# Leah K. Morabito

Hintze Fellow, Christ Church, Oxford
Millard & Lee Alexander Postdoctoral Fellow

## Personal Details

Nationality: Italy, USA
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## Employment History

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|---|---|
| Oct 2016 - Present | Hintze Fellow & PDRA in Galaxy Evolution, *University of Oxford* |
| Apr 2005 - Aug 2011 | Air Battle Manager (highest rank: Captain), *United States Air Force* |

- Electronic Combat Officer (ECO) *Sep 2008 - Aug 2011*
- Air Weapons Officer (AWO) *Jun 2005 - Aug 2008*

## Education

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|---|---|
| Sep 2012 - Sep 2016 | **Leiden University**, Astronomy PhD Researcher<br>Thesis: *'Radio Galaxies at Low Frequencies'* |
| Sep 2009 - Apr 2012 | **University of Oklahoma**, M.Sc. Astronomy (with Honours. 1 equiv.)<br>Thesis: *'AGN: From Supermassive Black Holes to Rare FeLoBALs'* |
| Sep 2001 - Apr 2005 | **University of Michigan**, B.Sc. Physics & B.Sc. Astrophysics (2i equiv.) |

## Science Highlights

- First spatially resolved maps of high redshift radio galaxies, $1''$ resolution at 55 MHz
- First extragalactic detection of low frequency carbon radio recombination lines, in M82
- Widest, deepest survey image at the time with low band Low Frequency Array (LOFAR) data
- Highest resolution radio images at low frequencies and low declination (in XMM-LSS field)

## Research Goals

My main goal is to answer fundamental questions on how super-massive black holes co-evolve with the galaxies in which they reside. I do this by using low frequency radio observations coupled with multi-wavelength data. Over the next five years, I will lead the use of high-resolution, wide-field radio imaging at low frequencies to clearly distinguish two main components in galaxy evolution: star formation, and processes associated with active galactic nuclei. This unique approach will help change our view of how active galactic nuclei help shape galaxy evolution.

## Leadership

**Co-leadership of Long Baseline Working Group.** Co-leadership and training of 10+ postdocs, PhD, and MSc students working on technical challenges for high-resolution imaging with LOFAR. — 2016 - present

**President of Oxford Women in Physics Society.** Leadership of committee of 10+ women, focused on providing a supportive network for women in Physics at Oxford, from the undergraduate to the faculty level. — Jan 2018 - present

**Member of Department Equality & Diversity Committee**. Contributing member of committee as President of Oxford Women in Physics Society, heading up mentoring programme reform. — Jan 2018 - present

**Galaxies Coffee Organizer**. Weekly journal club meeting of about 10 - 15 active participants. — Oct 2017 - present

**Head of AWACS PEX Implementation**. Spearheaded transition to new program tracking training and flying hours for 1,800 aircrew (largest implementation in the Air Force). — Apr - June 2011

**Chair of Electronic Support Team.** Led and trained a team of 15 to prepare for, support and conduct electronic combat in a deployed location. Won team award at highest level for all organisations at deployed location. This work improved intelligence databases across entire Air Force. — Jan - Sep 2009

**Package Commander for Command, control, intelligence, surveillance and reconnaisance (C2ISR)**. Led collection of aircraft providing C2ISR functions for multiple large training exercises (total of 100+ air assets on average). — Feb - Mar 2009

**Operations Group Commander**. Designed and conducted entire training programme for corps of 150+ US Air Force cadets. Sep - Dec 2004

**Co-Founder/President, Society of Women in Physics (SWiP)**. Wrote constitution, secured University funding, and started program focused on mentorship of younger women undergraduate students, and promoting women and girls in STEM fields. Sep 2004 - Apr 2005

## Professional Experience

**Lorentz Centre Workshop: High Resolution Surveying with LOFAR**. Main organiser: including writing proposal and securing funding. Mar 2018

**LOFAR Long Baseline Workshops**. Helped with and then co-led developing the LOFAR long baseline data reduction pipeline, and training of new users. 2015 - present

**LOFAR Low Band Antenna Busy Week**. Led first busy week exclusively devoted to working on challenges for the LOFAR Low Band Antenna. Mar 2016

**LOFAR Commissioning Busy Weeks**. Participated in 10 busy weeks to commission software for low-frequency, wide-field imaging. Jul 2012 - present

**Chair of Local Organising Committee, LOFAR Busy Week 21**. Workshop with specialized talks / training for new users; 40+ global participants. Jan 2013

**Evaluator/Instructor Electronic Combat Officer (ECO), USAF, Capt**. Operated Passive Detection System on E-3 Airborne Warning And Control System (AWACS). Culminated career as Chief Evaluator / subject matter expert. Aug 2008 - Aug 2011

**Air Weapons Officer, USAF, 1Lt**. Controlled tactical aircraft from AWACS. Deployed in support of combat missions in southwest Asia. Jun 2005 – Aug 2008

## Indicators of esteem

- **Viva examiner**. MSc thesis, Emmanuel Bempong-Manful, Univ. of Hertfordshire. (February 2018)
- **Member of LOFAR 2.0 Science Advisory Panel**. Expert on using LOFAR international stations for high resolution imaging. (2018 - present)
- **Referee for papers in peer-reviewed journals**. Monthly Notices of the Royal Astronomical Society, Journal of Astrophysics and Astronomy. (2018 - present)
- **Technical review of observing proposals**. The Low Frequency Array and the Giant Metre-wave Radio Telescope. (2017 - present)
- **Resident Shared Risk Observing, JVLA**. Granted telescope time as an expert user and assessed P-band spectroscopic utility on-site with staff at National Radio Astronomy Observatory. (Apr 2015)
- **Early upgrade to ECO instructor**. Hand-picked based on performance and ability to teach to become an instructor after only 8 months (minimum requirement 1 year).

## Funding Awards

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|---|---|
| Mar 2018 | Lorentz Center workshop: High-Resolution Imaging with LOFAR (10,985 Euro)<br>• RadioNet funding to support early-career researchers (2,000 Euro)<br>• Funding from ASTRON to support minority researchers (1,000 Euro)<br>• Lorentz Center support for workshop (7,985 Euro) |
| Dec 2017 | Grant for 100 TB disk for working on data, Christ Church Research Centre (8,580 GBP) |
| Oct 2017 | Millard & Lee Alexander Post-Doctoral Fellowship, Christ Church, 2 year room & board |
| Jun 2014 | Leids Kerkhoven-Bosscha Fonds grant for travel to international conference (1,000 Euro) |
| Nov 2013 | Award for contribution to successful NWO-TOP1 grant (total grant 4 million Euro) |
| Sep 2001 | Reserve Officer Training Corps Scholarship (approximately 120,000 USD) |
| May 2001 | University of Michigan Regents Merit Scholarship (3,000 USD) |

## Honours

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|---|---|
| Apr 2017 | Top 5% of applicants for L'Orèal-UNSECO For Women in Science Awards |
| 2010 | Electronic Combat Officer of the year |
| Mar 2010 | 'Exceptionally Qualified' Rating (top 1%), Initial Electronic Combat Officer Evaluation |
| Feb 2010 | Distinguished Graduate, Instructor Electronic Combat Officer Training |
| Dec 2008 | Distinguished Graduate, Electronic Combat Officer Training (perfect exam score average) |
| Sep 2009 | Air Medal (Oak leaf cluster), for flying combat hours |
| Sep 2009 | Air Force Achievement Medal, for leadership of Deployed Electronic Support Team |
| May 2008 | Air Medal, for flying combat hours |
| May 2007 | Distinguished Graduate, Initial Air Weapons Officer Qualification Training |
| Jul 2006 | Top Scope Award, Undergraduate Air Battle Management Training |
| Apr 2005 | College of Literature, Science & the Arts 'Angell Scholar' |

## Professional Society Memberships

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|---|---|
| Aug 2018 – present | Junior member of International Astronomical Union |
| Jan 2018 – present | Oxford Society of Women in Physics, President |
| Feb 2017 – present | Member of Royal Astronomical Society, by election |
| Oct 2016 – Jan 2018 | Oxford Society of Women in Physics, Outreach Officer |
| Sep 2011 – Dec 2015 | Member of American Astronomical Society |
| Apr 2005 – present | Member of Sigma Pi Sigma, National Physics Honors Society, by election |
| 2004 - 2005 | Co-President/founder of Society for Women in Physics, University of Michigan |

## Large survey membership

- **Member of:** LOFAR Surveys Key Science Project, SKA Extragalactic Continuum Surveys Working Group, WEAVE-LOFAR, HETDEX, MIGHTEE, AGES-XL, RadioNet RINGS

## Allocation of Telescope time

- **LOFAR:** 150+ hours PI projects; 250+ hours co-I projects; 1500+ hours for LOFAR Surveys
- **JVLA:** 17 hours PI projects; 230+ hours co-I projects
- **VLBA:** 450 hours co-I project (JWST NEP field)
- **GMRT:** 116 hours co-I projects
- **INT:** 12 nights co-I projects

## Observing Experience

- GMRT radio telescope, Pune, India, 5 nights
- INT 2.5 m optical telescope, Roque de los Muchachos, La Palma, 18 nights
- MDM 2.4 m Hiltner optical telescope, Tucson, AZ, USA, 7+ nights

## Computing Skills

- **High Performance Computing:** TORQUE and slurm queuing systems, PBS scripting, processing hundreds of TB of data simultaneously
- **Data interfacing:** Implemented Google Earth for intelligence fusion used during combat flights
- **Operating systems:** Linux, Mac, Windows, and standard packages therein
- **Programming Languages:** R, Python, IDL, Bash, FORTRAN
- **Data pipelines:** Written end-to-end pipelines for LOFAR data (high resolution / ultra low frequency)
- **Astronomical Software:** LOFAR software, AIPS, CASA, ParselTongue, HEASOFT, PIMMS, XSELECT, IRAF, CIAO, SHERPA, XSPEC, FTOOLS, STILTS

## Teaching Experience

**LOFAR Data School**. Invited lecturer and subject matter expert in high resolution imaging (50 students). — Sep 2018

**Lecturer, Oxford Prospects Programme**. Lecturer on the topic of astrophysics for groups of about 50 students, 2 week programme repeated 3x per year for Chinese students. — 2017 - present

**Unit 2 & 3 DARA training at HartRAO**. Delivered lectures, tutorials, and an invited talk as part of Development in Africa with Radio Astronomy (DARA) course at Hartebeesthoek Radio Astronomy Observatory, South Africa. — Apr 2018

**Teaching Assistant, Radio Astronomy MSc class**. Developed tutorials and practical project for 14 students, supervised hands-on sessions, organized and conducted field trip to Dutch radio observatories. — Jan - Jul 2015

**Instructor, Initial Electronic Combat Officer Training**. Primary instructor for 4 month lecture/practical course, repeated every 5 months for 4-8 students. Delivered lectures, led discussions, and helped students with simulated missions to learn critical tasks. — Sep 2009 - Aug 2011

**ECO Syllabus Review Conference**. Led ECO training syllabus review amongst instructors/evaluators, identified 50 updates to the Training Task list. — Jul 2010

**Squadron ECO continuing education program**. Designed and implemented squadron ECO continuing education program, adopted by two other squadrons. — Feb 2009

**Electronic Support Fundamentals Class**. Designed curriculum, coordinated guest speakers, and taught 5-day course to correct training deficiencies. — Jun 2011

## Student Supervision

**Supervision of students**. Formally supervised 3 MSc and 3 summer students to successful completion of research projects using low frequency radio data. Informally supervise 2 PhD students working on LOFAR high resolution projects. — Sep 2013 – present

**Co-supervision of PhD minor project**. Collaboration with Prof. Gal in Computer Science department at Oxford to supervise PhD project on topic of using machine learning to cross-match multi-wavelength surveys. — Apr – Jun 2018

**Instructor, Initial Electronic Combat Officer Flight Training**. Trained individuals on-the-job during flights (6 per student). Trained 35 students with an unprecedented 40% rate of Distinguished graduates (top 10% of class). — Sep 2009 - Aug 2011

## Public Engagement

**Invited Lecture, Astronomy For All Series**. Public lecture on supermassive black holes and galaxy evolution, Green Templeton College, 65 people. — 21 Feb 2018

**Outreach Coordinator, Oxford Women in Physics**. New position in the organisation, planning two major upcoming events within the next eight months. Contributed to events like Somerville Girls into Science Day 2017. — Oct 2016 – Jan 2018

**Public Outreach, Leiden Old Observatory**. Helped with open day for public to view the observatory, visitor's center, and participate in outreach activities. — Oct 2012, 2014

**Physics Girls' Inreach**. Developed content for and organized all logistics for public inreach targeted to 10/11 year old girls with the intent to interest them in science and show them strong female role models. — Apr 2005

**Angell Hall Public Viewing Nights**. Operated 0.6 meter telescope, Celestron 8 telescopes, and planetarium at Angell Hall Observatory for public viewing nights with the Student Astronomical Society. — Jan 2003 - Apr 2005

**Physics Public Outreach**. Taught multiple hour-long workshops on various physical principles with the Society of Physics Students. — Aug 2004 - Apr 2005

## Selected Scientific Presentations

Total of 41 talks, 14 of which were invited. Yearly highlights only are given.

**2018**

- *A Low Frequency Radio Perspective on AGN*, Astronomy Colloquium (Invited), **ASTRON, NL** 25 Oct
- *A Low Frequency Radio Perspective on AGN*, Astronomy Group Seminar (Invited), **University of Southampton, UK** 16 Oct
- *A Low Frequency Radio Perspective on AGN*, Astronomy Colloquium (Invited), **University College Dublin, IE** 4 Oct
- *A Low Frequency Radio Perspective on AGN*, Astronomy Colloquium (Invited), **Oskar Klein Centre, Stockholm, SE** 12 Jun
- *My Journey in Science*, Oxford Scientist launch event (Invited), **University of Oxford, UK** 2 Jun

**2017**

- *High-redshift radio sources in MIGHTEE*, MIGHTEE Continuum Working Group Meeting, **Oxford, UK** 20 Sep
- *LOFAR to SKA: an observer's perspective*, Astronomy and Science from the Moon (Invited), **Paris Observatory, FR** 22 Jun
- *A Low Radio Frequency Perspective on Galaxy Evolution*, Astronomy Colloquium (Invited), **University of Sussex, UK** 26 May
- *Introduction to LOFAR Long Baselines*, Long Baseline Workshop, **Netherlands Institute for Radio Astronomy, NL** 9-13 Jan

**2016**

- *Long Baseline Imaging (aka VLBI with LOFAR)*, LOFAR Surveys Key Science Project Meeting, **Bologna, IT** 29-31 Oct
- *Radio Galaxies at Low Frequencies: high spatial and spectral resolution studies with LOFAR*, General Astronomy Colloquim, **University of Leiden, NL** 6 Sep
- *High Resolution Studies of 4C 43.15 with International LOFAR*, LOFAR Community Science Workshop, **Zandvoort aan Zee, NL** 4-7 Apr

**2015**

- *Studying the ultra-steep spectra of high redshift radio galaxies with LOFAR*, Lunch Talk (Invited), **University of Hertfordshire** 13 Nov
- *Low-frequency Views on the Cold Neutral Medium and High Redshift Radio Galaxies*, Galaxy Evolution Seminar (Invited), **University of Oxford, UK** 12 Nov
- *LOFAR Survey of Spatially Resolved Ultra-Steep Spectrum Sources*, The Many Facets of Extragalactic Radio Surveys, **Bologna, IT** 20-25 Oct
- *Low frequency radio astronomy with LOFAR: spectroscopy and long baselines*, Lunch talk (Invited), **Carnegie Observatory, CA** 24 Jul
- *Low frequency radio astronomy with LOFAR: spectroscopy and long baselines*, Lunch talk (Invited), **IPAC/Caltech, US** 22 Jul

**2014**

- *Spatially Resolved Studies of (Extragalactic Jets in) High-z Radio Galaxies at Low Frequencies*, IAU 313: Extragalactic Jets from Every Angle, **Galapagos, EC** 17 Sep
- *Discovery of Carbon Radio Recombination Lines in M82*, IAU 309: Galaxies in 3D, **University of Vienna, AT** 11 Jul
- *Discovery of Carbon Radio Recombination Lines in M82*, LOFAR Community Science Workshop, **Amsterdam, NL** 8 Apr

**2013**

- *LOFAR: Radio Recombination Lines and High Redshift Radio Galaxies*, Special Seminar (Invited), **University of Oklahoma, USA** 16 Dec
- *High Redshift Radio Galaxies and the Advent of LOFAR*, Google Tech Talk (Invited), **Google office, Munich, DE** 11 Oct
- *Radio Recombination Lines and Long Baselines on 4C 41.17*, Astronomy, Radio Sources and Society, **Leiden, NL** 10-14 Jun

**2012**

- *Active Galactic Nuclei: from Supermassive Black Holes to Rare FeLoBALs*, Lunch Talk (Invited), **National Radio Astronomy Observatory, New Mexico, USA** 25 Jul
- *X-ray Observations of Broad Absorption Line Quasars*, Cosmology Seminar, **University of Oxford** 22 Nov

## Publication Record

9 first-author, 3 second-author, and 32 co-author peer-reviewed publications; also 8 conference proceedings. Total of 732 citations as of 30 Jul 2019.

### First Author

(1) **Morabito**, L. K., Matthews, J. H., Best, P. N., and 14 colleagues *The origin of radio emission in broad absorption line quasars: Results from the LOFAR Two-metre Sky Survey.* A&A, 622, A15. **2019**, cit. 1

(2) **Morabito**, Leah K. and Harwood, Jeremy J. *Investigating the cause of the $\alpha$-z relation.* MNRAS, 480, 2726-2732. **2018**, cit. 2

(3) **Morabito**, Leah K., Williams, W. L., Duncan, Kenneth J., and 17 colleagues *Investigating the unification of LOFAR-detected powerful AGN in the Boötes field.* MNRAS, 469, 1883-1896. **2017**, cit. 9

(4) **Morabito**, Leah K., Deller, Adam T., Röttgering, Huub, and 8 colleagues *LOFAR VLBI studies at 55 MHz of 4C 43.15, a z = 2.4 radio galaxy.* MNRAS, 461, 2676-2687. **2016**, cit. 6

(5) **Morabito**, Leah K., Oonk, J. B. R., Salgado, Francisco, and 30 colleagues *Discovery of Carbon Radio Recombination Lines in M82.* ApJ, 795, L33. **2014**, cit. 17

(6) **Morabito**, Leah K., Dai, Xinyu, Leighly, Karen M., Sivakoff, Gregory R., and Shankar, Francesco *Unveiling the Intrinsic X-Ray Properties of Broad Absorption Line Quasars with a Relatively Unbiased Sample.* ApJ, 786, 58. **2014**, cit. 11

(7) **Morabito**, Leah K., van Harten, Gerard, Salgado, Francisco, and 3 colleagues *Exact bound-bound Gaunt factor values for quantum levels up to n = 2000.* MNRAS, 441, 2855-2860. **2014**, cit. 2

(8) **Morabito**, Leah K. and Dai, Xinyu *A Bayesian Monte Carlo Analysis of the M-$\sigma$ Relation.* ApJ, 757, 172. **2012**, cit. 6

(9) **Morabito**, Leah K., Dai, Xinyu, Leighly, Karen M., Sivakoff, Gregory R., and Shankar, Francesco *Suzaku Observations of Three FeLoBAL Quasi-stellar Objects: SDSS J0943+5417, J1352+4239, and J1723+5553.* ApJ, 737, 46. **2011**, cit. 14

### Second Author

(1) Salgado, **F.**, Morabito, L. K., Oonk, J. B. R., and 4 colleagues *Low-frequency Carbon Radio Recombination Lines. I. Calculations of Departure Coefficients.* ApJ, 837, 141. **2017**, cit. 15

(2) Salgado, **F.**, Morabito, L. K., Oonk, J. B. R., and 4 colleagues *Low-frequency Carbon Radio Recombination Lines. II. The Diffuse Interstellar Medium.* ApJ, 837, 142. **2017**, cit. 9

(3) Oonk, **R.**, Morabito, L., Salgado, F., and 4 colleagues *The Physics of the Cold Neutral Medium: Low-frequency Radio Recombination Lines with the Square Kilometre Array.* Advancing Astrophysics with the Square Kilometre Array (AASKA14), 139. **2015**, cit. 4

### Co-Author

(1) Shimwell, T. W., Tasse, C., Hardcastle, M. J., and 104 colleagues *The LOFAR Two-metre Sky Survey. II. First data release.* A&A, 622, A1. **2019**, cit. 38

(2) Williams, W. L., Hardcastle, M. J., Best, P. N., and 38 colleagues *The LOFAR Two-metre Sky Survey. III. First data release: Optical/infrared identifications and value-added catalogue.* A&A, 622, A2. **2019**, cit. 17

(3) Duncan, K. J., Sabater, J., Röttgering, H. J. A., and 24 colleagues *The LOFAR Two-metre Sky Survey. IV. First Data Release: Photometric redshifts and rest-frame magnitudes.* A&A, 622, A3. **2019**, cit. 16

(4) Hardcastle, M. J., Williams, W. L., Best, P. N., and 20 colleagues *Radio-loud AGN in the first LoTSS data release. The lifetimes and environmental impact of jet-driven sources.* A&A, 622, A12. **2019**, cit. 14

(5) de Gasperin, F., Dijkema, T. J., Drabent, A., and 17 colleagues *Systematic effects in LOFAR data: A unified calibration strategy.* A&A, 622, A5. **2019**, cit. 13

(6) Sabater, J., Best, P. N., Hardcastle, M. J., and 18 colleagues *The LoTSS view of radio AGN in the local Universe. The most massive galaxies are always switched on.* A&A, 622, A17. **2019**, cit. 8

(7) O'Sullivan, S. P., Machalski, J., Van Eck, C. L., and 27 colleagues *The intergalactic magnetic field probed by a giant radio galaxy.* A&A, 622, A16. **2019**, cit. 6

(8) Croston, J. H., Hardcastle, M. J., Mingo, B., and 13 colleagues *The environments of radio-loud AGN from the LOFAR Two-Metre Sky Survey (LoTSS).* A&A, 622, A10. **2019**, cit. 5

(9) Gürkan, Gülay, Hardcastle, M. J., Best, P. N., and 17 colleagues *LoTSS/HETDEX: Optical quasars. I. Low-frequency radio properties of optically selected quasars.* A&A, 622, A11. **2019**, cit. 4

(10) Mooney, S., Quinn, J., Callingham, J. R., and 13 colleagues *Blazars in the LOFAR Two-Metre Sky Survey first data release.* A&A, 622, A14. **2019**, cit. 2

(11) Mahatma, V. H., Hardcastle, M. J., Williams, W. L., and 19 colleagues *LoTSS DR1: Double-double radio galaxies in the HETDEX field.* A&A, 622, A13. **2019**, cit. 2

(12) Hale, C. L., Williams, W., Jarvis, M. J., and 12 colleagues *LOFAR observations of the XMM-LSS field.* A&A, 622, A4. **2019**, cit. 1

(13) Mingo, B., Croston, J. H., Hardcastle, M. J., and 15 colleagues *Revisiting the Fanaroff-Riley dichotomy and radio-galaxy morphology with the LOFAR Two-Metre Sky Survey (LoTSS).* MNRAS, 488, 2701-2721. **2019**, cit. 0

(14) Stacey, H. R., McKean, J. P., Jackson, N. J., and 15 colleagues *LoTSS/HETDEX: Disentangling star formation and AGN activity in gravitationally lensed radio-quiet quasars.* A&A, 622, A18. **2019**, cit. 0

(15) Williams, W. L., Calistro Rivera, G., Best, P. N., and 13 colleagues *LOFAR-Boötes: properties of high- and low-excitation radio galaxies at $0.5 < z < 2.0$.* MNRAS, 475, 3429-3452. **2018**, cit. 14

(16) Nyland, K., Harwood, J. J., Mukherjee, D., and 19 colleagues *Revolutionizing Our Understanding of AGN Feedback and its Importance to Galaxy Evolution in the Era of the Next Generation Very Large Array.* ApJ, 859, 23. **2018**, cit. 10

(17) Read, S. C., Smith, D. J. B., Gürkan, G., and 14 colleagues *The Far-Infrared Radio Correlation at low radio frequency with LOFAR/H-ATLAS.* MNRAS, 480, 5625-5644. **2018**, cit. 2

(18) Shimwell, T. W., Röttgering, H. J. A., Best, P. N., and 69 colleagues *The LOFAR Two-metre Sky Survey. I. Survey description and preliminary data release.* A&A, 598, A104. **2017**, cit. 112

(19) Sobral, David, Matthee, Jorryt, Best, Philip, and 6 colleagues *The CALYMHA survey: Lyα luminosity function and global escape fraction of Lyα photons at $z = 2.23$.* MNRAS, 466, 1242-1258. **2017**, cit. 46

(20) Calistro Rivera, G., Williams, W. L., Hardcastle, M. J., and 20 colleagues *The LOFAR window on star-forming galaxies and AGNs - curved radio SEDs and IR-radio correlation at $0<z<2.5$.* MNRAS, 469, 3468-3488. **2017**, cit. 30

(21) Oonk, J. B. R., van Weeren, R. J., Salas, P., and 5 colleagues *Carbon and hydrogen radio recombination lines from the cold clouds towards Cassiopeia A.* MNRAS, 465, 1066-1088. **2017**, cit. 15

(22) Salas, P., Oonk, J. B. R., van Weeren, R. J., and 6 colleagues *LOFAR observations of decameter carbon radio recombination lines towards Cassiopeia A.* MNRAS, 467, 2274-2287. **2017**, cit. 11

(23) Clarke, A. O., Heald, G., Jarrett, T., and 40 colleagues *LOFAR MSSS: Discovery of a 2.56 Mpc giant radio galaxy associated with a disturbed galaxy group.* A&A, 601, A25. **2017**, cit. 7

(24) Williams, W. L., van Weeren, R. J., Röttgering, H. J. A., and 32 colleagues *LOFAR 150-MHz observations of the Boötes field: catalogue and source counts.* MNRAS, 460, 2385-2412. **2016**, cit. 68

(25) Shimwell, T. W., Luckin, J., Brüggen, M., and 28 colleagues *A plethora of diffuse steep spectrum radio sources in Abell 2034 revealed by LOFAR.* MNRAS, 459, 277-290. **2016**, cit. 31

(26) Varenius, E., Conway, J. E., Martí-Vidal, I., and 16 colleagues *Subarcsecond international LOFAR radio images of Arp 220 at 150 MHz. A kpc-scale star forming disk surrounding nuclei with shocked outflows.* A&A, 593, A86. **2016**, cit. 22

(27) Smith, D. J. B., Best, P. N., Duncan, K. J., and 27 colleagues *The WEAVE-LOFAR Survey.* SF2A-2016: Proceedings of the Annual meeting of the French Society of Astronomy and Astrophysics, 271-280. **2016**, cit. 19

(28) Jackson, N., Tagore, A., Deller, A., and 76 colleagues *LBCS: The LOFAR Long-Baseline Calibrator Survey.* A&A, 595, A86. **2016**, cit. 9

(29) Heald, G. H., Pizzo, R. F., Orrú, E., and 147 colleagues *The LOFAR Multifrequency Snapshot Sky Survey (MSSS). I. Survey description and first results.* A&A, 582, A123. **2015**, cit. 69

(30) Varenius, E., Conway, J. E., Martí-Vidal, I., and 25 colleagues *Subarcsecond international LOFAR radio images of the M82 nucleus at 118 MHz and 154 MHz.* A&A, 574, A114. **2015**, cit. 18

(31) Moldón, J., Deller, A. T., Wucknitz, O., and 82 colleagues *The LOFAR long baseline snapshot calibrator survey.* A&A, 574, A73. **2015**, cit. 13

(32) Oonk, J. B. R., van Weeren, R. J., Salgado, F., and 100 colleagues *Discovery of carbon radio recombination lines in absorption towards Cygnus A.* MNRAS, 437, 3506-3515. **2014**, cit. 14

**Conference proceedings**

(1) Nyland, Kristina, Harwood, Jeremy, Jagannathan, Preshanth, and 9 colleagues *Revolutionizing Our Understanding of AGN Feedback and its Importance to Galaxy Evolution in the Era of the Next Generation Very Large Array.* American Astronomical Society Meeting Abstracts 231, 231, 342.28. **2018**, cit. 0

(2) **Morabito**, L., Deller, A., Moldón, J., and 3 colleagues *A LOFAR survey of spatially resolved Ultra Steep Spectrum sources.* The Many Facets of Extragalactic Radio Surveys: Towards New Scientific Challenges, 71. **2015**, cit. 0

(3) **Morabito**, Leah K., Deller, Adam, Oonk, J. B. R., Röttgering, Huub, and Miley, George *Spatially resolved studies of extragalactic jets in high redshift radio galaxies.* Extragalactic Jets from Every Angle, 313, 231-235. **2015**, cit. 0

(4) Toribio, **M. C.**, Morabito, L. K., Oonk, J. B. R., and 3 colleagues *Radio Recombination Line studies on M82 from LOFAR HBA observations.* Galaxies in 3D across the Universe, 309, 350-350. **2015**, cit. 0

(5) **Morabito**, Leah K., Oonk, J. B. R., Salgado, Francisco, and 3 colleagues *Discovery of Carbon Radio Recombination Lines in M82.* Galaxies in 3D across the Universe, 309, 141-144. **2015**, cit. 0

(6) Moldon, J., Deller, A., Wucknitz, O., and 9 colleagues *The LOFAR long baseline snapshot calibrator survey.* Proceedings of the 12th European VLBI Network Symposium and Users Meeting (EVN 2014). 7-10 October 2014. Cagliari, 97. **2014**, cit. 0

(7) Dai, **X.**, Morabito, L. K., Shankar, F., Sivakoff, G. R., and Leighly, K. M. *Large BALQSO Fractions Inferred from NIR and Radio Surveys: Implication to AGN and Feedback Models.* AGN Winds in Charleston, 460, 120. **2012**, cit. 0

(8) **Morabito**, Leah K., Dai, X., Leighly, K. M., Sivakoff, G. R., and Shankar, F. *X-ray Observations of Broad Absorption Line Quasars.* American Astronomical Society Meeting Abstracts 219, 219, 154.06. **2012**, cit. 0