

Personal information:

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Email: michiel.rodenhuis@gmail.com
Date of birth: 25 September 1971
Place of birth: Schiedam, the Netherlands
Nationality: Dutch
Marital status: Registered partnership, two children

Professional experience:

- *From January 2012 to Date*
Research associate at the Leiden Observatory, Leiden University, The Netherlands.
Systems engineering for the integral field unit of the EPICS polarimeter planned for the European ELT telescope; for the Adaptive Optics upgrade of the Extreme Polarimeter and for other instrumentation projects.
Scientific research & analysis of observations conducted with the Extreme Polarimeter.
- *From June 2011 to December 2011*
Postdoctoral researcher at the Utrecht Astronomical Institute, Utrecht University, The Netherlands.
Responsible for the scientific requirements analysis and systems engineering for the integral field unit of the EPICS polarimeter planned for the European ELT telescope.
- *From January 2007 to May 2011*
PhD candidate & astronomical instrumentation engineer at the Utrecht Astronomical Institute, Utrecht University, The Netherlands.
See under Education (below) for details.
- *From April 2005 to December 2006*
Project manager / systems engineer at TERMA B.V. Space & Defense in Leiden, The Netherlands.
 - TERMA Project Manager for the Galileo GMS Assembly Integration and Verification Platform. Test simulator for the Galileo Mission Segment. 1.2 Meur over 2 years. Responsible for the architectural design & systems engineering.
 - Technical proposal manager for the above & several other projects.
- *From May 2001 to May 2005*
Spacecraft simulation/systems engineer at TERMA B.V. Space & Defense in Leiden, The Netherlands.
Involved in requirements analysis, systems engineering & design of a number of ESA simulation projects:
 - SMART-1 Project Test-Bed simulator (lead engineer). Simulator developed for mission analysis & operations planning of the SMART-1 mission.
 - Automated Transfer Vehicle (ATV) Simulator. Design & development

Education:

of the detailed communications, ground segment and thermal models for the ATV GS STF operational simulator.

- Virtual Reality for Spacecraft Assembly, Integration and Verification. Study aimed at using advanced virtual reality and 3D visualisation techniques to model spacecraft AIV procedures at the ESA-ESTEC Test Centre.

Apart from the technical/engineering aspects, the work also included regular participation in reviews, proposal writing, cost analysis and contract (re)negotiation.

- *From October 1999 to April 2001*

Young Graduate Trainee at the European Space Agency's ESOC mission control centre. Involved in the design & development of the operational simulators for the Rosetta & Mars Express science missions. Responsible for the PEM-NT interplanetary orbit model.
Supervisors: Jean-Jacques Gujer & Kim Nergaard.

- *From January 2007 to May 2011*

PhD candidate in experimental astrophysics at the Utrecht Astronomical Institute. PhD obtained June 16, 2011. PhD supervisor: Prof. C.U. Keller.
PhD project: The design and systems engineering of the innovative imaging polarimeter ExPo. Supervision of components acquisition and the instrument construction/integration at the institute's mechanical workshop. Conducted seven observing campaigns with ExPo at the 4.2 m William Herschel Telescope on La Palma, obtaining unique high-contrast images of protoplanetary disks around young stars. In most cases, these are the first images of these objects. Scientific analysis, modelling & publication of results from these observations (ongoing).

Also involved in the development and commissioning of the polarimeter add-on for the HARPS spectrograph at ESO's 3.6 m La Silla observatory.

- *July & August 2000*

International Space University Summer Session Programme 2000 (full scholarship award), held in Valparaiso, Chile. Space System Analysis & Design department. Editor of the final study report.

- *From September 1991 to September 1999 (interrupted Sept 1994 – Sept 1995).*

Master's degree in Aerospace Engineering, Delft University of Technology, The Netherlands. Faculty of Aerospace engineering, Spacecraft systems engineering section. Degree (MSc) obtained December 15.

Main courses: Dynamics, Vibrations, Orbital Mechanics, Systems Engineering, Materials Science, Astrophysics, Signal Processing.

Internship: Participated in the TEAMSAT project at ESTEC: Construction & testing of spacecraft sun sensors, AIV & launch preparations at Kourou. Served as science operations coordinator at ESTEC during the mission.

Thesis subject: Development of a Project Test Bed simulator for the Lunarsat science mission. Master's thesis project conducted during an internship at ESTEC, November 1998 – September 1999.

Note: Interrupted study for 1 year to be president of my student association.

Courses:

- *From September 1990 to June 1991*
Université Paul Valéry, Montpellier, France
Diploma: Certificat pratique de Langue Française, 1^{er} degré.
- *From March 1988 to June 1990*
Christelijk Lyceum Gouda, Gouda, The Netherlands
Diploma: VWO-B
- *May 2006:*
Object-Oriented Design in C++ - Datasim B.V.
- *October 2005:*
Project Management – Project Management Institute
- *March 2002:*
MATLAB/Simulink – The MathWorks B.V.

**Publications
(selection):**

- PhD thesis: “ExPo: A Sensitive Imaging Polarimeter for Observations of Scattered Light from Circumstellar Environments”. Utrecht University Library.
- “The Extreme Polarimeter: Design, Performance, First Results & Upgrades”. Proceedings of the SPIE 2012.
- “A Spectro-Polarimetric Integral Field Spectrograph for EPICS-EPOL”. Proceedings of the SPIE 2012.
- “The color dependent morphology of the post-AGB star HD161796”. Astronomy & Astrophysics 2013.
- “Direct imaging of a massive dust cloud around R Coronae Borealis”. Astronomy & Astrophysics 2012, Vol. 539.
- “Constraining the Circumbinary Envelope of Z CMa via imaging polarimetry”. Astronomy & Astrophysics 2012, Vol. 543.
- “Data-reduction techniques for high-contrast imaging polarimetry. Applications to ExPo”. Astronomy & Astrophysics 2011, Vol. 531.
- “HARPSpol — The New Polarimetric Mode for HARPS”. The Messenger (ESO) 2011 Vol 143.
- MSc thesis: “The Virtual Satellite – A Project Test Bed for the LunarSat Mission to the Moon” published in 1999. Internal ESA working document.

Language skills:

- Mother tongues: Dutch and Danish
- Secondary languages:

	<i>Writing</i>	<i>Reading</i>	<i>Speaking</i>
<i>English</i>	Excellent	Excellent	Excellent
<i>French</i>	Fair	Good	Good
<i>German</i>	Fair	Good	Good

**Technical (IT)
Experience:**

Design & Analysis:

- ZEMAX (optical design software), ESATAN (thermal analysis software).

Modelling & Simulation:

- Interactive Data Language (IDL), MATLAB/Simulink, EUROSIM, SIMSAT, Simulation Model Portability (SMP) standard, European Space Agency Project Test Bed (PTB) concept.

3D Visualisation tools/technologies:

- Quest3D, VEGA 3D, 3D Studio, OpenGL, DirectX, VRML.

Programming Languages & Tools:

- C/C++, FORTRAN, MS Visual Studio, Enterprise Architect.

Plus all conventional PC environments & tools.

Other interests:

I am an avid traveller, and have completed a three-month journey through the Sahara and Western Africa in my own vehicle. I also enjoy hiking, reading, sailing, ice-skating and skiing. I have a broad scientific interest, in particular in astronomy, biology and geophysics.