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RESEARCH EXPERTISE

Topics Large-scale structure, cosmology, clustering of matter, haloes and galaxies, stellar and AGN feedback

Methods Analytical calculations, numerical methods, cosmological simulations (N-body/SPH), semi-analytical models

POSITIONS

2017 – Veni Fellow and assistant professor (UD), Leiden Observatory, in collaboration with Royal Observatory of Edinburgh

2014 – 2017 TAC Postdoctoral Fellow, UC Berkeley/LBL

TEACHING AND ADVISING

2021 – Supervising MSc student Alexandra Kidd’s research project on a halo’s response to mass loss

2020 – 2021 Supervising BSc student Jessie de Kruijf’s research project on predicting the future of star formation with L-Galaxies

2020 – Supervising MSc student Marloes van Loon’s research project on the contribution of group-sized haloes to matter clustering

2019 – 2020 Supervising MSc student Bryndís Ragnarsdóttir’s research project on modelling the effect of gas ejection on matter clustering

2019 – 2020 Supervising MSc student Orlin Koop’s research project on deriving galaxy luminosity functions from cross-correlation measurements

2019 – Lecturer for Numerical Recipes in Astrophysics (novel master Astronomy course I developed)

2017 – 2018 Lecturer for Radiative Processes (3rd year bachelor Astronomy course, taught two semesters)

2016 – 2017 Supervising UCB undergraduate student Will Schultz’s research project on AGN feedback in simulations

2015 – 2017 Supervising UCB undergraduate student Melanie Archipley’s research project on galaxy/halo density profiles in simulations

2013 – 2014 Teaching assistant “Galaxies & Cosmology” (two semesters)

2006 – 2010 Tutor for first-year astronomy students (all courses)

HONOURS AND AWARDS

2020 BKO certificate (University Teaching Qualification)

2018 Leiden Observatory’s nominee for the Faculty Teacher Award

2017 Leiden University gratification for exceptional contributions in teaching

2017 NWO Veni Grant

2014	Theoretical Astrophysics Center Fellowship (UC Berkeley, 3 years)
2013	Outstanding Teaching Assistant Award, Leiden Observatory
2010	Huygens PhD Fellowship, Leiden Observatory (one awarded annually)
2010	CosmoComp PhD Fellowship
2010	MSc in Astronomy, highest distinction
2008	Outstanding BSc Thesis Award, Department of Science, Leiden University

FIVE KEY PUBLICATIONS

1. Exploring the effects of galaxy formation on matter clustering through a library of simulation power spectra, *M.P. van Daalen, I.G. McCarthy & J. Schaye (2020), MNRAS, vol. 491, p. 2424*
 2. A cross-correlation-based estimate of the galaxy luminosity function, *M.P. van Daalen & M. White (2018), MNRAS, vol. 476, p. 4649*
 3. The galaxy correlation function as a constraint on galaxy formation physics, *M.P. van Daalen, B.M.B. Henriques, R.E. Angulo & S.D.M. White (2016), MNRAS, vol. 458, p. 934*
 4. The contributions of matter inside and outside of haloes to the matter power spectrum, *M.P. van Daalen & J. Schaye (2015), MNRAS, vol. 452, p. 2247*
 5. The effects of galaxy formation on the matter power spectrum: A challenge for precision cosmology, *M.P. van Daalen, J. Schaye, C.M. Booth, C. Dalla Vecchia (2011), MNRAS, vol. 415, p. 3649*
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EDUCATION

2010 – 2014	PhD in Astronomy from Leiden University, CosmoComp & Huygens Fellow Advisors: prof. Joop Schaye and prof. Simon White 2012 – 2014: Leiden Observatory, The Netherlands 2010 – 2012: Max Planck Institute for Astrophysics, Germany
2008 – 2010	MSc in Astronomy (highest distinction), Leiden University, The Netherlands
2004 – 2008	BSc in Astronomy, Leiden University, The Netherlands

PROFESSIONAL SERVICES AND OUTREACH

2020 –	MSc colloquia coordinator, <i>Leiden Observatory</i>
2019 –	Member of the Euclid Consortium
2018	Invited lecture on cosmology at Boerhaave Museum (“Jeugdcollege” program), <i>Leiden</i>
2017 –	MSc Admissions Committee member, <i>Leiden Observatory</i>
2016 – 2017	TAC Seminar Organizer (two semesters), <i>UC Berkeley</i>
2014	Invited guest lecture on astronomy at a high school, <i>The Hague</i>
2013 – 2014	Invited public lectures on cosmology and structure formation (2 hours), <i>Leiden, Nijmegen, Amsterdam, Oostzaan, Delft, Den Haag, Eindhoven, Putten, Berkeley</i>
2013	Local Organizing Committee member for the Euclid Consortium Meeting 2013 (380 participants), <i>Leiden Observatory</i>
2013	Invited lecture at a further education meeting for high school science teachers, <i>Leiden University</i>

2012 – 2014	Public outreach committee, answering questions from the public and the media, <i>Leiden Observatory</i>
2011 –	Referee for MNRAS, MNRAS Letters, ApJ, ApJ Letters
2008 – 2009	Chairman of the national committee PION 2009 (part-time scholarship, as part of winning the competition in 2008)
2006 – 2009	Creating lectures and assignments for high school students on various physics or astronomy related projects to stimulate careers in science

HIGHLIGHTED TALKS AT INTERNATIONAL MEETINGS AND CONFERENCES

02/2020	Exploring the effect of feedback on matter clustering, <i>Royal Observatory Edinburgh, UK</i>
09/2019	Simulations for cosmology, <i>Leiden Observatory, The Netherlands (Lorentz Workshop, invited)</i>
12/2018	Exploring the effect of feedback on matter clustering, <i>Leiden Observatory, The Netherlands (Lorentz Workshop)</i>
11/2018	Modelling baryons for cosmology <i>Oxford University, UK (Baryons workshop, invited)</i>
12/2016	The links between galaxy formation and clustering <i>CITA, Toronto, Canada (Neutrinos, (g)astrophysics and LSS workshop, invited)</i>
06/2016	Clustering as a constraint for galaxy formation, <i>McMaster University, Hamilton, Canada (Great Lakes Cosmology conference)</i>
03/2016	Clustering as a constraint for galaxy formation, <i>Salt Lake City, USA (Snow-PAC conference)</i>
02/2016	Constraining L-Galaxies through clustering, <i>MPA Garching, Germany (L-Galaxies Workshop, invited)</i>
04/2015	Accounting for galaxy formation, <i>PITT PACC, Pittsburgh, USA (LSST DESC Workshop, invited)</i>
02/2015	The baryon problem, <i>Leiden Observatory, The Netherlands (Lorentz Workshop, invited)</i>
06/2013	Galaxy formation and the two-point correlation function, <i>IPP Garching, Germany (Haloes conference)</i>
06/2013	Galaxy formation and the two-point correlation function, <i>MPA Garching, Germany (Virgo meeting)</i>
09/2012	The effects of halo alignment and shape on the clustering of galaxies, <i>Trieste University, Italy (CosmoComp Workshop)</i>
05/2012	The connection between halo shape and galaxy clustering, <i>Laboratoire d’Astrophysique de Marseille, France (CosmoBias Workshop, invited)</i>
04/2012	The connection between halo shape and galaxy clustering, <i>IFT Madrid, Spain (MPA-IFT Workshop)</i>
09/2011	Simulations of large scales, <i>Institute d’Astrophysique de Paris, France (CosmoComp mid-term review, invited)</i>
05/2011	Measures of large-scale structure, <i>MPE Garching, Germany (CosmoComp meeting)</i>
09/2010	Power spectra from the OWLS: The effects of baryons, <i>MPIA Heidelberg, Germany (Virgo meeting)</i>