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Personal Details

Date of birth: 22 January 1983
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Academic Employment

Oct 2016 - Present **University of Oxford**, Postdoctoral Research Assistant

Education

Sep 2012 - Sep 2016 **Leiden University**, Astronomy PhD Researcher Supervisor: Huub Röttgering
Thesis: 'Radio Galaxies at Low Frequencies'

Sep 2009 - Apr 2012 **University of Oklahoma**, M.S. Astronomy Supervisor: Xinyu Dai
Thesis: 'AGN: From Supermassive Black Holes to Rare FeLoBALs'

Sep 2001 - Apr 2005 **University of Michigan**, B.S. Physics & B.S. Astrophysics

Science Highlights

- First spatially resolved maps of high redshift radio galaxies, $1''$ resolution at 55 MHz with LOFAR
- First extragalactic detection of low frequency carbon radio recombination lines (M82)
- Widest, deepest survey field map to date with low band LOFAR (7.5 mJy bm^{-1} rms at 57 MHz)
- Determined intrinsic X-ray properties of broad absorption line quasars with new method

Research Goals

My main research goal is to use low frequency radio observations coupled with multi-wavelength data to answer fundamental questions on how super-massive black holes co-evolve with the galaxies in which they reside. I aim to provide new insight using high-resolution radio imaging to clearly distinguish two main components in galaxy evolution: star formation, and high-energy processes associated with super-massive black holes that are actively accumulating material.

Professional Experience

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

Aug 2015 **LOFAR Long Baseline Workshop**. Helped with commissioning/developing the LOFAR long baseline (LB) data reduction pipeline, and training of new users.

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

Apr 2015 **Resident Shared Risk Observing, JVLA**. Assessed P-band spectroscopy feasibility on-site with staff at National Radio Astronomy Observatory in New Mexico.

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

May 2012 - Aug 2012 **Research Experience for Graduate Students**. 3-month program working with VLA data to detect ammonia transitions in nearby starburst galaxies.

May 2012 **12th Synthesis Imaging Workshop**. 2 weeks of radio interferometry classes at New Mexico Tech, with hands-on data reduction sessions.

Aug 2011 **X-ray Astronomy and CIAO Workshops, CXC**. Week-long workshops on specialized X-ray data reduction techniques, focussed on hands-on data reduction.

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

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

Successful observing proposals: PI/selected Co-I

- 'Long Baseline Studies of High Redshift Radio Galaxies' – PI, LOFAR Cycle 4, 54 hrs
- 'Radio Recombination Lines in M82 with P-band' – PI, JVLA Semester 2015B, 17 hrs
- 'Commissioning LBA Long Baselines using the HBA' – PI, Commissioning, 9.75 hrs
- 'Long Baseline Studies of High Redshift Radio Galaxies' – Co-I, LOFAR Cycles 2 & 3, 51 hrs
- 'A large, perfectly matched, Lya-Ha dual narrow-band survey at z=2.23' – Co-I, INT 2013A

Honours and Awards

Feb 2010	Distinguished Graduate, Instructor Electronic Combat Officer Training
2009	Air Force Achievement Medal (for leading Deployed Electronic Support Team)
2008	Air Medal (for flying combat hours)
2007	Distinguished Graduate, Initial Air Weapons Officer Qualification Training
2006	Top Scope Award, Undergraduate Air Battle Management Training
Apr 2005	College of Literature, Science & the Arts 'Angell Scholar'
Apr 2005	Member of Sigma Pi Sigma, National Physics Honors Society
Sep 2001 - Apr 2005	Reserve Officer Training Corps Scholarship, approx. 120 000 USD
May 2001	University of Michigan Regents Merit Scholarship, 3000 USD

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

- Operating systems: Linux, Mac, Windows, and standard packages therein
- Programming Languages: R, Python, IDL, Bash, FORTRAN
- Astronomical Software: AIPS, CASA, ParselTongue, LOFAR software, HEASOFT, PIMMS, XSELECT, IRAF, CIAO, SHERPA, XSPEC, FTOOLS

Teaching and Outreach

Oct 2016 – present	**Outreach Coordinator, Oxford Women in Physics**. New position in the organisation, planning two major upcoming events within the next eight months.
Sep 2013 – Aug 2016	**Supervision of MSc students**. Supervised two students to successful completion of research projects involving low frequency radio astronomy.
Jan 2015 – Jul 2015	**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.
Oct 2012, 2014	**Public Outreach, Leiden Old Observatory**. Helped with open day for public to view the observatory, visitor's center, and participate in outreach activities.
Feb 2010 – Aug 2011	**Instructor Electronic Combat Officer**. Instructed students on all technical and tactical aspects of using the Passive Detection System on the E-3 AWACS.
Apr 2005	**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.
Sep 2004 - Apr 2005	**Co-Founder and Co-President, Society of Women in Physics (SWiP)**. Program focused on mentorship of younger women undergraduate students, and promoting women in STEM fields.
Jan 2003 - 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.
Aug 2004 - Apr 2005	**Physics Public Outreach**. Taught multiple hour-long workshops on various physical principles with the Society of Physics Students.

Selected Scientific Presentations

2016
- LOFAR Surveys Key Science Project Meeting, *LOFAR Long Baseline Imaging (aka VLBI with LOFAR)*
- LOFAR Surveys Key Science Project Meeting, *LOFAR VLBI studies at 55 MHz of 4C 43.16, a z=2.4 radio galaxy*
- Leiden General Astronomy Colloquim, *Radio Galaxies at Low Frequencies: high spatial and spectral resolution studies with LOFAR*
- LOFAR Community Science Workshop, *High Resolution Studies of 4C 43.15 with International LOFAR*

2015
- Oxford Galaxy Evolution Seminar, *Low-frequency Views on the Cold Neutral Medium and High Redshift Radio Galaxies*
- The Many Facets of Extragalactic Radio Surveys, *LOFAR Survey of Spatially Resolved Ultra-Steep Spectrum Sources*
- NRAO (Socorro) Lunch Talk, *Carbon Radio Recombination Lines in M82 with P-Band*
- NL/SA Radio Continuum Science Meeting, *Spatially Resolved Studies of High-z Radio Galaxies at 60 MHz*

2014
- IAU 313: Extragalactic Jets from Every Angle, *Spatially Resolved Studies of (Extragalactic Jets in) High-z Radio Galaxies at Low Frequencies*
- IAU 309: Galaxies in 3D, *Discovery of Carbon Radio Recombination Lines in M82*
- LOFAR Community Science Workshop, *Discovery of Carbon Radio Recombination Lines in M82*

2013
- Invited Seminar, University of Oklahoma, *LOFAR: Radio Recombination Lines and High Redshift Radio Galaxies*
- The Radio Universe at Ger's (wave)-length, *Recombination Line Studies with LOFAR*
- Google Tech Talk, *High Redshift Radio Galaxies and the Advent of LOFAR*
- Astronomy, Radio Sources and Society, *Radio Recombination Lines and Long Baselines on 4C41.17*
- LOFAR Status Meeting, *HBA Tied-Array Observations of Radio Recombination Lines*
- LOFAR Science Community Workshop, *Radio Spectroscopy with LOFAR*

2012
- NRAO (Socorro) Lunch Talk, *Ammonia in NGC 6946*
- NRAO (Socorro) Lunch Talk, *Active Galactic Nuclei: from Supermassive Black Holes to Rare FeLoBALs*
- Cosmology Seminar, MPIA, *X-ray Observations of Broad Absorption Line Quasars*
- Observational Cosmology Seminar, University of Oxford, *X-ray Observations of Broad Absorption Line Quasars*