

# Curriculum Vitae, May 2017

## Personal Details

Title(s), name: prof.dr. P.J. (Paul) Groot  
Gender: Male  
Date of birth: 1971-06-02  
Place of birth: Amsterdam, The Netherlands  
Nationality: Dutch

Current work address: Department of Astrophysics  
Institute for Mathematics, Astrophysics and Particle Physics (IMAPP)  
Radboud University  
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## Education

MSc Astrophysics University of Amsterdam 27-03-1995  
PhD Astrophysics University of Amsterdam 07-12-1999 (cum laude)  
Supervisor: prof.dr. J. van Paradijs

## Employment

10/1999 - 02/2002	Harvard-Smithsonian Center for Astrophysics	CfA Fellowship
02/2002 - 10/2003	Radboud University	Assistant Professor
11/2003 - 10/2006	Radboud University	Associate Professor
10/2006 - present	Radboud University	Professor of Astronomy
03/2011 - 01/2012	California Institute of Technology	Sabbatical leave
04/2012 - 05/2013	Radboud University	Director of Education, Mathematics, Physics and Astronomy
10/2006 - 01/2017	Radboud University	Chair Department of Astrophysics

## Research and Instrumentation

Current research is focused on understanding the evolution and physics of compact stellar binaries, short-duration transient events and gravitational wave sources. I am the discoverer of optical counterparts to gamma-ray bursts (1997; EU Descartes Prize 2002) and a member of the LIGO-Virgo team that detected the first gravitational wave signals through laser-interferometry (2015; Special Breakthrough Prize 2016; Gruber Prize in Cosmology, 2016).

### *Compact Binaries and Galactic Surveys.*

For compact binaries, we focus on their contribution and importance for understanding common-envelope evolution in close binaries, uncovering the nature of progenitors to Supernovae Type Ia, their contribution to the gravitational wave sky and the physics of accretion disks. To study this in a consistent and homogeneous way we are performing a massive observational study to map, for the first time ever, the complete Galactic plane (3600 square degrees) in optical colours down to 21st magnitude using the INT and VST telescopes: the European Galactic Plane Surveys (EGAPS, combination of IPHAS, UVEX and

VPHAS+), where I am PI on the 'blue side' (the UVEX survey). EGAPS will detect  $\sim 1$  billion objects and register their  $u', g', r', i', H\alpha$  and HeI 5875 magnitudes.

The Palomar Transient Factory<sup>1</sup> is a massive synoptic survey that we are successfully exploiting to understand the Galactic population of fast transients. The MeerLICHT telescope at Sutherland will be the first real-time optical-radio transient facility, as it is always twinned with the MeerKAT radio array. It is also the prototype for the BlackGEM array for gravitational wave counterparts. I am PI on both MeerLICHT and BlackGEM.

This research is done in close collaboration with partners in the UK (Warwick, Southampton, Hertfordshire, Oxford, Manchester), USA (Caltech, UCSB), Spain (La Palma, Canary Islands) and South Africa (Cape Town). Usage is made of the Isaac Newton Group of telescopes (La Palma), the European Southern Observatory (Chile), Magellan Telescopes (Chile), the Hubble, XMM-Newton and Chandra Space Telescopes and the SAAO (SALT, 1.9m) and the MeerKAT radio array. Focal points in the next years will be the MeerLICHT telescope and BlackGEM array.

*Gravitational wave astrophysics* The direct detection of gravitational waves has opened up a completely new window on the Universe. Radboud University is a member of the Virgo collaboration. We focus on the combination of gravitational wave signals and their electromagnetic counterparts, in particular using the optical BlackGEM array, currently under construction and to be installed at ESO La Silla.

*Instrumentation* I was Dutch CoPI and Chair of the Science Team (Project Scientist) of X-Shooter, the first of the second generation VLT instruments. X-Shooter is a very wide band (0.3-2.5 micron), medium resolution, high efficiency spectrograph that started general operation on October 1, 2009. The near-infrared cryostat was designed and built in Nijmegen, in collaboration with the TechnoCenter of the Faculty of Sciences. I am PI on the BlackGEM<sup>2</sup> optical array for gravitational wave astrophysics as well as the MeerLICHT<sup>3</sup> initiative to couple an optical telescope to the MeerKAT radio array.

At Radboud University the Department manages two optical telescopes (20cm refractor and 35cm reflector) and the 2-dish Ulrich J. Schwarz Radio Interferometer. I supervised the installation and upgrades of these facilities.

## Teaching

Since the start of the Department of Astrophysics I have taught 76 lectures series (each 16-32 hrs of lectures) on 14 different topics in the Bachelor and Master's program of the Physics and Astronomy education at Radboud University. All astronomy courses I taught at the Radboud were also developed by me. Between 2006 - 2012 I was responsible for the overall astronomy curriculum at the Radboud ('opleidingscoördinator'). From April 2012 - June 2013 I was director of Education in Physics, Astronomy and Mathematics at the Radboud, both Bachelor and Master levels.

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<sup>1</sup><http://www.astro.caltech.edu/ptf>

<sup>2</sup>[www.blackgem.org](http://www.blackgem.org)

<sup>3</sup>[www.meerlicht.org](http://www.meerlicht.org)

Lecturer	'Classical Mechanics', Radboud	2013 -
Lecturer	'The Universe', Huygens program, Radboud	2008 - 2012, 2015
Lecturer	'Optics, Manipulation of light', Radboud	2014 -
Lecturer	'Birth, Life and Death of Stars', Honoursprogram Radboud	2006 - 2012
Lecturer	'Galaxies', 'Nuclear Evolution of the Universe', 'Cosmology', 'The Solar System', 'Accreting Compact Objects', 'Stellar Evolution', 'Observational Astrophysics', 'Kaleidoscope Astronomy', 'Telescope Observing' RU Nijmegen	2002 - 2012
Lecturer	HOVO course 'Compact Objects', 'Stellar Evolution', 'Solar System', 'Galaxies and Cosmology', 'Stellar Clusters' 'Cosmic Evolution', 'Stellar Remnants', 'Astronomical Instrumentation', 'Observatories'	2002 - 2016
Subst. lecturer	'Solar system', Un. of Amsterdam	1997 - 1998
Lecturer	1st year practical work Astronomy, University of Amsterdam	1997 - 1998
Assistant	1st year practical work Physics, University of Amsterdam	1993 - 1994
Assistant	1st year practical work Astronomy, University of Amsterdam	1993 - 1997

## Student Supervision

Currently (10/2016) supervising 3 PhD students (Ruiz-Carmona, Van Roestel, Korol). Eight PhD students and six MSc students have received their degree with me as primary and daily supervisor since 2002.

## Science Management

In 2002 Jan Kuijpers and I started the new department of astrophysics at Radboud University from scratch. Currently the department employs 11 full-time faculty, three adjunct professors and long-term collaborators, 17 postdocs, 26 PhD students, 3 technicians/software programmers, 3 secretaries and 1 emeritus professor. I was chair of the department from 2006 - 2016. The astrophysics program is attracting 10-15 new students each year. Collectively the department has attracted over 29 M€ in grant money to be spent in Nijmegen directly. Members of the Department have received numerous awards, including 3 NWO-Rubicon, 3 NWO-Veni, 7 NWO-VIDI, 5 Radboud Excellence Fellows and 1 Radboud Excellence Professor, 1 KNAW-Pionier, 1 EU-Descartes Prize, 1 Breakthrough Prize, 1 Gruber Prize, 2 ERC-Advanced Grants, 1 ERC Synergy grant, 1 Francqui Prize and 1 Spinoza prize. In 2010 the Department of Astrophysics was evaluated to be among the top 10% of astronomy institutes in the world, along with an 'exemplary' status for the NOVA top research school in astronomy of which we are a part. After the closure of the Astronomical Institute at Utrecht University four staff members moved to Nijmegen. I have been a member of the Board of directors of the NOVA top research school since 2006 and serve as chair of NOVA from 2012-2016.

## Public outreach

For Public Outreach I give regular lectures on astronomy at amateur observatories and companies throughout the Netherlands (~5 times a year), visit high schools (~2 times a year) and give regular talks to primary and secondary school classes visiting the university (~5 times a year). My research on Gamma-ray bursts has featured in at least two general public books, in one National Geographic documentary ('Hunt for the Death Star') and I featured in an episode of Dutch young-adults program 'Het Klokhuis'. In Nijmegen I started the regular 'Observatory Nights' where the general public can visit the Radboud Observatory during one evening a month in the winter time.

## Academic Activities

### Current

PI, BlackGEM telescope array	2012 -
PI, MeerLICHT telescope	2012 -
PI, OmegaWhite survey, Co-PI VPHAS+ survey, VST telescope	2011 -
Member, Royal Holland Society for the Science (KMHW)	2017 -
Member, KNAW ESO Contact committee	2004 -

### Past

Chair, Department of Astrophysics, Radboud University	2006-2016
Chair, Board of Directors, Netherlands Research School for Astronomy (NOVA)	2012-2016
Member, Netherlands Committee for Astronomy (NCA)	2006 - 2016
Member, Board of Institute for Mathematics, Astronomy and Particle Physics (IMAPP)	2006 - 2016
Member, Young Academy (DJA), Royal Netherlands Academy for the Arts & Sciences (KNAW)	2009 - 2013
Member, Science Team, <i>Euclid</i> satellite team	2010 -
Member, Science Team, <i>LOFT</i> satellite team	2010 -
Member, Scientific Advisory Committee, Isaac Newton Group of Telescopes	2009 -
Director of Education Physics, Mathematics and Astronomy, RU Nijmegen	2012 - 2013
Project Scientist, VLT X-Shooter Spectrograph	2005 - 2011
Chair, Netherlands Astronomers Club (NAC)	2008 - 2011
Member Board of Directors, Netherlands Research School for Astronomy (NOVA)	2006 - 2012
Member, Board, Netherlands Astronomers Club (NAC)	2007 - 2008
Vice-Chair, Science Team VLT X-Shooter Spectrograph	2002 - 2004
Dutch PI and member Science Team, Phase A study, E-ELT OPTIMOS-EVE project	2008 - 2011
Dutch CoPI X-Shooter Spectrograph and Nijmegen Project Scientist X-Shooter	2002 - 2011
Member, FWO 'International Facilities' Panel	2008
Member, NWO-GBE VIDI grant selection committee	2006, 2008
Chair, NWO-GBE VIDI grant selection committee	2012/2013
Member, NWO-GBE STARE grant selection committee	2006
Member, NWO-GBE Vrije Competitie selection committee	2010
Member, NWO TOP-GO selection committee	2010
Member, ASTRON Contact committee	2004 - 2007
Member, NWO-ASTRON Program Committee (WSRT, ING, JCMT)	2002 - 2005, 2009 - 2010
Member, ESO Observing Program Committee Panel D	2008 - 2009
Member, NOVA Instrument Steering Committee	2002 - 2006
Member, NOVA Minnaert Committee (Dutch National Astronomy Outreach)	2002 - 2006
Member, Educational Committee Subfaculty Physics Un. of Nijmegen	2002 - 2005
Member, review panel EU Marie Curie Fellowships Physics	2002
Member, Chandra X-ray Observatory Peer Review Panel	2002& 2006
Member, review panel US-Israelian Binational Science Foundation	2000
Member, SOC Symposium 'Origins of the Universe', IMAPP Nijmegen	2006
Chair, Organising Committee 'Jan65: Magnetic Fields and the Cosmos'	2011
Chair, Organising Committee 'The First International Workshop on AM CVn stars'	2005
Chair, Organising Committee 'Dutch National Astronomy Conference'	2003
Chair, SOC Symposium 'Mysteries in Relativistic Astrophysics'	1996
Member, Educational Comm., Dep. of Physics and Astronomy, Un. of Amsterdam	1993 - 1995
Member, Search Committee Professorship in Astronomy Un. of Amsterdam	1993

Regular referee for *Astronomy & Astrophysics*, *Monthly Notices of the Royal Astronomical Society* and

*The Astrophysical Journal.*

## Grants

EFRO subsidy HIPERSENSE (k€ 600)	2015
NWO Medium Grant BlackGEM (k€ 430)	2014
NWO Interdiscpl. Grant Grav. Waves (k€ 220)	2015
NWO NL-South Africa exchange grant (k€ 35 & k€ 25)	2013&2016
NOVA Instrumentation grant <i>BlackGEM</i> (k€ 2300)	2013
NWO Stimulus grant <i>MeerLICHT</i> telescope (k€ 100)	2013
NWO Vrije Competitie grant (k€ 240)	2013
EU Erasmus Mundus <i>Sapient</i> Program (2 PhDs; k€ 400)	2011
NWO Vrije Competitie grant (k€ 200)	2009
NOVA Phase 3 Grant (2 PhDs) (k€ 400)	2008
NWO Vrije Competitie grant (k€ 240)	2008
NWO Open Competition grant (k€ 200)	2007
NOVA Small instrumentation grant (k€ 10)	2005
NOVA-II Postdoc position (k€ 150)	2005
NWO Middelgroot grant: ‘ <i>The Near-infrared arm of X-Shooter</i> ’ (with L. Kaper, UvA) (k€ 744)	2004
NOVA Instrumentation: ‘ <i>X-Shooter</i> ’ (with L. Kaper, UvA) (k€ 680)	2004
NWO VIDI grant ‘ <i>White Dwarfs and the Galaxy</i> ’ (k€ 600)	2002

## Awards

Special Breakthrough Prize in Fundamental Physics	2016
Gruber Prize in Cosmology	2016
Member Royal Holland Academy of Science (KMHW)	2017
Member de Jonge Akademie, Royal Academy of Sciences (KNAW)	2009-2013
EU Descartes Prize 2002 : ‘Gamma-Ray Bursts’	2002
Harvard-Smithsonian CfA Fellowship	1999

## List of Publications

For a full and up-to-date list of publications please visit the following link<sup>4</sup>ADS Library

My work has been reported in 374 scientific publications, resulting in 12158 citations and an *Hirsh*-index of 47.

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<sup>4</sup>[http://adsabs.harvard.edu/cgi-bin/nph-abs\\_connect?library&libname=Publication\\_PaulGroot&libid=49ca86517](http://adsabs.harvard.edu/cgi-bin/nph-abs_connect?library&libname=Publication_PaulGroot&libid=49ca86517)