

Roland Timmerman

POSTDOCTORAL RESEARCH ASSOCIATE AT DURHAM UNIVERSITY

Personal data

Place and Date of Birth The Netherlands | 1996
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Experience

1 December 2023 - Present **Postdoctoral research associate** *Durham University*
1 September 2019 - 30 November 2023 **PhD candidate** *Leiden Observatory*

Education

PhD Astronomy *University of Leiden*
LEIDEN, THE NETHERLANDS 2019 - 2023

- Thesis title: Tuning in to the Feedback Bassline
- PhD award date: 22 November 2023

MSc Astronomy (cum laude) *University of Groningen*
GRONINGEN, THE NETHERLANDS 2017 - 2019

- Major: Theoretical and Observational Astronomy
- Major: Data Science

BSc Astronomy *University of Groningen*
GRONINGEN, THE NETHERLANDS 2014 - 2017

- Major: Theoretical Astronomy

Research

First-author refereed publications

PAPERS IN PREPARATION NOT LISTED

- **R. Timmerman**, R. J. van Weeren, A. Botteon, H. J. A. Röttgering, L. K. Morabito, F. Sweijen, "The first high-redshift cavity power measurements of cool-core galaxy clusters with the International LOFAR Telescope", 2024, *A&A*, 687, A31
- **R. Timmerman**, R. J. van Weeren, A. Botteon, H. J. A. Röttgering, B. R. McNamara, F. Sweijen, L. Bîrzan, L. K. Morabito, "Measuring cavity powers of active galactic nuclei in clusters using a hybrid X-ray-radio method", 2022, *A&A*, 668, A65
- **R. Timmerman**, R. J. van Weeren, J. R. Callingham, W. D. Cotton, R. Perley, L. K. Morabito, N. A. B. Gizani, A. H. Bridle, C. P. O'Dea, S. A. Baum, G. R. Tremblay, P. Kharb, N. E. Kassim, H. J. A. Röttgering, A. Botteon, F. Sweijen, C. Tasse, M. Brüggen, J. Moldon, T. Shimwell, G. Brunetti, "Origin of the ring structures in Hercules A", 2022, *A&A*, 658, A5
- **R. Timmerman**, R. J. van Weeren, M. McDonald, A. Ignesti, B. R. McNamara, J. Hlavacek-Larrondo, H. J. A. Röttgering, "Very Large Array observations of the mini-halo and AGN feedback in the Phoenix cluster", 2021, *A&A*, 646, A38

Co-authored refereed publications

PAPERS IN PREPARATION NOT LISTED

- E. Ceccotti, A. R. Offringa, L. V. E. Koopmans, **R. Timmerman** et al. "A novel radio imaging method for physical spectral index modelling", 2023, *MNRAS*, 525, 3, 3946
- C. J. Riseley, N. Biava, A. Bonafede, ..., **R. Timmerman** et al., "A 'MeerKAT-meets-LOFAR' study of Abell 1413: a moderately disturbed non-cool-core cluster hosting a ~ 500 kpc 'mini'-halo", 2023, *MNRAS*, 524, 4, 6052
- C. M. Cordun, **R. Timmerman**, G. K. Miley et al., "VLBI imaging of high-redshift galaxies and protoclusters at low radio frequencies with the International LOFAR Telescope", 2023, *A&A*, 676, A29
- J. R. Callingham, T. W. Shimwell, H. K. Vedantham, ..., **R. Timmerman** et al., "V-LoTSS: The circularly polarised LOFAR Two-metre Sky Survey", 2023, *A&A*, 670, A124
- T. W. Shimwell, M. J. Hardcastle, C. Tasse, ..., **R. Timmerman** et al., "The LOFAR Two-metre Sky Survey – V. Second data release", 2022, *A&A*, 659, A1
- I. D. Roberts, R. J. van Weeren, **R. Timmerman** et al., "LoTSS Jellyfish Galaxies III. The first identification of jellyfish galaxies in the Perseus cluster", 2022, *A&A*, 658, A44
- C. J. Riseley, K. Rajpurohit, F. Loi, A. Botteon, **R. Timmerman** et al., "A MeerKAT-meets-LOFAR Study of MS 1455.0+2232: A 590 kiloparsec 'Mini'-Halo in a Slashing Cool-Core Cluster", 2022, *MNRAS*, 512, 3, 4210

Colloquia & seminars

SPEAKER

- 2024 **University of Nottingham** Centre for Astronomy and Particle Theory Nottingham, UK
2023 **Durham University** Ogden Centre for Extragalactic Astronomy Durham, UK
2023 **University of Manchester** Jodrell Bank Centre for Astrophysics Manchester, UK

Invited talks

SPEAKER

- 2024 **LOFAR Family Meeting** Leiden, The Netherlands
2024 **McNamara@65** Waterloo, Canada
2024 **URSI Atlantic Radio Science Conference** Gran Canaria, Spain
2024 **SPARCS XII** Bologna, Italy
2023 **Bologna VLBI: Life begins at 40!** Bologna, Italy

Contributed talks

SPEAKER

- 2024 **Galaxy Clusters & Radio Relics II** Cambridge, United States
2024 **AGN Across Continents** Durham, United Kingdom
2024 **URSI Atlantic Radio Science Conference** Gran Canaria, Spain
2024 **URSI UK Symposium** Teddington, United Kingdom
2023 **LOFAR Family Meeting** Olsztyn, Poland
2023 **Nederlandse Astronomen Conferentie** Leeuwarden, The Netherlands
2022 **SPARCS XI** Hammanskraal, South Africa
2022 **LOFAR ECR Event** Leiden, The Netherlands
2022 **NOVA NW1 Meeting** Groningen, The Netherlands
2022 **IAU General Assembly XXXI** Busan, South Korea
2021 **Annual Meeting of the European Astronomical Society** Online
2020 **Annual Meeting of the European Astronomical Society** Online

Telescope time granted

AS PRINCIPAL INVESTIGATOR

- **LOFAR**, DDT, "LOFAR long-baseline observations of Taurus A", Allocated 8 hours
- **LOFAR**, Commissioning, "Detecting fringes between LOFAR and the uGMRT", Allocated 2 hours
- **LOFAR**, Cycle 16, "Expanding the limits: high-redshift LOFAR study of AGN feedback in galaxy clusters", Allocated 33 hours
- **LOFAR**, Cycle 15, "Entering uncharted territory: high-redshift LOFAR study of AGN feedback in galaxy clusters", Allocated 16 hours
- **LOFAR**, Cycle 14, "The first high resolution LOFAR study of AGN feedback in galaxy clusters", Allocated 92 hours

Telescope time granted

AS Co INVESTIGATOR

- **WEAVE**, Cycle 2024B, "WEAVE LIFU observations of Brightest Cluster Galaxies", Allocated 28 hours
- **VLA**, Cycle 24B, "High-resolution JVA imaging of the longest black hole jets known", Allocated 24 hours
- **LOFAR**, Commissioning, "LOFAR long-baselines observations of Cas A", Allocated 8 hours
- **LOFAR**, Cycle 20, "Studying a high-redshift radio relic at arcsecond resolutions with the international LOFAR telescope", Allocated 8 hours
- **LOFAR**, Cycle 20, "Deep ILT observations of Coma A (3C277.3)", Allocated 30 hours
- **LOFAR**, DDT, "LOFAR monitoring of supernova 2023ixf in M101", Allocated 35 hours
- **uGMRT**, Cycle 44, "Verifying a 6.2 Mpc-long quasar outflow at half the Universe's age", Allocated 15 hours

Computing resources granted

AS PRINCIPAL INVESTIGATOR

- **SURF**, "Sub-arcsecond imaging with LOFAR", Allocated 910,000 core hours

Review service

OBSERVATORIES

- **Murchison Widefield Array** Time Allocation Committee, cycles 2024A-2025B
- **e-MERLIN** external referee, cycle 18
- **Giant Metrewave Radio Telescope** external referee, cycle 47

Review service

JOURNALS

- **Monthly Notices of the Royal Astronomical Society**
- **Astronomy & Astrophysics**
- **Advances in Space Research**

Memberships

Large societies

- **International Astronomical Union**, Full Member

Collaborations

- **LOFAR Surveys Collaboration**
Cluster Science Working Group & Long Baseline Working Group
- **Square Kilometer Array Observatory**
VLBI Working Group
- **Habitable Worlds Observatory**
AGN Working Group

Press & Outreach

Contributions in media

- 2023 **Zenit** Article dedicated to the results from Timmerman et al. (2024)
- 2022 **NOVA** Article presents results from Timmerman et al. (2022b)
- 2022 **BBC News** Article includes results from Timmerman et al. (2022a)
- 2021 **Zenit** Article includes results from Timmerman et al. (2022)
- 2021 **Zenit** Article describes general direction of PhD research

Public outreach

- Public lecture at the Mexborough & Swinton Astronomical Society
- Gave a lecture at the Pint of Science 2024 festival in Durham
- Guest class for nine-year-old children about the Solar System at primary school "OBS De Voorsprong" in The Hague, 2022
- Co-organizing the public Oort lecture, 2022
- Volunteering at Blaauw Observatory, 2018-2019
- Volunteering at the Dwingeloo Radiotelescope (CAMRAS), 2017-2022

Supervision & Teaching

Supervision

- 2024 **Summer internship - Sravya Kalachaveedu** Spectral index measurements of radio galaxies using the LoTSS catalog *Durham University*
- 2023 **BSc - Liam de Vos & Tom van Schaik** Searching for carbon radio recombination lines in a distant radio galaxy *University of Leiden*
- 2023 **MSc - Rahul Priyadarshan Ravichandran** Investigating angular broadening caused by interstellar scattering of radio waves *University of Leiden*
- 2022 **LEAPS summer school - Tombo Rarivoarinoro** Low-frequency investigation into tailed radio galaxies within galaxy clusters *University of Leiden*
- 2022 **MSc - Cristina Cordun** Investigating the $\alpha - z$ correlation of high-redshift (proto-)clusters using International LOFAR Telescope observations. The results were published in *Astronomy Astrophysics*. *University of Leiden*

Teaching

7th LOFAR Data School

ASTRON

INVITED LECTURER

- Week-long postgraduate school for introducing new users to working with LOFAR observations.

Large Scale Structure and Galaxy Formation

University of Leiden

TEACHING ASSISTANT

3 Semesters

- MSc course focused the formation and evolution of large scale structure and galaxies in the universe.

Modern Astronomical Research and Communication

University of Leiden

TEACHING ASSISTANT

1 Semester

- BSc course on soft skills (such as presenting and writing) in academia.

Electrodynamics of Radiation Processes

University of Groningen

TEACHING ASSISTANT

1 Semester

- MSc course focused on topics such as blackbody radiation, synchrotron radiation, bremsstrahlung and Compton scattering.

Programming and Numerical Methods

University of Groningen

TEACHING ASSISTANT

1 semester

- BSc course on the basics of programming in Python, \LaTeX , as well as the basics of using Linux.

References

Dr. Reinout J. van Weeren

Leiden Observatory, Einsteinweg 55, 2333 CC Leiden, The Netherlands

Prof. dr. Huub J. A. Röttgering

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Prof. dr. Leah K. Morabito

Durham University, South Road, Durham DH1 3LE, United Kingdom