed with JWST/MIRI](#)
19. Perez-Gonzalez P., Barro G., Carniani S., et al., (2026), ApJ, submitted
[Little Red Dots: One Photometric Tag Concealing Diverse Spectroscopic Flavors of Massive Star Formation and Black Hole Activity.](#)
20. Garcia-Bernete I., Pereira-Santaella M., Gonzalez-Alfonso E., et al., (2026), Nature Astronomy, 10, 420
[Abundant hydrocarbons in a buried galactic nucleus with signs of carbonaceous grain and polycyclic aromatic hydrocarbon processing.](#)
21. Zhang L., Packham C., Hicks E., et al., (2026), ApJ, 998, L32
[Evidence of Feedback Effects in Low-luminosity Active Galactic Nuclei Revealed by JWST Spectroscopy.](#)
23. Veenema O., Thatte N., Rigopoulou D., et al., (2025), MNRAS, 544, 3361
[Shock-driven heating in the circumnuclear star-forming regions of NGC 7582: insights from JWST NIRSpec and MIRI/MRS spectroscopy.](#)
24. Hunt L. K., Draine B. T., Navarro M. G., et al., (2025), ApJ, 993, 84
[The Interstellar Medium in I Zw 18 Seen with JWST/MIRI. II. Warm Molecular Hydrogen and Warm Dust.](#)
26. Hunt L. K., Aloisi A., Navarro M. G., et al., (2025), ApJ, 992, 48
[The Interstellar Medium in I Zw 18 Seen with JWST/MIRI. I. Highly Ionized Gas .](#)
27. Prince R., Hernández Santisteban J. V., Horne K., et al., (2025), MNRAS, 541, 642
[Echo mapping of the black hole accretion flow in NGC 7469.](#)
29. Hermosa Muñoz L., Alonso-Herrero A., Labiano A., et al., (2024), A&A, 693, A321
[MICONIC: dual AGN, star formation, and ionised gas outflows in NGC 6240 seen with MIRI/JWST.](#)
30. Zhang L., García-Bernete I., Packham C., et al., (2024), ApJL, 975, L2.
[Polycyclic Aromatic Hydrocarbon Emission in the Central Regions of Three Seyferts the Implication for Underlying Feedback Mechanisms](#)

31. Pereira-Santaella, M., González-Alfonso E., García-Bernete I., et al., (2024), *A&A*, 689, L12
[H₃⁺ absorption and emission in local U/LIRGs with JWST/NIRSpec: Evidence for high H₂ ionization rates](#)
32. Haidar H., Rosario D. J., Alonso-Herrero A., et al., (2024), *MNRAS*, 532, 4645
[Dust beyond the torus: Revealing the mid-infrared heart of local Seyfert ESO 428-G14 with JWST/MIRI](#)
33. Shen Y., Grier C. J., Horne K., et al., (2024), *ApJS*, 272, 26
[The Sloan Digital Sky Survey Reverberation Mapping Project: Key Results](#)
34. García-Bernete I., Pereira-Santaella M., González-Alfonso E., et al., (2024), *A&A*, 682, L5
[Structures Of Dust and gAs \(SODA\): Constraining the innermost dust properties of II Zw96 with JWST observations of H₂O and CO](#)
35. González-Alfonso E., García-Bernete I., Pereira-Santaella M., et al., (2024), *A&A*, 682, A182
[JWST detection of extremely excited outflowing CO and H₂O in VV 114 E SW: A possible rapidly accreting IMBH](#)
36. García-Bernete I., Alonso-Herrero A., Rigopoulou D., et al., (2024), *A&A*, 681, L7
[The Galaxy Activity, Torus, and Outflow Survey \(GATOS\). III. Revealing the inner icy structure in local active galactic nuclei](#)
37. Cackett E. M., Gelbord J., Barth A. J., et al., (2023), *ApJ*, 958, 195
[AGN STORM 2. IV. Swift X-Ray and Ultraviolet/Optical Monitoring of Mrk 817](#)
38. García-Bernete I., Rigopoulou D., Alonso-Herrero A., et al., (2022), *A&A*, 666, L5
[A high angular resolution view of the PAH emission in Seyfert galaxies using JWST/MRS data](#)
39. Varga J., Hogerheijde M., van Boekel R., et al., (2021), *A&A*, 647, A56
[The asymmetric inner disk of the Herbig Ae star HD 163296 in the eyes of VLTI/MATISSE: evidence for a vortex?](#)