Akshara Viswanathan | she/her

Astronomer in Galactic archaeology, and near-field cosmology

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Appointments

Postdoc, NWO Rubicon Fellow and IAU TGF Fellow
THE MILKY WAY AS A LABORATORY FOR FIRST STARS AND DARK MATTER, at Observatoire de Paris, France Oct 2026-Sep 2028
Postdoc, CITA National Fellow and IAU TGF Fellow
DECODING THE GALACTIC ANCESTRY, at Astronomy Research Center, University of Victoria, Canada Feb 2025-Sep 2026

Education

Ph.D. Astronomy Oct 2020-Dec 2024
Kapteyn Astronomical Institute, University of Groningen, The Netherlands
MAPPING THE ANCIENT MILKY WAY THROUGH METAL-POOR STARS (with Else Starkenburg & Amina Helmi)
M.Sc. Astrophysics (with highest distinction, GPA: 20/22) Sep 2019-Sep 2020
School of Physics and Astronomy, University of Glasgow, United Kingdom
EFFECTS OF GRAVITATIONAL LENS MODELS ON MERGING BINARY BLACK HOLE SYSTEMS (with Chris Messenger)
B.E. Electronics & Communication Engineering (with highest distinction, GPA: 9.21/10) Aug 2015-June 2019
College of Engineering Guindy, Anna University, India
TRI-BAND WEARABLE ANTENNA FOR OFF-BODY COMMUNICATION (with Malathi Kanagasabai)

Academic honours and fellowships

- *IAC Early-career Visitor Fellowship (∼7000 €)*, Instituto de Astrofísica de Canarias, Tenerife, Spain (top 11%) 2026
- *Rubicon Laureate (184,868 €)*, NWO–Dutch Research Council, Netherlands (rank 1/96 in Science) 2026
- *CITA Support for Scientific Meetings (2000 CA$)* to organise *Near Field Cosmology in the Era of Big Data*, Toronto 2026
- *International Astronomical Union – Gruber Fellowship Award (25,000 US$)*, The Gruber Foundation (top 6%) 2025
- *Canadian Institute for Theoretical Astrophysics (CITA) Fellowship (138,000 CA$)*, University of Victoria (top 2%) 2025
- *Visiting pre-doctoral researcher (∼10,000 US$)*, Flatiron Institute, Simons Foundation 2023
- *Mitacs Globalink Research Fellowship (7000 CA$)*, University of Victoria, Canada (top 5%) 2018
- *IASc–NASI–INSA Research Fellowship (25000 ₹)*, Institute for Plasma Research, India (top 7%) 2017
- *Additional research support, and honours:* Simons Foundation (1000 US$) and Leids Kerkhoven-Bosscha Fonds (1000 €, 2024); IAU travel grant (500 A$, 2023); MW–Gaia COST Action grant (1300 €, 2023); Best Paper Award (2000 ₹), National Conference on Information and Communication Technology (2019); Best Club Award, Anna University, for founding and leading the Astro Club of CEG (2019); State and Central Awards for Computer Science and Mathematics in high school and 10 CGPA in secondary school (2013–15).

Declined due to accepting the NWO Rubicon fellowship in 2026:

- *Luise and Gerhard Herzberg Fellowship (290,103 CA$)*, National Research Council, Canada (top 1%) 2026
- *IdEx Young Researcher Excellence Fellowship (89,600 €)*, Université Côte d'Azur, France (top 11%) 2026
- *Juan de la Cierva Fellowship (120,000 €)*, Spanish Ministry of Science, Spain (rank 9/230 in Physics) 2026

Publications and conference contribution record

Library - NASA ADS, Google Scholar, h-index - 13, citations - 821

- *12 primary author publications* (10 refereed, 2 proceedings, +2 in preparation incl. an invited review article) - 10 astronomy, 2 engineering papers, and *23 refereed co-author publications*.
- *3 invited talks, 22 contributed talks, 5 posters, and 12 collaboration talks* at international conferences.
- *12 invited talks and 2 invited workshops* at international universities (across 11 countries).

Successful Telescope and Observing grants

Principal Investigator: 8.1-m Gemini Observatory (Chile), GHOST, 2.5 hours (Fast Turnaround) 2026
→ *Confirming a stellar stream from an LMC satellite: Hierarchical disruption at the smallest galaxy scales*
Principal Investigator: 8.1-m Gemini Observatory (Chile), GHOST, 17.1 hours (ranked 3/41) 2026

→ *Discovering the most pristine relics of the first stars*
Principal Investigator: 8.1-m Gemini Observatory (Chile), GHOST, 34.1 hours (ranked 1/35) 2023-25
→ *Unveiling the Oldest Stellar Remnants of the Magellanic Stream*
Principal Investigator: 2.54-m Isaac Newton Telescope (La Palma), IDS, 38 nights (ranked 2/7) 2022-23
→ *Studying the chemical evolution of the early Galaxy with Pristine stars from Gaia (13 nights as observer)*
Lead Co-Investigator: 6.5-m Magellan Clay Telescope (Chile), MIKE, 3.5 nights (as observer, PI. McKenzie) 2026
→ *Investigating the Most Metal-Poor Globular Cluster Candidate Associated With The Sagittarius Dwarf Galaxy*
Lead Co-Investigator: 8.2m VLT, European Southern Observatory (Chile), UVES, 14 hours (PI. Matsuno) 2023
→ *Oldest stars in the Milky Way from an accreted galaxy*
Lead Co-Investigator: 2.54-m INT (La Palma), IDS, 28 nights (PI. Starkenburg) 2021-22
→ *Exploring the multitude of Milky Way stellar streams identified with STREAMFINDER (4 nights as observer)*
Other Co-Investigator programs: 8.1-m Gemini-south (Large program 2024-2026, PI. McConnachie, Venn), 8.2-m Subaru (2026, PI. Okada), 8.1-m Gemini-south (2026, PI. Venn, *withdrawn*), 8.1-m Gemini-south (2025, PI. Venn), 8.1-m Gemini-south (2025, PI. Dovgal), 8.2-m ESO/VLT (2023, PI. Hill), 8.2-m Subaru (2025, PI. Okada), 3.6-m CFHT (2025, PI. Venn, Gran), 8.2-m ESO/VLT (2024, PI. Gonzalez Rivera), 3.6-m CFHT (Large Program 2024-Present - Pristine, Bad weather program 2020-2024 - Pristine, PI. Martin, Starkenburg).

Teaching and supervision

BSc thesis supervision (6): Danique Albronda (RuG, 2026), Bram Gort (RuG, 2026), Ines Berčuk (RuG, 2024), Heidi de Vos (RuG, 2023), Anne Foppen (RuG, 2023), and Anna Esselink (RuG, 2022 + summer research in 2021).
PhD thesis chapter supervision (3): Manuel Bayer (RuG, 2026; **paper**), Amanda Byström (University of Edinburgh, 2026; **paper**), and Chris Boettner (RuG, 2024; **paper**).
Teaching: Guest Lecturer, MSc/PhD course: Galactic Archaeology (UVic, 2026); Teaching Assistant for BSc course: Cosmology (RuG, 2021) and BSc course: Physics of Galaxies (RuG, 2022–24), including design of a computational project.

Collaborations

- *Executive member* of the Pristine Survey collaboration (2020–present); 8 collaboration talks in 2021–26.
- *Active member* of the WEAVE Galactic Archaeology Survey (2022–present; 1 talk in 2023), Canada-France Imaging Survey/UNIONS (2026–present), ESA Euclid Survey (2026–present), STREAMFINDER collaboration (2022–present), and GHOST Ultra-Faint Legacy Survey – GHOULS (2025–present).
- *Early-career scientist*, The Early Milky Way ISSI Team (2022–25; 3 talks in 2022–25).
- *Research affiliations and professional memberships:* non-salaried worker at the Herzberg Astronomy and Astrophysics Research Centre, National Research Council Canada (2025–28); member of the European Astronomical Society (2026–present); former member of NOVA Network 1, Royal Netherlands Astronomical Society (NAC), European Astronomical Society (2020–24), Canadian Institute for Theoretical Astrophysics and Canadian Astronomical Society (2025–26).

Academic service, EDI and outreach

- *Peer review:* Referee for *The Astrophysical Journal* / IOPScience (2026–present); reviewer for Gemini Fast Turnaround and ESO/VLT regular observing proposals (2025–present).
- *Scientific organisation and representation:* Organising Committee, *Near Field Cosmology in the Era of Big Data*, Toronto (2026); Scientific Organising Committee, Pristine Survey Science Meeting, Nice (2025); Postdoctoral representative, Astronomy Research Centre ten-year review, University of Victoria (2025).
- *Mentoring, EDI and departmental service:* Mentor and co-organiser of the Stellar Streams mentorship programme (2024–25); co-organiser of Stellar Streams EDI workshop, Durham (2024); PhD representative, Kapteyn Institute EDI Committee (2022–24); Head of Wednesday Lunch Talk Committee, Kapteyn Institute (2021–22); Secretary, Young Minds Groningen Chapter, European Physical Society (2021–24); writer for the European Physical Society newsletter (e.g. 53/3, 2022–24); MSc Student Representative, University of Glasgow (2019–20).
- *Earlier scientific and student leadership:* Ground Control Team, GU Orbit Microsatellites Building Group, University of Glasgow (2019); Founder and President, Astronomy and Planetary Sciences Club, Anna University (2018–19); Outreach Event Organizer and Campus Ambassador, Space Kidz India and SPACE India (2019); three years of National Service Scheme social service (2015–18); Vice President, Electronics and Communication Engineering Association (2016–19); ECE Student Representative (2017–18); Director of Interviews, *The Guindy Times* (2015–19); Event Organizer, Content

Writer and Designer, Kurukshetra with UNESCO Patronage (2015–18); Mentor and Club Administrator, Robotics Club of CEG (2016–18); member of Astrosoc, University of Glasgow (2019–20).

- *Outreach and public engagement:* Inaugural Astronomy on Tap Victoria speaker, Astronomy on Tap Groningen speaker (2026); Volunteer at Indigenous Star Gathering with Elder Wilfred Buck, Victoria (2026); *How to make a Milky Way Galaxy?* Star Party talk, Centre of the Universe (2026); International Day of Women and Girls in Science events (2022–24); Hands-On Telescope workshop (2019); Zero Shadow Day (2019); Astro Coffee–TED Talks (2019); model rocketry and stargazing events (2019); college carousel, Blaauw Observatory (2022); industrial visit to ISRO (2017); Traffic Awareness programme (2016); Twitter podcast on Galactic archaeology (2023); panel discussion on astronomy careers for South-Asian students (2023); scientific movie night, *How to build your own Iron Man suit* (2022); *Flexibility sports for rigid people*, SPACE talk, UVic (2025).

Technical and other skills

Contributor: Spectroscopy Made Hard(er) - SMHR-Ghouls

- **Programming Language**: Python, C++, MATLAB
- **Dynamical analysis:** AGAMA, gala, galpy
- Languages: English, Tamil, Hindi, Dutch
- **Spectral analysis**: IRAF, FERRE, MOOG, pySME Korg
- **Data analysis**: vaex, polars, pandas, topcat, jax/numpyro
- Hobbies: Climbing, Pole dancing, Hiking, Yoga, Music

Conferences, workshops, and visits

Invited participation

17. The stellar halo-disc transition: October in Paris - The Milky Way halo - signatures of accretion, Paris, France (2026)
16. A slow spin to win: rotational build-up of the proto-Milky Way: EAS 2026, Lausanne, Switzerland (2026)
15. Reconstructing the early Milky Way using the most metal-poor stars, CITA seminar, Canada (2026)
14. Mapping the ancient Milky Way through metal-poor stars: Leiden Observatory, The Netherlands (2025)
13. A near-field view of the early universe: ARC Horizon talk, Victoria, Canada (2025)
12. Mapping the ancient Milky Way through metal-poor stars and streams: Rubin-LSST Near Field Cosmology Working Group, virtual (2025)
11. Mapping the ancient Milky Way through metal-poor stars and streams: DAO Colloquium, Victoria, Canada (2025)
10. Streams24 workshop: The Theory Edition, Durham, UK (2024)
9. Origin of the C-19 stellar stream - the most metal-poor structure known in the universe: Columbia University (2023).
8-5. Tracing the Milky Way's ancient footsteps: Insights from chemodynamical investigations of bright and distant metal-poor stars: MIT Kavli Institute, Northwestern University, UChicago, Royal Observatory Edinburgh (2023).
4. Exploring the MW Halo: Tracing Stellar Streams & Metal-Poor Relics: Instituto de Astrofísica de Canarias (2023)
3. Hidden deep in the halo: Investigating retrograde streams with a reduced proper motion selected halo catalogue: Talk at the Lorentz Center workshop on Towards Real-Time Galactic Dynamics, Leiden, NL (2022)
2. Streams22 workshop: Community Atlas of Tidal Streams, virtual, USA (2022)
1. Prospects in Astronomy for Engineers: Talk at Anna University, India (2020)

Contributed participation

27-26 (talk) Ancient debris of the Magellanic Stream as tracers of tidal disruption, Near Field Cosmology in the Era of Big Data, Toronto, Canada, and XMC Meeting III, Clouds over Pyrenees, Benasque Science Center, Spain
25. (talk) The metal-poor globular cluster stellar stream accreted from the Sagittarius dwarf galaxy, EAS 2026, Switzerland
24. (talk) Gaia DR3 unveils the most metal-poor Magellanic debris in the outer Galactic halo, EAS 2026, Switzerland
23. (talk) Ancient debris of the Magellanic Stream as tracers of tidal disruption and the dark matter halo wake, IAUS403: The Hidden Beauty of the Galactic Outskirts, Cordoba, Spain
22. (talk) Unveiling the oldest stellar remnants of the Magellanic Stream, EAS 2025, Cork, Ireland
21. (talk) A slow spin to win: gradual evolution of the proto-Galaxy, EAS 2025, Cork, Ireland
20. (poster) Tracing the Galaxy's ancient footsteps: Using chemodynamics of metal-poor stars, EAS 2025, Cork, Ireland
19. (talk) Decoding the Galactic memory: The slow rotational build-up of the high-redshift Milky Way, CASCA 2025, Halifax, Canada
18. (talk) Tracing the Milky Way's ancient footsteps: Insights on low mass mergers from chemodynamical investigations of bright and distant metal-poor stars, 2024, Small Galaxies, Cosmic Questions - II, Durham, UK
17. (talk) Galactic archaeology of the old Milky Way using the most metal-poor stars: First Stars VII, 2024, NYC, USA

16-15. (talk) Tracing the Milky Way's ancient footsteps: Insights from chemodynamical investigations of bright and distant metal-poor stars: Wednesday Lunch Talk 2023, Groningen, NL, and The Milky Way Assembly Tale meeting 2024, Bologna, Italy
14. (talk) Trapped in the disk: constraining the galactic bar using planar metal-poor stars: Revealed by Gaia: the central halo of the Milky Way 2023, Cambridge, UK
13. (talk) Hidden deep in the halo: Selection of a reduced proper motion halo catalogue and mining retrograde streams in the velocity space: Wednesday Lunch Talk 2023, Groningen, NL
12. (talk) Detection of density variations and off-track features in stellar streams: IAUS379: Dynamical Masses of Local Group Galaxies 2023, Potsdam, Germany
11. (poster) Observational Diagnostics of the Old Milky Way using the most metal-poor stars: IAUS377: Early disk galaxy formation: from JWST to the Milky Way 2023, Kuala Lumpur, Malaysia.
10. (poster) Galactic archaeology with the metal-poor Galaxy: NOVA review meeting 2023, Groningen, NL.
9. (talk) Galactic archaeology with the metal-poor Galaxy: Kapteyn science day 2022, Groningen, NL.
8. (talk) Hidden deep in the halo: A distinct chemo-dynamical perspective of retrograde tidal streams in the Milky Way: EAS 2022, Valencia, Spain
7. (poster) A new view of the old Milky Way: 50M inner halo sources using Gaia eDR3 proper motion and photometry: EAS 2022, Valencia, Spain
6-4. (talk) A unique view of the metallicity structure of the Milky Way halo: EAS 2021, NAC 2021, GALAH 2021 virtual.
3. (talk) AGN-Merger Connection: Texas symposium 2019, Portsmouth, UK
2. (poster) Quantification of the merger fraction in local AGN hosts: ASI 2019, Bangalore, India
1. (talk) Low Profile Modified Loop Antenna for WBAN Applications: NCICT 2019, Chennai, India

(Active participant of the local department meetings, telecons, colloquiums, seminars, & talks)

Earlier research & technical experience

- Research projects in solar physics, gravitational waves, plasma physics, MCMC methods, and electronics (2016–20); shortlisted for PLANCKS UK 2020.
- Part-time IT support, tutoring/digital administration, and research/content roles in the UK and India (2016–20).

References

Available upon request

Publications list

*co-supervised (or closely involved in supervision) works

Primary author

6 astronomy journal papers as first author, 3 astronomy journal paper(s) as second/third author, 1 engineering journal paper, 2 conference proceedings (1 engineering, 1 astronomy)

12. The Pristine survey - XXXI. A stream offset from the Stream: very metal-poor stellar debris trailing 100° from the Magellanic Clouds
Viswanathan, A., Venn, K. A., Navarro, J. F., Boyea, D. A., Sestito, F., Navarrete, C., Woudenberg, H. C., et al.
Astronomy & Astrophysics, submitted, 2026. arXiv:2611.07563
11. *Tracing the very early disruption of the Sagittarius dwarf galaxy in the distant Milky Way halo*
Bayer, M.*, Starkenburg, E., **Viswanathan, A.**, Chandra, V., Ji, A. P., Thomas, G. F.
Monthly Notices of the Royal Astronomical Society, 2026, 550, 2. arXiv:2606.17754
10. *The Pristine Survey - XXVIII. Journey to the Galactic outskirts: Mapping the outer halo red giant stars down to the very metal-poor end*
Viswanathan, A., Byström, A.*, Starkenburg, E., Foppen, A.*, Straat, J.*, Montelius, M., Sestito, F., et al.
Astronomy & Astrophysics, 2026, 706, A195. arXiv:2408.17250 + publicly available catalogues.
9. *A slow spin to win: The gradual kinematic evolution across metallicities of the proto-Galaxy to the high-α disc*
Viswanathan, A., Horta, D., Price-Whelan, A., Starkenburg, E.
Astronomy & Astrophysics, 2025, 703, A183. arXiv:2411.12165
8. *The Pristine survey - XXV. The very metal-poor Galaxy: Chemodynamics through the follow-up of the Pristine-Gaia synthetic catalogue*
Viswanathan, A., Yuan, Z., Ardern-Arentsen, A., Starkenburg, E., Martin, N. F., et al.
Astronomy & Astrophysics, 2025, 695, A112. arXiv:2405.13124 + publicly available catalogues.
7. *Exoplanets Across Galactic Stellar Populations with PLATO: Estimating Exoplanet Yields Around FGK Stars for the Thin Disk, Thick Disk and Stellar Halo*
Boettner, C.*, **Viswanathan, A.**, Dayal, P.
Astronomy & Astrophysics, 2024, 692, A150. arXiv:2407.15917 + publicly available catalogues.
6. *Gaia's brightest very metal-poor (VMP) stars: A metallicity catalogue of a thousand VMP stars from Gaia RVS spectra.*
Viswanathan, A., Starkenburg, E., Matsuno, T., Venn, K. A., Martin, N. F., et al.
Astronomy & Astrophysics Letters, 2024, 683, L11. arXiv:2309.06137 + publicly available catalogues.
5. *Hidden deep in the halo: Selection of a reduced proper motion halo catalogue and mining retrograde streams in the velocity space.*
Viswanathan, A., Starkenburg, E., Koppelman, H. H., Helmi, A., Balbinot, E., Esselink, A.F.*
Monthly Notices of the Royal Astronomical Society, 2023, 521, 2. arXiv:2302.00053 + publicly available catalogues.
4. *A definitive merger-AGN connection at z∼0 with CFIS: mergers have an excess of AGN and AGN hosts are more frequently disturbed.*
Ellison, S.L., **Viswanathan, A.**, Patton, D.R., Bottrell, C., McConnachie, A.W., Gwyn, S. and Cuillandre, J.C.
Monthly Notices of the Royal Astronomical Society, 2019, 487, 2. arXiv:1905.08830
3. *On the design of frequency reconfigurable tri-band miniaturized antenna for WBAN applications*
Kanagasabai, M., Sambandam, P., Mohammed, G.N.A., Dinesh, N.M., Morais, M.S., **Viswanathan, A.**, Palaniswamy, S.K. and Shrivastav, A.
AEU-International Journal of Electronics and Communications, 2020, 127, 153450. DOI:10.1016
I am the primary contributor of this paper, the author list is in order of seniority
2. *Detection of density variations and off-track features in stellar streams.*
Viswanathan, A., Starkenburg, E., Esselink, A.F.*
Dynamical Masses of Local Group Galaxies, Proceedings of IAU Symposium 379, 2025, 379. DOI:10.1017
1. *Low Profile Modified Loop Antenna for WBAN Applications*
Dinesh, N.M., **Viswanathan, A.**, Morais, M.S., Kanagasabai, G.N.A., Rajesh,N.
Proceedings of the 5th National Conference on Information and Communication Technologies, SSN College of Engineering, 2019, NCICT

Co-author (refereed)

11 journal papers with major contribution (including writing subsections of the paper) in bold

24. *Swarming in stellar streams: unveiling the structure of the Jhelum stream with ant colony-inspired computation*
Awad, P.*, Canducci, M., Balbinot, E., **Viswanathan, A.**, Woudenberg, H., Koop, O. et al.
Astronomy & Astrophysics, 2024. arXiv:2312.12524
My contribution: weekly meetings with Petra and helped her interpret the science behind Jhelum's accretion history after using her innovative algorithm to select stream members.

23. *Characterizing the disruption of Böotes III: a missing link in the Galactic halo?*
Jensen, J.*, Boyea, D. A., McConnachie, A. W., Errani, R., **Viswanathan, A.**, Martin, N., Yuan, Z. et al.
Submitted to ApJ, 2026. arXiv:2607.28594
My contribution: Dynamical effects of the LMC and the galactic bar on BooIII. Mentorship for Jaclyn Jensen.

22. *The Pristine survey XIII: uncovering the very metal-poor tail of the thin disc.*
Fernández-Alvar, E., Kordopatis, G., Hill, V., Starkenburg, E., **Viswanathan, A.**, et al.
Monthly Notices of the Royal Astronomical Society, 2021. arXiv:2106.03406
My contribution: Crossmatches of members in the anti-center with spectroscopic surveys to confirm the existence of the metal-poor tail of the thin disc.

21. *The GHOST Ultra-faint dwarf Legacy Survey (GHOULS) I. Survey Design and First Results*
McConnachie, A. W., Venn, K. A., Dovgal, A., Placco, V. M., Reggiani, H., **Viswanathan, A.**, Cornejo, T., et al.
submitted to ApJ, 2026.
My contribution: Derived spectroscopic metallicities for 11 GHOULS stars from 2024A observations.

20. *The metal-poor tail of the APOGEE survey. I. Uncovering [Fe/H] < -2.5 stars from the inner Galaxy to the Magellanic Clouds*
Montelius, M., Starkenburg, E, Woudenberg, H., Angrilli Muglia, A., Ardern-Arentsen, A., **Viswanathan, A.**, et al.
Astronomy & Astrophysics, 2025. arXiv:2602.10859.
My contribution: Led the spectroscopic follow-up of APOGEE VMP stars, and spectrophotometric distance calibration.

19. *Typhon: a polar stream from the outer halo raining through the Solar neighborhood.*
Tenachi, Oria, P., Ibata, R., Famaey, B., Yuan, Z., Arentsen, A., Martin, N., **Viswanathan, A.**
The Astrophysical Journal Letters, 2022. arXiv:2206.10405
My contribution: Led the spectroscopic follow-up of Typhon members.

18. *Antaeus: A Retrograde Group of Tidal Debris in the Milky Way's Disk Plane.*
Oria, P., Tenachi, Ibata, R., Famaey, B., Yuan, Z., Arentsen, A., Martin, N., **Viswanathan, A.**
The Astrophysical Journal Letters, 2022. arXiv:2206.10404
My contribution: Led the spectroscopic follow-up of Antaeus members.

17. *The Pristine survey–XVI. The metallicity of 26 stellar streams around the Milky Way detected with the STREAMFINDER in Gaia EDR3.*
Martin, N.F., Ibata, R.A., Starkenburg, E., Yuan, Z., Malhan, K., Bellazzini, M., **Viswanathan, A.**, et al.
Monthly Notices of the Royal Astronomical Society, 2022. arXiv:2201.01310
My contribution: Validation of the photometric metallicities from Pristine with existing spectroscopic surveys and assisted with the compilation of the training sample for the Pristine model.

16. *The Pristine survey–XXIII. Data Release 1 and an all-sky metallicity catalogue based on Gaia DR3 BP/RP spectrophotometry.*
Martin, N. F., Starkenburg, E., Yuan, Z., Fouesneau, M., ... **Viswanathan, A.**, et al.
Astronomy & Astrophysics, 2024. arXiv:2308.01344.
My contribution: Supervised Anna F. Esselink on the algorithm that goes from CaHK measurements to photometric metallicities in python environment.

15. *Charting the Galactic Acceleration Field. II. A Global Mass Model of the MilkyWay from the STREAMFINDER Atlas of Stellar Streams Detected in Gaia DR3*
Ibata, R., Malhan, K., Tenachi, W., ... **Viswanathan, A.**, et al.
Astronomy & Astrophysics, 2024. arXiv.2311.17202.
My contribution: Co-led the spectroscopic follow-up campaign of stream member candidates by the STREAMFINDER algorithm.

14. *The Pristine survey: XXVIII. The extremely metal-poor stream C-19 stretches over more than 100 degrees*

Yuan, Z., Matsuno, T., Sitnova, T., ... **Viswanathan, A.**, et al.
Astronomy & Astrophysics, 2025. arXiv.2502.09710.
My contribution: Spectroscopic analysis of C-19 members observed using my PI program at the INT/IDS.

13. *The Pristine Inner Galaxy Survey (PIGS) XII: Photometric data release and follow-up strategy for 4MOST*
Ardern-Arentsen, A., Martin, N. F., Starkenburg, E., ... **Viswanathan, A.** et al.
submitted to MNRAS 2026.
My contribution: Pristine survey training sample calibrations.
12. *The Pristine Dwarf Galaxy Survey – VII. The metallicity distributions of 12 Milky Way faint satellites*
Taibi, S., Jablonka, P., Longeard, N., ... **Viswanathan, A.**.
submitted to MNRAS 2026.
arXiv.2606.06610.
My contribution: Pristine survey training sample calibrations.
11. *GHOST Commissioning Science Results. V: GHOST spectral analysis of the outermost stars in the extremely metal-poor stream C-19*
Venn, K. A., Yuan, Z., Martin, N., ... **Viswanathan, A.**, et al.
submitted to ApJ 2026.
My contribution: Calcium triplet based spectroscopic metallicities.
10. *State of the UNIONS: Four Milky Way companions discovered in a systematic search for northern Local Group satellites*
Smith, S. E. T., McConnachie, A. W., de Boer, T., ... **Viswanathan, A.**, et al.
submitted to ApJ 2026.
My contribution: Cross matches with spectroscopic and photometric metallicity catalogues.
9. *The primordial nature of the C-19 stellar stream*
Venn, K.A., Yuan, Z., Martin, N.F, ... **Viswanathan, A.**, et al.
submitted to Nature Astronomy, 2026. arXiv:2603.02445
My contribution: Insights on the dynamical nature of C-19.
8. *The Pristine survey. XXVI. Chemical abundances of subgiant stars of the extremely metal-poor stream C-19*
Bonifacio, P., Caffau, E., ... **Viswanathan, A.**, et al.
Astronomy & Astrophysics, 2025. arXiv.2412.20776.
My contribution: Led the discussion on C-19's dynamical width and velocity dispersion due to its orbital phase.
7. *The Pristine survey: XXIV. The Galactic underdogs: Dynamic tales of a Milky Way metal-poor population*
González Rivera de La Vernhe, I., Hill, V., ... **Viswanathan, A.**, et al.
Astronomy & Astrophysics, 2024. arXiv.2406.05728.
My contribution: Creating the Pristine training sample and catalogues and helping with the selection of a pure sample of metal-poor stars in disc orbits.
6. *Could very low-metallicity stars with rotation-dominated orbits have been driven by the bar?*
Yuan, Z., Li, C., Martin, N. F., ... **Viswanathan, A.**, et al.
Astronomy & Astrophysics, 2024. arXiv.2311.08464.
My contribution: Insights on how the bar could have influenced the orbits of planar metal-poor stars using my own sample of spectroscopically confirmed metal-poor stars.
5. *The Pristine Inner Galaxy Survey (PIGS): IX. The largest detailed chemical analysis of very metal-poor stars in the Sagittarius dwarf galaxy*
Sestito, F., Vitali, S., Jofre, P., ... **Viswanathan, A.**, et al.
Astronomy & Astrophysics, 2024. arXiv.2405.00096.
My contribution: Creating the Pristine training sample and catalogues.
4. *The metal-poor edge of the Milky Way's "thin disc"*
Fernández-Alvar, E., Kordopatis, G., Hill, V., ... **Viswanathan, A.**, et al.
Astronomy & Astrophysics, 2024. arXiv.2402.02943.
My contribution: Quantifying metal-poor stars that are rotating in disc-like orbits in the Gaia RVS sample of low-metallicity stars.
3. *The Pristine survey - XVII. The C-19 stream is dynamically hot and more extended than previously thought*
Yuan, Z., Martin, N. F., Ibata, R., ... **Viswanathan, A.**, et al.
Astronomy & Astrophysics, 2022. arXiv.2203.02512.

My contribution: Led the spectroscopic follow-up of few C-19 members and assisted with the compilation of the training sample for the Pristine model.

2. *The Pristine survey. XXIX. Data Release 2: Photometric metallicities for 15 millions stars down to G ∼ 20.5*
   Yuan, Z., Ardern-Arentsen, A., Martin, N., ... **Viswanathan, A.**, et al.
   Astronomy & Astrophysics, 2026.
   My contribution: Discussion on photometric metallicities for faint stars as a limitation in our method.
1. *A Pristine-UNIONS view on the Galaxy: Kinematics of the distant spur feature of the Sagittarius stream traced by blue horizontal branch stars*
   Bayer, M., Starkenburg, E, Thomas, G., ... , **Viswanathan, A.**, et al.
   Astronomy & Astrophysics, 2025. arXiv.2502.17319.
   My contribution: Creating the Pristine training sample and catalogues.

Thesis (refereed)

Viswanathan, A., "Mapping the ancient Milky Way through metal-poor stars". PhD thesis. 2024. DOI:10.33612

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2. **Viswanathan, A.**, Starkenburg, E. "The very metal-poor Milky Way, its satellites, and stellar streams"
   Invited review, Astronomy Prize Awardees Collection, Springer Nature, in preparation, December 2026.
1. **Viswanathan, A.**, Starkenburg, E., Helmi, A., et al. "The Pristine Survey-XXX. Metallicity structure of the inner galactic halo", Astronomy & Astrophysics, in preparation, 2027.