

WENDY L. WILLIAMS

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RESEARCH INTERESTS

Radio interferometry techniques, including ionospheric calibration techniques. The next generation of radio telescopes such as the Low Frequency Array (LOFAR), MeerKAT and the Square Kilometre Array.

Active galactic nuclei (AGN), in particular their accretion modes/fuel sources, their host galaxies, and their influence on galaxy formation and evolution, and the cosmic evolution of radio sources.

Extragalactic Astronomy including Large Scale Structures, and the formation and evolution of galaxies, dust and gas in galaxies, and star formation.

EMPLOYMENT

- 2023 Jul – present **Project Scientist – SKA Observatory**
SKA science working group liaison
SKA science data challenges
LOFAR Surveys – imaging and testing of new calibration/imaging algorithms, focus on low frequency (< 100 MHz) imaging with LOFAR
Radio-optical identifications for radio sources in LOFAR Two-metre Sky Survey
Studies of radio-loud AGN and their evolution
- 2018 Oct – 2023 Jul **Postdoctoral Research Assistant – Leiden Observatory, Leiden University**
LOFAR Surveys – imaging and testing of new calibration/imaging algorithms, focus on low frequency (< 100 MHz) imaging with LOFAR
Produced the deepest widefield 54-MHz image to date
Work on the catalogue of optical identifications for radio sources in LOFAR Two-metre Sky Survey second data release
Work on the classification of radio source host galaxies using wideband multiwavelength spectral energy distribution fitting
Studies of radio-loud AGN and their evolution
- 2015 Oct – 2018 Sep **Postdoctoral Research Assistant – Centre for Astrophysics Research, University of Hertfordshire**
LOFAR Surveys – imaging and testing of new calibration/imaging algorithms, focus on low-declination imaging
Produced catalogue of optical identifications for radio sources in LOFAR Two-metre Sky Survey first data release
Studies of radio-loud AGN and their evolution
- 2011 Jan – 2015 Dec **PhD in Astronomy – Leiden Observatory, Leiden University**
Thesis: “Facets of Radio-loud AGN evolution: a LOFAR surveys perspective”

Produced the first survey-quality image for the LOFAR Surveys at 150 MHz. Contributed to the development and testing of the calibration and imaging algorithms to do this.
Radio-optical cross-matching and broadband multiwavelength spectral energy distribution fitting for host galaxy classification.
Advisor: Prof. H. J. A. Röttgering

EDUCATION

- 2009 Jan – 2011 Jan **MSc in Astronomy (with distinction) – University of Cape Town**
Thesis: “A multiwavelength study of HI galaxies discovered in the Zone of Avoidance”
Near-infrared observations of galaxies. Development of a pipeline for star-subtraction and galaxy surface brightness profile fitting.
HI spectral line observations with the Parkes Radio telescope.
Supervised by Prof. R. C. Kraan-Korteweg
- 2008 Jan – 2008 Dec **BSc (Hons) in Astrophysics & Space Science (First Class) – University of Cape Town**
Research project: “Galaxies in the Zone of Avoidance: An Infrared Study of HI Detections”
Supervised by A. Prof. P. Woudt
- 2005 Jan – 2007 Dec **BSc with distinctions in Physics & Astrophysics (degree with distinction) – University of Cape Town**

PROFESSIONAL EXPERIENCE & MEMBERSHIP

- 2018 – present LOFAR expert user: scheduling and managing LOFAR survey observations
- 2017 SKA SDP LOW calibration Resolution Team
- 2016 – present SKA Science Working Group – Extragalactic Continuum (associate member)
- 2011 – present LOFAR Surveys Key Science Project (AGN at moderate-z working group member, DR2 technical group member)
- 2011 – 2019 LOFAR Multi-frequency Sky Snapshot Survey (MSSS) team
- 2011 – 2015 LOFAR Commissioning team

COMMITTEES & POSITIONS

- 2023 SOC member, Science at Low Frequencies IX
- 2023 SOC member, IAU Focus Meeting “The future of radio astronomy in an increasingly crowded spectrum”
- 2023 SOC chair, EAS2023 session “On the road to the SKA”
- 2023 MeerKAT TAC panel member
- 2023 GMRT TAC reviewer
- 2022 – 2023 MeerKAT TAC reviewer
- 2022 – 2023 ATCA TAC reader
- 2016 – 2018 LOFAR Technical Review Panel
- 2013 LOC member Astronomy, Radio Sources and Society (10–13 June 2013)
- 2009 Coordinator of the 5-week NASSP Summer School

OBSERVING EXPERIENCE

- 4.2 m Isaac Newton Telescope, La Palma, Spain

4.2 m William Herschel Telescope, La Palma, Spain (AF2/WYFOS – multi-object spectroscopy, 4 nights)
 Parkes Radio Telescope, Parkes, Australia (HI spectroscopy, 5 nights)
 1.4 m InfraRed Survey Facility, Sutherland, South Africa (SIRIUS; >52 nights)
 SAAO 1.9 m Telescope, Sutherland, South Africa (Long slit spectroscopy, 4 nights)

TEACHING EXPERIENCE

2023	“Radio interferometry and the SKA” at the 7th International Summer School on INtelligent signal processing for FrontIER Research and Industry (INFIERI)
2021, 2022	Guest lecture “The future of Radio Astronomy”, Leiden bachelor programme
2019, 2020	LOFAR data school lectures and tutorials
2019	European Radio Interferometry School (ERIS2019): lecture and tutorials on low-frequency radio interferometry
2018, 2019	Guest lecture masters course “Radio Interferometry” on AGN and galaxies
2017, 2018	DARA (Development Africa Radio Astronomy, Newton Fund programme): 2 weeks teaching practical radio interferometry
2016, 2017	Undergraduate “Programming & Statistics” module: teaching python programming part
2012, 2013	Teaching Assistant: masters course “Detection of Light”
2009, 2010	Tutor: third year course Astrophysics, BSc (Honours) course General Astrophysics
2007, 2008	Hotseat (impromptu) Tutor for first year mathematics
2006	University Residence tutor for first year physics, mathematics and applied mathematics
2005, 2006	Private tutor for High School mathematics and science

PRIZES AND FUNDING

2012	Leiden Observatory Best Teaching Assistant
2009 – 2010	SKA South Africa Bursary
2009	KW Johnstone Research Scholar ; Manuel & Luby Washkansky Scholarship ; UCT Equity Scholarship
2008	SASOL Golden Key Excellence Award ; NASSP Bursary
2008	Class medal for AST4007W
2007	Ivor Lewin Prize for Physics
2006 – 2007	University of Cape Town Science Faculty Scholarships
2005 – 2007	Dean’s Merit List ; Class medals for PHY3022S, AST3002F, PHY3021F, AST2000S, MAM2046W and AST100F
2005 – present	Member Golden Key International Honour Society
2005	UCT Entrance Scholarship
2004	Dux Scholar – Valedictorian; Most Industrious Student (High School)

OUTREACH

2023	Public talk at Bluedot festival, Jodrell Bank, UK
2019 – 2023	Team Lead “Astronomy on Tap – Leiden”, Leiden, NL
2018 – 2019	Team member “Astronomy on Tap – Leiden”, Leiden, NL
2019	“Pint of Science” public talk on Radio Astronomy, Utrecht, NL
2015 – 2018	regular public talks on radio astronomy at Bayfordbury Observatory, Hertfordshire, UK
2016	public talk at Loughton Astronomical Society, Essex, UK
2011	Research into educational resources repositories and editing for Universe Awareness

- 2007 – 2008, 2010 Volunteer work for Free High School Science Texts (FHSST) – typesetting examples and exercises in LaTeX as well as providing worked solutions
- 2009 – 2010 Public outreach at the South African Astronomical Observatory (SAAO) – operating small telescopes, interacting with the public and answering Astronomy-related questions

SKILLS

Languages	English (fluent, mother tongue) Dutch (intermediate, B2.1 Common European Framework for Languages) Afrikaans (intermediate, Senior Certificate)
Programming	python (expert), Linux shell (advanced), MATLAB (intermediate), FORTRAN (intermediate), PASCAL (intermediate), C (basic), java (basic)
Software	git (intermediate), LaTeX (advanced), HTML/CSS (basic) Astronomy: Astropy, Topcat, DS9, SExtractor, EAZY, IRAF/PyRAF (basic) Radio Astronomy: Casa (advanced), LOFAR software (advanced), SPAM (advanced), AIPS (intermediate), Obit (basic), Parseltongue (basic)

REFERENCES

Prof H. J. A. Röttgering

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