

# Curriculum Vitae

Joop Schaye

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## Personal

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## Employment

2011– Full Professor, Leiden University, The Netherlands  
2007–2011 Associate Professor, Leiden University, The Netherlands  
2005–2007 Assistant Professor, Leiden University, The Netherlands  
2002–2005 Long-term Member, Institute for Advanced Study, Princeton, USA  
2000–2002 Member, Institute for Advanced Study, Princeton, USA

## Education

1997–2000 Institute of Astronomy, University of Cambridge, U.K.:  
• PhD Astrophysics, advisor: Prof. George P. Efstathiou  
1996–1997 Department of Applied Mathematics and Theoretical Physics,  
University of Cambridge, U.K.:  
• Certificate of Advanced Study in Mathematics  
1992–1997 University of Groningen, The Netherlands  
• MSc Astronomy  
• MSc Theoretical Physics

## Publications

Authored or co-authored over 300 refereed publications, more than 60 when normalized by number of authors (according to NASA's ADS)

See <http://home.strw.leidenuniv.nl/~schaye/publications.html>

## Honors

- 2015 VICI grant, NWO Innovational Research Incentives Scheme (PI)
- 2014 Nominated for annual teaching award of the Faculty of Science, Leiden University
- 2011 European Research Council Starting Grant (PI)
- 2010 Pastoor Schmeits prize (awarded every 3 years to an astronomer - who either has the Dutch nationality or works in the Netherlands - for work done before the age of 40)
- 2007 Elected key researcher of NOVA (Dutch research school for astronomy)
- 2006 VIDI grant, NWO Innovational Research Incentives Scheme (PI)
- 2004 Marie Curie Excellence Grant (PI)
- 2002 Long-term membership, Institute for Advanced Study, Princeton
- 1998 Kamerlingh Onnes Prize (for highest final GPA in physics), University of Groningen
- 1997 Isaac Newton Studentship, University of Cambridge
- 1997 MSc Astronomy: Distinction  
MSc Theoretical Physics: Distinction
- 1996 Benefactor's scholarship, St. John's College, Cambridge
- 1993 Propaedeuse prize (for best 1st year exam results in physics), University of Groningen

## Grants awarded as PI

2018	EUR	219,336	over 4 years	NOVA phase 5, network 1	PI
	EUR	4,500		NOVA workshop	PI
2017	EUR	4,500		NOVA workshop	PI
2015	EUR	1,500,000	over 5 years	NWO VICI	PI
	EUR	4,000		NOVA workshop	PI
2013	EUR	207,366	over 4 years	NOVA phase 4, network 1	PI
	EUR	4,200		NOVA workshop	PI
2011	EUR	1,496,000	over 5 years	ERC starting grant	PI
2010	EUR	221,635	over 3 years	NWO open competition	PI
2009	EUR	201,140	over 4 years	NOVA phase 3, network 1	PI
	EUR	10,000		Lorentz Center workshop	PI
2008	EUR	314,000	over 5 years	NOVA phase 3, instrumentation	co-PI
2006	EUR	4,500		NOVA workshop	PI
	EUR	8,580		Lorentz Center workshop	PI
	EUR	600,000	over 5 years	NWO VIDI	PI
2005	USD	380,663	over 3 years	NSF AST-0507117	co-PI
2004	EUR	1,000,427	over 4 years	EU Marie Curie Excellence Grant	PI

## Grants awarded as co-I (incomplete)

2019	EUR	3,503,443	over 4 years	EU ITN network BID4BEST	co-I
2019	EUR	9,977,473	over 4 years	EU RIA network AHEAD2020	co-I
2018	EUR	19,496,000	over 10 years	NWO Roadmap Athena	co-I
	EUR	54,834	over 4 years	NOVA phase 5, network 1	co-I
2016	EUR	1,350,000	over 4 years	EU staff exchange network LACEGAL	co-I
2011	EUR	779,100	over 4 years	EU IRSES network LACEGAL	co-I
2009	EUR	4,646,615	over 4 years	EU RTN network CosmoComp	co-I
	EUR	201,140	over 4 years	NOVA phase 3, network 1	co-I
	EUR	201,140	over 4 years	NOVA phase 3, cross network	co-I
	EUR	201,140	over 4 years	NOVA phase 3, network 3	co-I
2008	EUR	4,500		NOVA workshop	co-I
	EUR	9,000		Lorentz Center workshop	co-I

## Teaching

2019–	Origin and Evolution of the Universe, graduate course, Leiden University
2015–2018	Large-scale Structure and Galaxy Formation, graduate course, Leiden University
2006–2017	“De Melkweg en andere sterrenstelsels”, lectures for high school students
2012–2015	MSc Study advisor
2011–2013	Stellar Structure and Evolution, graduate course, Leiden University
2007	Galaxies, NOVA graduate school
2005–2009	The Formation of Galaxies, graduate course, Leiden University
1997–2000	Physical Cosmology (supervisor), Part II Astrophysics, University of Cambridge
1997–1999	Theory of Relativity (supervisor), Part II Astrophysics, University of Cambridge

## Supervision of MSc students (primary supervisor only)

Olivera Rakic (06-07), Eveline van Scherpenzeel (07), Freeke van de Voort (07-08), Akila Jeesson Daniel (07-08), Juan David Delgado (08-09, minor), Marcel van Daalen (09-10), Caroline Straatman (10-11), Willem de Pous (10-11), Nadiéh Bremer (11), Marijke Segers (12, minor), Jorryt Matthee (13-14), Geert Jan Talens (13-14), Gunjan Bansal (14-15), Stijn Debackere (15-16), Charlotte Brand (16-17), Rodolfo Dernini (2018-2019), Joey Braspenning (2018-2019), Eva van Weenen (2018-2019), Andres Aramburo Garcia (2018-2019), Brian Cook (2018-2019)

## Supervision of PhD students (primary supervisor only)

Andreas Pawlik (05-09), Robert Wiersma (05-10), Alan Duffy (06-09; with Richard Battye/Scott Kay), Marcel Haas (06-10), Olivera Rakic (07-11; with Charles Steidel), Freeke van de Voort (08-12), Alireza Rahmati (09-13), Marcel van Daalen (10-14; with Simon White), Alex Richings (11-15), Monica Turner (11-15), Marco Velliscig (11-15), Bart Clauwens (13-17; with Marijn Franx), Marijke Segers (13-17), Chris Barber (14-18), Jorryt Matthee (16-20; with David Sobral and Huub Rottgering), Nastasha Wijers (16-20), Stijn Debackere (17-21), Folkert Nobels (18-22), Evgenii Chaikin (19-23)

## Supervision of postdocs

Claudio Dalla Vecchia (05-09), Craig Booth (07-11), Denis Serre (08-10), Ben Oppenheimer (09-13), Milan Raicevic (10-13), Rob Crain (11-15), Thomas Martinsson (11-14), Marcello Cacciato (with Henk Hoekstra) (12-14), Joakim Rosdahl (12-16), Sylvia Ploeckinger (14-19), Lorrie Straka (14-18), Camila Correa (16-19), Sowgat Muzahid (16-19), James Trayford (18-21), Peter Mitchell (18-21)

## Recent professional activities

PI, EAGLE collaboration (Evolution and Assembly of GaLaxies and their Environments)

PI, MUSEQuBES survey of QSO absorbers

Member of the executive board, MUSE (Multi Unit Spectroscopic Explorer)

Member of the steering committee, Virgo Consortium for cosmological supercomputer simulations

Scientific Editor, Monthly Notices of the Royal Astronomical Society

Editorial Board member, Scientific Reports (Nature publishing group)

Guest editor, Annual Reviews of Astronomy and Astrophysics

Builder, MUSE GTO team

Science Co-I, Athena X-IFU

Member, Athena X-IFU science advisory team

Core member, LOFAR Epoch of Reionization science team

Member, Euclid cosmological simulations working group (co-lead on baryonic effects)

Member, AHEAD consortium board

Member, WEAVE QSO science team

Member, MICADO science team Node coordinator, BID4BEST EU-ITN network, 2020–2024

Member of the board, "Stichting Studiefonds J.C. Kapteyn"

Member of the board, Pastoor Schmeits prize

External PhD thesis examiner, Aarhus, Cambridge, Durham, Edinburgh, Groningen, Marseille, Oslo, Potsdam

Lots of funding committee and referee work

Member, the permanent committee for academic practice of the faculty of science

## Organization of scientific meetings

- Chair, SOC, “European Astronomical Society annual meeting”, Leiden, June 2020
- Chair, LOC, “Computational cosmology”, Leiden, Dec 2018
- Chair, LOC, “MUSE busy week”, Volendam, Nov 2017
- Chair, LOC, “Computational cosmology”, Leiden, Dec 2015
- Chair, LOC, “MUSE busy week”, Haarlem, Nov 2014
- Chair, LOC, “The chemical enrichment of the intergalactic medium”, May 2009
- Chair, LOC, “Computational cosmology”, Jan 2007
- Member, SOC, “The epoch of galaxy quenching”, Cambridge, UK, Sep 2020
- Member, SOC, “The stellar initial mass function and its variations”, Durham, UK, July 2020
- Member, SOC, “Hot gas in the universe”, Xiamen, China, May 2020
- Member, SOC, “What matter(s) between galaxies”, Spineto, Italy, June 2019
- Member, SOC, “Warm and Hot Baryonic Matter in the Cosmos”, Vienna, Austria, August 2018
- Member, SOC, “Intergalactic Interconnections”, Marseille, France, July 2018
- Member, SOC, “European week of astronomy and space science”, Liverpool, UK, April 2018
- Member, SOC, “Frontiers of astrophysical modeling”, Leuven, Belgium, Sep 2017
- Member, SOC, “A Decade of the Star-Forming Main Sequence”, Leiden, the Netherlands, Sep 2017
- Member, SOC, “What matter(s) around galaxies”, Durham, UK, June 2017
- Member, SOC, “Deconstructing Galaxies at Cosmic Noon”, Leiden, the Netherlands, Aug 2016
- Member, SOC, “Feedback in galaxy formation”, Leiden, the Netherlands, May 2016
- Member, SOC, “Computational cosmology”, Leiden, the Netherlands, Dec 2015
- Member, SOC, “The challenges of upcoming HI surveys”, Dwingeloo, March 2014
- Member, SOC, “Challenges in UV astronomy”, Garching, Germany, Oct. 2013
- Member, SOC, “Intergalactic Interactions”, Edinburgh, UK, June 2013
- Member, SOC, “Circumgalactic Medium-Galaxy Interface”, Leiden, The Netherlands, June 2013
- Member, SOC, “COSMOCOMP workshop”, Trieste, Italy, September 2012
- Member, SOC, “The picture of galaxy evolution painted with Lyman alpha”, Rome, Italy, July 2012
- Member, SOC, “The physics of galaxy formation”, Durham, UK, July 2011
- Member, SOC, “The cosmic odyssey of baryons”, Marseille, France, June 2011
- Member, SOC, “Gas in galaxies: from cosmic web to molecular clouds”, Seon, Germany, June 2011
- Member, SOC, “Cosmological reionization”, Allahabad, India, Feb. 2010
- Member, SOC, “Galaxies in real life and simulations”, Leiden, the Netherlands, Sep 2008
- Member, SOC, “Theory in the Virtual Observatory”, Garching, Germany, Apr 2008
- Member, SOC, “Dark galaxies and lost baryons”, Cardiff, UK, June 2007

## Invited conference talks (2004-)

- 2019 Symposium in honor of Simon White, Garching, Germany  
CGM Berlin, Berlin, Germany  
The cosmic baryon cycle, Carlsbad, USA  
Feedback and its role in galaxy formation, Spetses, Greece  
Metals in galaxies, near and far, Leiden, The Netherlands  
Galaxy evolution in the cosmic web, Leiden, The Netherlands
- 2018 The role of feedback in galaxy formation: from small-scale winds to large-scale outflows, Potsdam, USA  
Circumgalactic medium workshop, Evanston, USA  
Intergalactic interconnections, Marseille, France  
Galactic winds, Elmau, Germany  
European week of astronomy and space science, Liverpool, UK (*plenary*)  
Computational galaxy formation, Ringberg, Germany  
Preparing the science of galaxy clusters & WHIM with Athena & Sesto, Italy
- 2017 Distant galaxies from the far south, Bariloche, Argentina (*review*)  
Chemical evolution of the universe, Tarrytown, USA  
The galaxy ecosystem. Flow of baryons through galaxies, Garching, Germany  
Whereabouts and Physics of the Roaming Baryons in the Universe, Sesto, Italy  
Damped Ly-alpha absorbers (DLAs): in absorption, in emission, Prague, Czech republic (*review*)  
Star formation, metals, and feedback in galaxies, Prague, Czech republic (*review*)  
What matter(s) around galaxies, Durham, UK (*conference summary*)  
Quantifying and understanding the galaxy-halo connection, Santa Barbara, USA (*review*)  
Lifecycle of metals throughout the universe, Baltimore, USA  
Carving through the Codes: Challenges in Computational Astrophysics, Davos, Switzerland  
The dawn of galaxies, Obergurgl, Austria
- 2016 The galaxy's life-cycle: From activity to quiescence and back across cosmic times, Venice, Italy (*review*)  
ESO-Athena Synergy Team workshop, Garching, Germany  
Crossing the Rubicon: the fate of gas in galaxies, Santarcangelo di Romagna, Italy  
JWSTROE, Edinburgh, UK (*review*)  
Illuminating the dark ages: Quasars and galaxies in the reionization epoch, Heidelberg, Germany  
National astronomy meeting, plenary talk, Nottingham, UK  
Feedback in Galaxy Formation, Leiden, The Netherlands  
Galactic winds, Elmau, Germany  
Formation and Evolution of Galaxy Outskirts, Toledo, Spain
- 2015 From Galaxies to Large Scale Structure and the CMB, Cambridge, UK  
Scale-free processes in the Universe, Honolulu, USA (*review*)  
Theoretical and observational progress on large-scale structure of the Universe, Garching, Germany  
A 3D view on galaxy evolution: from statistics to physics, Heidelberg, Germany  
Cosmological simulations: From galaxies to large scales, Sesto, Italy  
What happened to the gas? Understanding the evolution of galaxies, La Laguna, Tenerife (*review*)  
Reionization: A multi-wavelength approach, Kruger Park, South Africa  
Back at the edge of the Universe, Sintra, Portugal (*review*)  
Extracting information from weak lensing: Small scales = Big problem, Leiden, the Netherlands

- 2014 Quenching and quiescence, Heidelberg, Germany (*conference summary*)  
Galaxy evolution, Ringberg, Germany  
The formation and growth of galaxies in the young universe, Obergurgl, Austria (*review*)  
Fire down below: The impact of feedback on star and galaxy formation, Santa Barbara, USA  
Galactic superwinds: beyond phenomenology, Puerto Rico
- 2013 Blaauw symposium: Star Formation (Laws) in Galaxies, Groningen, the Netherlands  
The future of dark matter astro-particle physics: Insights and perspectives, Trieste, Italy (*review*)  
Galaxy bias: Non-linear, non-local and non-gaussian, Trieste, Italy  
Cosmology with small-scale structure, Tokyo, Japan  
Mind the gap: from microphysics to large-scale structure in the universe, Cambridge, UK (*review*)  
Circumgalactic medium-galaxy interface, Leiden, the Netherlands
- 2012 The dynamic nature of baryons in halos, Leiden, the Netherlands (*review*)  
Gas, stars, and black holes in the galaxy ecosystem, Leiden, the Netherlands  
The quest for dark energy: when theory meets simulations, Ringberg, Germany  
UV astronomy: HST and beyond, Kauai, USA (*review*)  
Missing baryons in the local universe, Cervia-Milano Marittima, Italy (*review*)  
Disc galaxy formation in a cosmological context, Heidelberg, Germany  
Theory goes out on a limb: Predictions for  $z > 1$  galaxies, Leiden, the Netherlands  
Gas flows in galaxies, Baltimore, USA (*review*)
- 2011 Does the redshift zero universe look as predicted by models?, Heidelberg, Germany (*review*)  
The Cosmic Odyssey of Baryons, Marseille, France (*conference summary*)  
The physics of galaxy formation, Durham, U.K. (*review*)  
Gas in galaxies: from cosmic web to molecular clouds, Seon, Germany (*review*)  
Galaxy evolution, Ringberg, Germany
- 2010 Pastoor Schmeitz prize lecture, National astronomy meeting, Cuijk, The Netherlands  
Galaxies in the distant universe: Dynamics, gas, and early evolution, Ringberg, Germany  
Oort workshop: Emergence of the Hubble Sequence at  $1 < z < 3$ , Leiden, the Netherlands  
How to weigh clusters of galaxies, Leiden, the Netherlands
- 2009 Hunting for the dark: The hidden side of galaxy formation, Malta  
The first galaxies: Theoretical predictions and observational clues, Rio de Janeiro, Brazil (*review*)  
SFR@50: Filling the cosmos with stars, Spineto, Italy  
Harvesting the desert: The universe between redshifts 1 and 3, Marseille France (*review*)  
The cosmic evolution of helium and hydrogen, Ringberg, Germany (*review*)
- 2008 The impact of simulations in cosmology and galaxy formation, Trieste, Italy  
The interplay between the interstellar and intergalactic media, Montreal, Canada  
Far Away: Light in the young universe at redshift beyond three, Paris, France  
Theory in the Virtual Observatory, Garching, Germany
- 2007 Gas accretion and star formation in galaxies, Garching, Germany  
Dark galaxies and lost baryons, Cardiff, U.K. (*review*)  
HI survival through cosmic times, Spineto, Italy
- 2006 The Kennicutt-Schmidt law, San Diego, USA  
Non-virialized X-ray components in clusters of galaxies, Bern, Switzerland  
The scientific requirements for Estremo/WFXRT, Bologna, Italy
- 2005 The scientific requirements for extremely large telescopes, Cape Town, South Africa (*review*)  
Probing early structure formation with mass, light and chemistry, Minneapolis, USA  
Open questions in cosmology: The first billion years, Garching, Germany  
Reionizing the universe, Groningen, The Netherlands  
From lithium to uranium: Elemental tracers of early cosmic evolution, Paris, France (*review*)
- 2004 Galaxy-intergalactic medium interactions, Santa Barbara, USA  
The quest for a concordance cosmology and beyond, Cambridge, U.K.  
CIAR meeting, Banff, Canada

### Invited colloquia (2003-)

2019	Pontificia Universidad Católica de Chile International Centre for Radio Astronomy Research Perth	Chile Australia
2018	University of Oslo University of Groningen	Norway The Netherlands
2017	University of Helsinki Aix-Marseille University	Finland France
2016	Durham University CEA Saclay UC Berkeley UC Santa Cruz	UK France USA USA
2015	University of Zurich Instituto de Astrofísica de Canarias Liverpool John Moores University	Switzerland Spain UK
2014	Canadian Institute for Theoretical Astrophysics (CITA) University of Leicester Stockholm University	Canada UK Sweden
2013	UC Berkeley Stanford University University of Chicago University of Geneva & Ecole Polytechnique Fédérale de Lausanne	USA USA USA Switzerland
2012	Astron Heidelberg joint ARI/ITA/LSW/MPIA/MPIK/HITS	The Netherlands Germany
2011	Massachusetts Institute of Technology University of Nottingham	USA UK
2010	University of Texas University of Cambridge	USA UK
2009	University of Hawaii	USA
2008	Joint ESO, MPA, MPE New York University Institute for Advanced Study	Germany USA USA
2007	University of Edinburgh	U.K.
2006	Institut d'Astrophysique de Paris Nijmegen University	France The Netherlands
2005	Utrecht University University of Amsterdam ETH Zurich Joint ICTP-SISSA	The Netherlands The Netherlands Switzerland Italy



2004	Leiden University	The Netherlands (2x)
	University of Toronto	Canada
	University of British Columbia	Canada
	University of Texas	USA
	University of Washington	USA (2x)
	University of Victoria	Canada (2x)
	Princeton University	USA
	Stanford University	USA
	University of Michigan	USA
2003	Columbia University	USA
	Penn State University	USA
	UC Santa Barbara	USA
	Yale University	USA
	University of Cambridge	U.K.
	University of Groningen	The Netherlands
	Max-Planck Institut für Astrophysik	Germany