Marc van der Sluys

Curriculum vitae

1. Personal data

Place of Birth:	De Bilt, the Netherlands	Date of Birth:	15 January 1976
Nationality:	Dutch		

Current address:	Nikhef, Amsterdam /	Phone:	+31 6 4681 2016
	Department of Physics	Secr:	+31 30 253 1492
	Utrecht University		
	Princetonplein 1	Email:	sluys@nikhef.nl
	NL–3584 CC Utrecht	www:	Marc.vanderSluys.nl
	The Netherlands		

2. Languages

Dutch:	Mother tongue	French:	Basic knowledge
English:	Fluent	Italian:	Minimal knowledge
German:	Fluent	Spanish:	Minimal knowledge

3. Work experience

Current position *(since September 2023)*	Assistant professor in astrophysics at the Department of Physics, Utrecht University, The Netherlands.
Current position *(since October 2021)*	Staff scientist in gravitational waves and computing at the Netherlands institute for nuclear and high-energy physics (Nikhef), Amsterdam and the Institute for Gravitational and Subatomic Physics (GRASP), Utrecht University, The Netherlands.
May 2014 – September 2021	Senior researcher in sustainable energy at the HAN University of Applied Sciences in Arnhem, The Netherlands, working with Dr. Mascha Smit.
September 2010 – February 2014	Postdoctoral researcher in gravitational-wave physics, Radboud University Nijmegen, The Netherlands, working with Prof. Dr. Gijs Nelemans.
September 2009 – August 2010:	National Fellow of the *Canadian Institute for Theoretical Astrophysics* (CITA), at the *University of Alberta*, Canada.
September 2006 – August 2009:	Postdoctoral fellow in gravitational-wave physics at *Northwestern University* Evanston IL, U.S.A., working with Prof. Dr. Vicky Kalogera.
March 2006 – August 2006:	Postdoctoral fellow in astrophysics at the *Astronomical Institute Utrecht*, The Netherlands, working with Prof. Dr. Frank Verbunt.
September 2001 – December 2005:	PhD student/research assistant in astrophysics, *Astronomical Institute Utrecht*, The Netherlands, working with Prof. Dr. Frank Verbunt.

4. Education

September 2001 – February 2006:	Ph.D. research at the *Astronomical Institute Utrecht*, The Netherlands. **Title of Ph.D. thesis:** Formation and evolution of compact binaries (2006). **Thesis topics:** Formation and evolution of ultra-compact X-ray binaries (in globular clusters), formation of double white dwarfs. **Supervisors:** Prof. Dr. F. Verbunt, Dr. O.R. Pols.
September 2001:	Undergraduate (MSc) degree in astrophysics at Utrecht University, The Netherlands. **Title of MSc thesis:** *The dynamics of the nebula M1-67 around the run-away Wolf-Rayet star WR 124*, 2003 (see publication list). **Supervisor:** Prof. Dr. H.J.G.L.M. Lamers.
September 1994 – August 2001:	Undergraduate (BSc, MSc) studies in physics and astrophysics at Utrecht University, The Netherlands.

5. Fellowships

2009–2011:	National Fellow of the Canadian Institute for Theoretical Astrophysics (CITA NF, $110,000). I interrupted the fellowship in 2010 to accept a position at the Radboud University in Nijmegen.

6. Grants

2023–2025:	NWO grant Computing on national facilities: Computing for Virgo: 24M CPU-core hours, 30k GPU-core hours, 200TB storage, 100TB OSDF Origin server.
2021–2023:	NWO grant Computing on national facilities: Computing for Virgo: 18M CPU-core hours, 60k GPU-core hours, 200TB storage, 100TB StashCache Origin server.

7. Interests and skills

Research interests:	Compact-binary evolution, gravitational-wave data analysis, multi-messenger astrophysics, astronomy, (Bayesian) statistics, *Big data*, heavy-duty computing, machine learning, signal processing, automation, autonomous (embedded) systems
Computer environments:	Linux, Unix, Mac OS, Windows; HTCondor, IGWN, Singularity, SGE, PBS
Computing platforms:	Cluster, server, (headless) pc, Raspberry Pi, Arduino, embedded systems
System management:	Linux server/client (Gentoo, Arch, Ubuntu, CentOS, Fedora, ...), Beowulf cluster, HTCondor, Mac OS, Windows
Programming:	Python, ANSI C/C99, Fortran 77/90/95/2003/2008, C++, Perl, IDL, Maxima, MATLAB, Mathematica, R
Other computing:	Open-source software, bash (+scripting), tcsh, emacs, vi, sed, awk, git, svn, cvs, LaTeX, HTML, PHP, JavaScript, Linux kernel

8. Scientific interests and experience

Compact binary stars; binaries with one or two compact members formed through a common envelope: X-ray binaries, white-dwarf binaries, CVs and AM CVn stars. Modelling binary evolution, CE evolution, stellar mergers and rapid rotation. Black-hole spin and spin alignment. Population synthesis. Binary evolution in dense stellar environments. Comparison of our theoretical models to observations, or application of the models to make observable predictions.

Gravitational-wave astronomy. Early warnings of GW CBC detections for electromagnetic (EM) observations. Determination of the accuracies obtainable using simulated observations, and the influence of EM for GW data analysis. Connection to short GRBs and kilonovae. Statistics of CBCs and the consequences for formation models.

Gravitational-wave data analysis. Experience with low- (LIGO-Virgo) and high (LISA) signal-to-noise ratios in signals from gravitational waves: sampling, filtering, Fourier transformations, matches between signals, *etc.* Determination and interpretation of the physical parameters of binary

inspirals like mass, spin, distance, sky position and binary orientation of the inspiral.

Scientific modelling. Translating (scientific) questions and problems to a (physical) computer model. Experience with CPU-intensive models, such as the detailed evolution of a (binary) star or the simulation of a galaxy in *e.g.* C or Fortran on PCs and computer clusters.

Statistics. Bayesian statistics using *Markov chains* for parameter estimation (9–15 dimensions) and *Bayesian model selection* (*Bayes factor, odds ratio, etc.*). (Bayesian) machine learning. Statistical analysis of results from computer models. Monte Carlo-simulations.

Data analysis. Analysis, reduction and (graphical) presentation of results from the processes mentioned above, using *e.g.* matplotlib, PLplot, GNU plot, MATLAB, *etc.* Experience with *Big data*.

Social interests. Sustainable generation and efficient use of energy and resources by a growing world population. Climate modelling, especially the feedback of greenhouse gasses, melting ice caps, changing wind and ocean currents, and the consequences for food production. Neurology and cognition; modelling and statistics of conscience, behaviour, language, religion, *etc.*

Popularisation and public outreach. Amongst my activities are ~ 150 **popular talks and courses**, **public observing nights** with (amateur) telescopes and my **popular-astronomy website** `hemel.waarnemen.com`. See the section Scientific outreach and popularisation for details.

9. Academic teaching and outreach

9.1. Courses taught

Introduction in astrophysics	Utrecht University, 2024 (quarter-semester course, BSc level)
Compact-binary evolution	RU Nijmegen, 2011, 2020, 2021; Universidad de Valparaíso, 2012; (one lecture, MSc level)
Scenario modelling	HAN Arnhem, 2018–2021 (half-semester MSc course; four semesters)
Solar energy	HAN Arnhem, 2018–2021 (half-semester MSc course; four semesters)
Operating systems	HAN Arnhem, 2016–2020 (full-semester BSc course Linux system programming + tutorial; eight semesters)
Basic C programming	HAN Arnhem, 2019 (half-semester BSc course + tutorial, for exchange students)
History of astronomy	RU Nijmegen, 2019 (full-semester MSc course, tutorial, Python)
Computer vision	HAN Arnhem, 2016 (half-semester MSc course, Matlab)
Observational astrophysics	RU Nijmegen, 2011 (one lecture, BSc level)
Astro 465 (stellar astrophysics)	University of Alberta, 2010 (MSc tutorial)
Stellar evolution	Utrecht University, 2006 (one lecture, BSc level)
High-energy astrophysics	Utrecht University, 2001, 2002 (full-semester MSc tutorial)
Observational astrophysics 1 & 2	Utrecht University, 2002 (full-semester BSc/MSc tutorials)

9.2. Lecture notes

Lecture notes I have written or adapted for courses at the HAN University of Applied Sciences (HAN) and the Radboud University (RU) in Nijmegen. Electronic versions can be found through `http://pub.vandersluys.nl`.

Sunlight and solar energy	HAN MSc course, written from scratch, 2020–2021
Binary evolution in a nutshell	RU MSc course, written from scratch, 2011–2021
Operating systems and Linux system programming	HAN BSc course, updated, expanded and translated into English, 2017–2020

9.3. Scientific outreach and popularisation

Scientific outreach and popularisation form the first and the last steps in the process of scientific research. Popularisation generates interest in the sciences, resulting in public goodwill and hence the possibility for funding from public money, as well as young, enthusiastic students. In scientific outreach, the general public is presented the results of the research funded by their taxes.

Popular talks and courses on astronomy, astrophysics and gravitational waves, at public observatories, museums, schools, special groups and open days for potential new students at universities; $\sim$ **160 lectures** since 1991 (see section Popular talks and lectures).

Public observing nights with (amateur) telescopes at public observatories (Sonnenborgh in Utrecht (1991–2006), Dearborn observatory in Chicago (2007-2009), Radboud University in Nijmegen (2010-2023)).

Popular-astronomy website `hemel.waarnemen.com`, providing *astrocalendars*,[1] sky maps, animations and much more (in Dutch/Flemish, since 2004). I predict events in the night sky which can be observed with simple means by a general public and draw about **4000 unique visits a day** (∼1.4 million per year). Flemish and Dutch local, regional and national media regularly use my website as a source or reference for their articles or broadcasts.[2]

Dutch Astronomy Olympiad RU Nijmegen, high-school level, 2011 (organiser + 1 lecture).

NASA Summer Program Seminar Northwestern University, BSc/MSc level, 2009: organisation and lectures.

Morgensterren Utrecht University, three-day astronomy course for high-school students, high-school level, 2002, 2003.

The rotation speed of the Sun Measuring the rotation of the Sun using the Sonnenborgh observatory spectrograph in Utrecht, high-school level, 1997–2001, then turned in to a lab practicum for first-year physics students at Utrecht University.

10. Supervision of BSc, MSc and PhD students

10.1. BSc students

Mathieu Flatrès	**Solar energy, solar tracking**; BSc summer student at HAN university (2019); Thesis: *Solar Tracking with Console*, November 2019.
Bernard Bosker	**Solar concentration**; BSc student at HAN University (2018–2019). BSc thesis: *Console truss solar tracker: het implementeren van SolTrack in een Sigmatec PLC*, January 2019.
Kevin Sebastien	**Wind energy, modelling**; BSc summer student at HAN university (2018); Thesis: *EWICON-R: an electrostatic wind-energy converter*, September 2018.
Thomas Boverhof	**Wind energy, modelling**; BSc summer student at HAN university (2017); Thesis: *WindShell: an electrostatic wind-energy converter*, September 2017.
Denis Tussiot	**Solar energy, solar concentration**; BSc summer student at HAN university (2015); Thesis: *HCPV-GO: Engineering a solar concentrator project*, September 2015.
Jurgen Reintjes	**Solar concentration**; BSc student at HAN University (2014). BSc thesis: *De zon volgen met een Sigmatec PLC*, October 2014.
Maarten van de Griend	**White-dwarf planets**; BSc student at Nijmegen University (2010–2012). BSc thesis: *Finding Jovian planets around hot white dwarfs by their H_α emission*, 2012.

[1] Examples of my computer-generated texts, maps, images and animations can be found at *e.g.* `https://hemel.waarnemen.com/astrokal/`.

[2] hemel.waarnemen.com in de media, `https://hemel.waarnemen.com/media/`; 687 publications since 2011.

10.2. MSc students

Ana Martins	**GWs, machine learning**; MSc student at Utrecht University (2023); MSc Thesis: *Early alerts for gravitational waves with machine learning on an FPGA*, summer 2024.
Luc Dugas	**Solar energy, machine learning**; MSc summer student at HAN university (2021); Thesis: *Predicting solar-panel power from weather data using machine learning*, November 2021.
Nicolas Saint-Martin	**Solar energy, machine learning**; MSc summer student at HAN university (2021); Thesis: *Predicting solar-panel power from weather data using machine learning*, November 2021.
Colin Gaultier	**Solar energy, modelling**; MSc summer student at HAN university (2021); Thesis: *Predicting the insolation on solar panels from a general weather forecast*, November 2021.
Quentin Decize	**Solar energy, modelling**; MSc summer student at HAN university (2021); Thesis: *Predicting the insolation on solar panels from a general weather forecast*, November 2021.
Erick Lalay	**Geothermal heating**; MSc student at HAN University (2020–2021). MSc thesis: *Modelling Heat diffusion for a Geothermal Basket in the programming language Python*, 2021.
Victorien Simon	**Solar energy, modelling**; MSc summer student at HAN university (2020); Thesis: *Modelling the power generated by a solar panel*, November 2020.
Chris Chambers	**Gravitational waves**; MSc student at Utrecht/Nijmegen University (2011–2012). MSc thesis: *Improvements in Determining the Masses of Compact Objects in Binaries using Gravitational Waves*, 2012.
Tyrone Woods	**Double white dwarfs**; MSc student at the University of Alberta (2009–2011). MSc thesis: *On the Formation of Double White Dwarfs through Stable Mass Transfer and a Common Envelope* (Woods et al., 2012).
Andrew Loveridge	**Binary evolution**; MSc student, Northwestern University (2009–2011). MSc thesis: *Analytical Expressions for the Envelope Binding Energy of Giants as a Function of Basic Stellar Parameters* (Loveridge et al., 2011).
Vivien Raymond	**Gravitational waves**; MSc student at Northwestern University (2007–2008). PhD thesis: *Degeneracies in sky-localisation determination from a spinning coalescing binary through gravitational-wave observations: a Markov-chain Monte Carlo analysis for two detectors* (Raymond et al, 2009).

10.3. PhD students

Sweta Shah	**GW astronomy**; PhD student at Nijmegen University (2010–2014). PhD thesis: *The synergy between gravitational-wave and electromagnetic data of compact binaries*, November 2014.
Ben Farr	**Gravitational waves**; PhD student at Northwestern University (2009). PhD thesis: *Extracting Astrophysical Information from Compact Binary Coalescence Gravitational Waves and their Electromagnetic Counterparts*, 2014.
Vivien Raymond	**Gravitational waves**; PhD student at Northwestern University (2007–2009). PhD thesis: *Parameter Estimation Using Markov Chain Monte Carlo Methods for Gravitational Waves from Spinning Inspirals of Compact Objects* (2012).

10.4. Mentoring of BSc and MSc students

I mentored the students below at the HAN University of Applied Sciences, during their six-month BSc or MSc thesis project, often as an intern at a company. The goal of this mentoring is to monitor the student's progress, guard the quality of the work and play the role of examiner, rather than work with the student on the content.

Erick Lalay	MSc student, Feb–Aug 2021
Ehsaan el Assad	MSc student, Dec 2020 – Aug 2021
Lakshan Raaj Karthikeyan	MSc student, Dec 2020 – Apr 2021
Kazhal Moradi	MSc student, Oct 2020 – Apr 2021
Arjun Nair	MSc student, Jun 2020 – Apr 2021
Standley Alie	MSc student, Aug 2020 – Mar 2021
Allard Keizer	MSc student, Oct 2019 – Jul 2020
Aliya Patel	MSc student, Sep 2019 – Mar 2020
Jaco Kieft	BSc student, Feb–Jul 2019
Alwin Grubben	BSc student, Dec 2015 – May 2016
Stan Mertens	BSc student, Jun 2015 – Jan 2016
Sharif Moursi	BSc student, Feb–Jul 2015

11. International activities

11.1. Work visits

Feb–Mar 2024	Monash University, Australia (Mandel)	1 month
Feb–Mar 2012	Universidad de Valparaíso, Chile (Schreiber, Zorotovic)	1 month
Jan–Feb 2011	Northwestern University (Politano, Loveridge, Kalogera)	1 week
Jul–Aug 2010	Northwestern University (Loveridge, Kalogera, Raymond)	1 week
May 2010	MPA, Garching, Germany (Ruiter)	2 days
Mar 2010	CITA, Toronto, Canada (Murray, Pfeiffer)	1 week
Feb–Mar 2010	McMaster University, Hamilton, Canada (Glebbeek)	1 week
May 2009	University of Birmingham, UK (Vecchio, Veitch)	3 days
Sep 2008	University of Birmingham, UK (Vecchio, Veitch)	1 week
Mar 2008	Penn State University (O'Shaughnessy)	1 week
Oct 2007	University of Birmingham, UK (Vecchio)	1 week

11.2. International collaborations

Common envelopes	Politano (Marquette)
Double-white-dwarf formation	Schreiber, Zorotovic (Valparaíso)
Ultracompact X-ray binaries, AM CVn stars	in 't Zand (Utrecht), Nelemans (Nijmegen), Yungelson (Moscow), Tout (Cambridge), Portegies Zwart (Leiden)
Stellar mergers	Politano (Marquette), Taam (Taiwan), Glebbeek (McMaster)
Binary evolution code	Eggleton (Los Alamos), Glebbeek (McMaster)
Population synthesis of spinning black holes	Belczynski (Arizona)
Gravitational waves, Bayesian parameter estimation	Röver, Meyer (Auckland), Vecchio, Veitch (Birmingham, UK), Christensen (Carleton)
LIGO/Virgo follow-up pipeline	Gouaty (Louisiana State)

11.3. Memberships

Since 2022	The Einstein Telescope collaboration
Since 2021	The LIGO-Virgo-KAGRA collaboration
2020–2022	NLLGG: Dutch Linux user group
2011–2014	Nikhef: Dutch National Institute for Subatomic Physics
2011–2014	The Virgo interferometric antenna for gravitational waves
2007–2014	Cofounder and first chair of the CBC Bayesian-followup group (later parameter-estimation group) in the LIGO-Virgo collaboration
2007–2010	The Laser Interferometer Gravitational-wave Observatory (LIGO)

11.4. Organised events

2002–2003 **Morgensterren**, a three-day masterclass at Utrecht University to promote the study and science of astrophysics among (in particular female) high-school students.

2009 **NASA Summer Program Seminar** at Northwestern University, BSc/MSc level: part of the organisation and some of the lectures.

2010 **International conference on binaries**, in celebration of Ron Webbink's 65th birthday, Mykonos, Greece, 22–25 June 2010: co-organiser.

2010 **Editor of conference proceedings:** *International conference on binaries*, in celebration of Ron Webbink's 65th birthday, Mykonos, Greece, 22–25 June 2010. Editors: Vicky Kalogera and Marc van der Sluys. Melville, New York, 2010, AIP Conference Proceedings 1314.

2011 **Dutch Astronomy Olympiad (NeSO)**, a yearly event with online questions in the first round and a masterclass at a Dutch university in the second round. The NeSO was organised by the Radboud University Nijmegen in 2011, and I was the main organiser (as well as last-minute lecturer).

2015–2018 **Energy colloquia**, HAN University of Applied Sciences: inviting and scheduling speakers, moderation during the colloquium.

2023-05-31 **ET-NL** meeting at Utrecht University, for members of the Einstein Telescope collaboration in the Netherlands.

2023-10 **B-NL-GW** meeting at Maastricht University, on research in gravitational waves in Belgium and the Netherlands.

2023-12-08 **ML4GW@NL** meeting at Utrecht University, on machine learning in gravitational-waves research in the Netherlands.

12. Publication summary

Refereed publications:	100	Online publications:	17
Non-refereed publications:	11	Scientific software packages:	21
Citations:	24852	Contributions to conferences:	24
H-index:	61	Seminar talks and colloquia:	21
i10-index:	88	Popular talks and lectures:	160

13. Refereed publications

13.1. Refereed short-author-list publications

1. van der Sluys, M. & van Kan, P., 2022, arXiv/2209.01557, submitted: **SolTrack: a free, fast and accurate routine to compute the position of the Sun**
2. Catau, R., et al. 2020, Urban and Transit Planning, 415: **High-Concentration Solar Energy Systems for the Built Environment**
3. Sonneveld, P., et al. 2019, GreenSys 1296, 715: **A concentrated-solar system to reduce greenhouse heat load and generate energy**
4. Verbunt, F., & van der Sluys, M. 2019, Journal for the History of Astronomy 50.4, 383: **Why Halley did not discover proper motion and why Cassini did**
5. van der Sluys, M., van Kan, P., & Sonneveld, P. 2015, AIPC, 1679, 080003: **CPV in the built environment**
6. P. Sonneveld, M. van der Sluys, A. van Rhijn & M. Hebbink, GreenSys 1170, 477, 2015: **Feasibility study of an electricity delivering Fresnel greenhouse**
7. van Haaften, L. M., Nelemans, G., Voss, R., van der Sluys, M. V., & Toonen, S. 2015, A&A, 579, A33: **Population synthesis of classical low-mass X-ray binaries in the Galactic Bulge**
8. Veitch, J., et al. 2015, PhRvD, 91, 042003: **Parameter estimation for compact binaries with ground-based gravitational-wave observations using the LALInference software library**
9. Sidery, T., et al. 2014, PhRvD, 89, 084060: **Reconstructing the sky location of gravitational-wave detected compact binary systems: Methodology for testing and comparison**
10. Shah, S., Nelemans, G., & van der Sluys, M. 2013, A&A, 553, A82: **Using electromagnetic observations to aid gravitational-wave parameter estimation of compact binaries observed with LISA. II. The**

effect of knowing the sky position

11. Ratti, E. M., et al. 2013, MNRAS, 431, L10: **IGR J19308+0530: Roche lobe overflow on to a compact object from a donor 1.8 times as massive**
12. van Haaften, L. M., Nelemans, G., Voss, R., Toonen, S., Portegies Zwart, S. F., Yungelson, L. R., & van der Sluys, M. V. 2013, A&A, 552, A69: **Population synthesis of ultracompact X-ray binaries in the Galactic bulge**
13. Shah, S., van der Sluys, M., & Nelemans, G. 2012, A&A, 544, A153: **Using electromagnetic observations to aid gravitational-wave parameter estimation of compact binaries observed with LISA**
14. Veitch, J., et al. 2012, PhRvD, 85, 104045: **Estimating parameters of coalescing compact binaries with proposed advanced detector networks**
15. Woods, T. E., Ivanova, N., van der Sluys, M. V., & Chaichenets, S. 2012, ApJ, 744, 12: **On the Formation of Double White Dwarfs through Stable Mass Transfer and a Common Envelope**
16. Loveridge, A. J., van der Sluys, M. V., & Kalogera, V. 2011, ApJ, 743, 49: **Analytical Expressions for the Envelope Binding Energy of Giants as a Function of Basic Stellar Parameters**
17. M. Politano, M.V. van der Sluys, R.E. Taam, and B. Willems, 2010, ApJ 720, 1752: **Population Synthesis of Common Envelope Mergers: I. Giant Stars with Stellar or Substellar Companions**
18. V. Raymond, M.V. van der Sluys, I. Mandel, V. Kalogera, C. Röver, N. Christensen, 2010, CQG 27, 114009: **The effects of LIGO detector noise on a 15-dimensional Markov-chain Monte-Carlo analysis of gravitational-wave signals**
19. G. Nelemans, L.R. Yungelson, M.V. van der Sluys and Christopher A. Tout, 2010, MNRAS 401, 1347: **The chemical composition of donors in AM CVn stars and ultra-compact X-ray binaries: observational tests of their formation**
20. Marc van der Sluys, Ilya Mandel, Vivien Raymond, Vicky Kalogera, Christian Röver and Nelson Christensen, 2009, CQG 26, 204010: **Parameter estimation for signals from compact binary inspirals injected into LIGO data**
21. B. Aylott et al. 2009, CQG 26, 165008: **Testing gravitational-wave searches with numerical relativity waveforms: Results from the first Numerical INJection Analysis (NINJA) project**
22. V. Raymond, M.V. van der Sluys, I. Mandel, V. Kalogera, C. Röver and N. Christensen 2009, CQG 26, 114007: **Degeneracies in Sky Localisation Determination from a Spinning Coalescing Binary through Gravitational Wave Observations: a Markov-Chain Monte-Carlo Analysis for two Detectors**
23. L. Cadonati et al. 2009, CQG 26, 114008: **Status of NINJA: the Numerical INJection Analysis project**
24. M.V. van der Sluys, C. Röver, A. Stroeer, V. Raymond, I. Mandel, N. Christensen, V. Kalogera, R. Meyer and A. Vecchio 2008, ApJ 688, L61: **Gravitational-wave astronomy with inspiral signals of spinning compact-object binaries**
25. M. Politano, R.E. Taam, M.V. van der Sluys, and B. Willems 2008, ApJ 687, L99: **Common Envelope Mergers: A Possible Channel for Forming Single sdB Stars**
26. M.V. van der Sluys, V. Raymond, I. Mandel, C. Röver, N. Christensen, V. Kalogera, R. Meyer and A. Vecchio 2008, CQGra 25, 184011: **Parameter estimation of spinning binary inspirals using Markov-chain Monte Carlo**
27. K. Belczynski, R.E. Taam, E. Rantsiou and M.V. van der Sluys 2008, ApJ 682, 474: **Black-hole spin evolution: implications for short hard gamma-ray bursts and gravitational-wave detection**
28. M.V. van der Sluys, F. Verbunt and O.R. Pols 2006, A&A 460, 209: **Modelling the formation of double white dwarfs**
29. J. in 't Zand, A. Cumming, M. van der Sluys, F. Verbunt and O. Pols 2005, A&A 441, 675: **On the possibility of a helium white dwarf donor in the presumed ultracompact binary 2S 0918-549**
30. M.V. van der Sluys, F. Verbunt and O.R. Pols 2005, A&A 440, 973: **Reduced magnetic braking and the magnetic capture model for the formation of ultra-compact binaries**
31. M.V. van der Sluys, F. Verbunt and O.R. Pols 2005, A&A 431, 647: **Creating ultra-compact binaries in globular clusters through stable mass transfer**

32. S.-C. Yoon, N. Langer, and M. van der Sluys 2004, A&A 425, 207: **On the stability of thermonuclear shell sources in stars**
33. M.V. van der Sluys and H.J.G.L.M. Lamers 2003, A&A 398, 181: **The dynamics of the nebula M1-67 around the run-away Wolf-Rayet star WR 124**

13.2. Refereed LIGO-Virgo Collaboration (LVC) publications

34. The LIGO Scientific Collaboration, et al. 2024, arXiv, arXiv:2403.03004: **Ultralight vector dark matter search using data from the KAGRA O3GK run**
35. The LIGO Scientific Collaboration, et al. 2023, arXiv:2308.03822: **Search for Eccentric Black Hole Coalescences during the Third Observing Run of LIGO and Virgo**
36. Abbott, R., et al. 2023, ApJS, 267, 29: **Open Data from the Third Observing Run of LIGO, Virgo, KAGRA, and GEO**
37. Acernese, F., et al. 2023, PhRvL, 131, 041403: **Frequency-Dependent Squeezed Vacuum Source for the Advanced Virgo Gravitational-Wave Detector**
38. Acernese, F., et al. 2023, JPhCS, 2429, 012039: **The Advanced Virgo+ status**
39. Acernese, F., et al. 2023, JPhCS, 2429, 012040: **Advanced Virgo Plus: Future Perspectives**
40. Abbott, B. P., et al. 2016, PhRvX, 6, 041014: **Improved Analysis of GW150914 Using a Fully Spin-Precessing Waveform Model**
41. Abbott, B. P., et al. 2016, PhRvL, 116, 241102: **Properties of the Binary Black Hole Merger GW150914**
42. Aasi, J., et al. 2016, PhRvD, 93, 042007: **First low frequency all-sky search for continuous gravitational wave signals**
43. Aasi, J., et al. 2016, PhRvD, 93, 042006: **Search of the Orion spur for continuous gravitational waves using a loosely coherent algorithm on data from LIGO interferometers**
44. Abbott, B. P., et al. 2016, PhRvD, 93, 042005: **All-sky search for long-duration gravitational wave transients with initial LIGO**
45. Abbott, B. P., et al. 2016, LRR, 19, 1: **Prospects for Observing and Localizing Gravitational-Wave Transients with Advanced LIGO and Advanced Virgo**
46. Aasi, J., et al. 2015, ApJ, 813, 39: **Searches for Continuous Gravitational Waves from Nine Young Supernova Remnants**
47. Aasi, J., et al. 2015, CQGra, 32, 115012: **Characterization of the LIGO detectors during their sixth science run**
48. Acernese, F., et al. 2015, JPhCS, 610, 012014: **The Advanced Virgo detector**
49. Accadia, T., et al. 2015, ppyc.conf, 261: **Advanced Virgo Interferometer: a Second Generation Detector for Gravitational Waves Observation**
50. Aasi, J., et al. 2015, PhRvD, 91, 062008: **Directed search for gravitational waves from Scorpius X-1 with initial LIGO data**
51. Aasi, J., et al. 2015, PhRvD, 91, 022004: **Narrow-band search of continuous gravitational-wave signals from Crab and Vela pulsars in Virgo VSR4 data**
52. Aasi, J., et al. 2015, PhRvD, 91, 022003: **Searching for stochastic gravitational waves using data from the two colocated LIGO Hanford detectors**
53. Acernese, F., et al. 2015, CQGra, 32, 024001: **Advanced Virgo: a second-generation interferometric gravitational wave detector**
54. Aasi, J., et al. 2014, PhRvL, 113, 231101: **Improved Upper Limits on the Stochastic Gravitational-Wave Background from 2009-2010 LIGO and Virgo Data**
55. Aartsen, M. G., et al. 2014, PhRvD, 90, 102002: **Multimessenger search for sources of gravitational waves and high-energy neutrinos: Initial results for LIGO-Virgo and IceCube**
56. Aasi, J., et al. 2014, PhRvD, 90, 062010: **First all-sky search for continuous gravitational waves from unknown sources in binary systems**

57. Accadia, T., et al. 2014, CQGra, 31, 165013: **Reconstruction of the gravitational wave signal h(t) during the Virgo science runs and independent validation with a photon calibrator**
58. Aasi, J., et al. 2014, PhRvL, 113, 011102: **Search for Gravitational Waves Associated with γ-ray Bursts Detected by the Interplanetary Network**
59. Aasi, J., et al. 2014, PhRvD, 89, 122004: **Methods and results of a search for gravitational waves associated with gamma-ray bursts using the GEO 600, LIGO, and Virgo detectors**
60. Aasi, J., et al. 2014, PhRvD, 89, 122003: **Search for gravitational radiation from intermediate mass black hole binaries in data from the second LIGO-Virgo joint science run**
61. Aasi, J., et al. 2014, CQGra, 31, 115004: **The NINJA-2 project: detecting and characterizing gravitational waveforms modelled using numerical binary black hole simulations**
62. Aasi, J., et al. 2014, PhRvD, 89, 102006: **Search for gravitational wave ringdowns from perturbed intermediate mass black holes in LIGO-Virgo data from 2005-2010**
63. Aasi, J., et al. 2014, PhRvL, 112, 131101: **Constraints on Cosmic Strings from the LIGO-Virgo Gravitational-Wave Detectors**
64. Aasi, J., et al. 2014, CQGra, 31, 085014: **Application of a Hough search for continuous gravitational waves on data from the fifth LIGO science run**
65. Aasi, J., et al. 2014, ApJ, 785, 119: **Gravitational Waves from Known Pulsars: Results from the Initial Detector Era**
66. Aasi, J., et al. 2014, ApJS, 211, 7: **First Searches for Optical Counterparts to Gravitational-wave Candidate Events**
67. Aasi, J., et al. 2013, PhRvD, 88, 102002: **Directed search for continuous gravitational waves from the Galactic center**
68. Aasi, J., et al. 2013, NaPho, 7, 613: **Enhanced sensitivity of the LIGO gravitational wave detector by using squeezed states of light**
69. Abadie, J., et al. 2012, ApJ, 755, 2: **Implications for the Origin of GRB 051103 from LIGO Observations**
70. Abadie, J., et al. 2011, PhRvL, 107, 261102: **Directional Limits on Persistent Gravitational Waves Using LIGO S5 Science Data**
71. Abadie, J., et al. 2011, ApJ, 737, 93: **Beating the Spin-down Limit on Gravitational Wave Emission from the Vela Pulsar**
72. Abadie, J., et al. 2011, PhRvD, 83, 042001: **Search for gravitational waves associated with the August 2006 timing glitch of the Vela pulsar**
73. Abadie, J., et al. 2011, PhRvD, 83, 122005: **Search for gravitational waves from binary black hole inspiral, merger, and ringdown**
74. Abadie, J., et al. 2011, ApJ, 734, L35: **Search for Gravitational Wave Bursts from Six Magnetars**
75. Abadie, J., et al. 2011, PhRvD, 83, 042001: **Search for gravitational waves associated with the August 2006 timing glitch of the Vela pulsar**
76. Abadie, J., et al. 2010, NIMPA, 624, 223: **Calibration of the LIGO gravitational wave detectors in the fifth science run**
77. Abadie, J., et al. 2010, PhRvD, 82, 102001: **Search for gravitational waves from compact binary coalescence in LIGO and Virgo data from S5 and VSR1**
78. Abadie, J., et al. 2010, ApJ, 722, 1504: **First Search for Gravitational Waves from the Youngest Known Neutron Star**
79. Abadie, J., et al. 2010, CQGra, 27, 173001: **TOPICAL REVIEW: Predictions for the rates of compact binary coalescences observable by ground-based gravitational-wave detectors**
80. Abadie, J., et al. 2010, ApJ, 715, 1453: **Search for Gravitational-wave Inspiral Signals Associated with Short Gamma-ray Bursts During LIGO's Fifth and Virgo's First Science Run**
81. Abbott, B. P., et al. 2010, ApJ, 715, 1438: **Search For Gravitational-wave Bursts Associated with Gamma-ray Bursts using Data from LIGO Science Run 5 and Virgo Science Run 1**

82. Abadie, J., et al. 2010, PhRvD, 81, 102001: **All-sky search for gravitational-wave bursts in the first joint LIGO-GEO-Virgo run**
83. Abbott, B. P., et al. 2010, ApJ, 713, 671: **Searches for Gravitational Waves from Known Pulsars with Science Run 5 LIGO Data**
84. Abbott, B. P., et al. 2009, PhRvD, 80, 102002: **Search for high frequency gravitational-wave bursts in the first calendar year of LIGO's fifth science run**
85. Abbott, B. P., et al. 2009, PhRvD, 80, 102001: **Search for gravitational-wave bursts in the first year of the fifth LIGO science run**
86. Abbott, B. P., et al. 2009, PhRvD, 80, 062002: **First LIGO search for gravitational wave bursts from cosmic (super)strings**
87. Abbott, B. P., et al. 2009, PhRvD, 80, 062001: **Search for gravitational wave ringdowns from perturbed black holes in LIGO S4 data**
88. Abbott, B. P., et al. 2009, PhRvD, 80, 047101: **Search for gravitational waves from low mass compact binary coalescence in 186 days of LIGO's fifth science run**
89. Abbott, B. P., et al. 2009, PhRvD, 80, 042003: **Einstein@Home search for periodic gravitational waves in early S5 LIGO data**
90. Abbott, B. P., et al. 2009, Natur, 460, 990: **An upper limit on the stochastic gravitational-wave background of cosmological origin**
91. Abbott, B. P., et al. 2009, ApJ, 701, L68: **Stacked Search for Gravitational Waves from the 2006 SGR 1900+14 Storm**
92. Abbott, B. P., et al. 2009, RPPh, 72, 076901: **LIGO: the Laser Interferometer Gravitational-wave Observatory**
93. Abbott, B., et al. 2009, NJPh, 11, 073032: **Observation of a kilogram-scale oscillator near its quantum ground state**
94. Abbott, B. P., et al. 2009, PhRvD, 79, 122001: **Search for gravitational waves from low mass binary coalescences in the first year of LIGO's S5 data**
95. Abbott, B. P., et al. 2009, PhRvL, 102, 111102: **All-Sky LIGO Search for Periodic Gravitational Waves in the Early Fifth-Science-Run Data**
96. Abbott, B., et al. 2009, PhRvD, 79, 022001: **Einstein@Home search for periodic gravitational waves in LIGO S4 data**
97. Abbott, B., et al. 2008, CQGra, 25, 245008: **First joint search for gravitational-wave bursts in LIGO and GEO 600 data**
98. Abbott, B., et al. 2008, PhRvL, 101, 211102: **Search for Gravitational-wave Bursts from Soft Gamma Repeaters**
99. Abbott, B., et al. 2008, ApJ, 683, L45: **Beating the Spin-Down Limit on Gravitational Wave Emission from the Crab Pulsar**
100. Abbott, B., et al. 2008, CQGra, 25, 114051: **Astrophysically triggered searches for gravitational waves: status and prospects**

14. Non-refereed publications

1. Aasi, J., et al. 2017, yCat, J/ApJ/785/119: **VizieR Online Data Catalog: Gravitational waves from known pulsars (Aasi+, 2014)**
2. van der Sluys, M. 2011, ASPC, 447, 317: **Gravitational Waves from Compact Binaries**
3. Woods, T. E., Ivanova, N., van der Sluys, M., & Chaichenets, S. 2011, ASPC, 447, 127: **On The Formation of Double White Dwarfs: Reevaluating How We Parametrise the Common Envelope Phase**
4. Woods, T. E., Ivanova, N., van der Sluys, M., & Chaichenets, S. 2010, AIPC, 1314, 24: **The Formation of Low-Mass Double White Dwarfs through an Initial Phase of Stable Non-Conservative Mass Transfer**

5. van der Sluys, M., Politano, M., & Taam, R. E. 2010, AIPC, 1314, 13: **Masses and Envelope Binding Energies of Primary Stars at the Onset of a Common Envelope**
6. The LIGO Scientific Collaboration, et al. 2010, arXiv:1003.2481: **Sensitivity to Gravitational Waves from Compact Binary Coalescences Achieved during LIGO's Fifth and Virgo's First Science Run**
7. Nelemans, G., et al. 2009, astro, 2010, 221: **The astrophysics of ultra-compact binaries**
8. Michael Politano, R.E. Taam, M. van der Sluys and B. Willems, 2009, AAS 21343215: **Mergers During Common Envelope Evolution Involving a Giant Star and a Stellar or Substellar Companion**
9. M.V. van der Sluys, C. Röver, A. Stroeer, N. Christensen, V. Kalogera, R. Meyer, A. Vecchio and I. Mandel 2008, APS APRB10004: **Bayesian inference on spinning compact-binary inspirals with ground-based gravitational-wave laser interferometers**
10. M.V. van der Sluys, A. Stroeer, A. Vecchio and V. Kalogera 2006 AAS 209.7416: **Bayesian Inference and Observations of Massive Black-hole Binaries with LISA**
11. M.V. van der Sluys, F. Verbunt and O.R. Pols 2005, AIPC 797, 627, in *Interacting binaries: accretion, evolution, and outcomes:* **Creating ultra-compact binaries through stable mass transfer**

15. Books

1. Marc van der Sluys and Frank Verbunt: **Computing celestial phenomena with Python**, Radboud University press, 2025, in preparation.[3]
2. Frank Verbunt and Marc van der Sluys: **Het leven van sterren** (the life of stars), Epsilon press, 2024, 3rd edition, in preparation.

16. Online publications

These "living documents", lecture notes, tutorials, technical documents, et cetera *can be found through pub.vandersluys.nl. Online documents are easily updated, hence "living". The date of the most recent version is listed. Where applicable, I indicate whether the document was (originally) written or used for Utrecht University (UU), the HAN University of applied sciences (HAN) or the Radboud University (RU).*

1. MvdS 2023-12: **Binary evolution in a nutshell** (RU MSc tutorial/cheat sheet)
2. MvdS 2023-09: **Getting started with Bash, Emacs, Python and Git** (UU MSc tutorial)
3. MvdS 2023-09: **Efficient use of the Linux command line in the Bash shell** (HAN BSc tutorial)
4. MvdS 2023-09: **Getting started with Emacs** (HAN BSc tutorial)
5. MvdS 2023-07: **Celestial mechanics in a nutshell** (technical document)
6. MvdS 2021-08: **Sunlight and solar energy** (HAN MSc lecture notes)
7. MvdS 2021-07: **Writing a short scientific paper: LaTeX template and instructions** (HAN MSc tutorial)
8. MvdS 2021-02: **Installing Arch Linux ARM on a Raspberry Pi** (HAN BSc tutorial)
9. MvdS 2020-11: **Operating systems and Linux system programming** (HAN BSc lecture notes)
10. MvdS 2020-10: **Solar-concentration optics** (HAN technical note)
11. MvdS 2020-10: **Insolation in the Netherlands** (HAN technical fact sheet)
12. MvdS, PvK 2020-08: **Code development with Python** (HAN MSc tutorial)
13. PvK, MvdS 2020-07: **Modelling the COP of heat pumps as a function of temperature** (HAN technical paper)
14. MvdS 2019-04: **A brief C tutorial, with code examples** (HAN BSc tutorial)
15. MvdS 2016-09: **Errata NEN 5060 Hygrothermische eigenschappen van gebouwen – Referentieklimaatgegevens** (HAN technical report: errata on Dutch insolation norm)
16. MvdS 2015-11: **Availability of wind in the Netherlands** (HAN technical fact sheet)

[3] A sneak preview can be found on https://astro.ru.nl/~sluys/Stuff/CCP-book/ComputingCelestialPhenomena.pdf

17. MvdS 2000-10: **Bepaling van de rotatiesnelheid van de Zon** (measuring the rotational velocity of the Sun in the context of a high-school physics exam)

17. Authored scientific software packages

Most of my free and open-source software (FOSS) has been released under the EUPL or (L)GPL licence as source code and/or packages and can be found on the following websites:

GitHub	github.com/MarcvdSluys	Source code
Sourceforge	sourceforge.net/u/marcvdsluys	Source code and packages
PyPI	pypi.org/user/MarcvdSluys	Python packages

The following list gives a selection of my most relevant, science-related software packages. See software.vandersluys.nl *for more open-source projects. As of December 2023, my packages have been downloaded more than* **230.000 times**.

1. libSUFR: a **lib**rary containing **S**ome **U**seful **F**ortran **R**outines, GPL, libsufr.sf.net (2002–2024).
2. libTheSky: a **lib**rary to compute the positions of bodies in **The Sky** (Moon, planets, stars) and events (conjunctions, eclipses), GPL, libthesky.sf.net; core of the code that generates the popular-astronomy website hemel.waarnemen.com (2002–2023).
3. sluyspy: all the useful Python functions I should have found elsewhere but didn't, EUPL, pypi.org/project/sluyspy (2022–2024).
4. SolTrack: free, fast and accurate C/C++, Python and Arduino routines to compute the position of the Sun, EUPL/(L)GPL, soltrack.sf.net, pypi.org/project/soltrack (2014–2024).
5. SolarEnergy: a Python package to do simple modelling in the field of solar energy, EUPL, pypi.org/project/solarenergy (2020–2023).
6. AstroTool: a Python package for astronomical calculations, EUPL, pypi.org/project/astrotool (2021–2024).
7. AstroConst: a Python package that provides astronomical constants, EUPL, pypi.org/project/astrotool (2022–2024).
8. Meteoserver: a Python package to obtain and read Dutch weather data from Meteoserver.nl, GPL, pypi.org/project/meteoserver (2020–2023).
9. HistAstro: a Python package for historical-astronomy calculations of Sun, Moon and planets, GPL, pypi.org/project/histastro (2019–2023).
10. GWtool: simple command-line tools for working with gravitational waves, GPL, gwtool.sf.net (2007–2021).
11. RochePlot: schematically illustrate the key stages in the evolution of a binary star, several contributions, GPL, rocheplot.sf.net (2012–2021).
12. evTools: Fortran tools to reduce, analyse and present output from the binary stellar-evolution code ev, GPL, evtools.sf.net (2002–2024).
13. evTool: Python tools to reduce, analyse and present output from the binary stellar-evolution code ev, EUPL, evtools.sf.net (2023).
14. PG2PLplot: aids the transition from Fortran code linked against PGPlot to linking it against PLplot, GPL, pg2plplot.sf.net (2013–2024).
15. ELP-MPP02: accurate Moon positions using the lunar solution ELP/MPP02 in Python, GPL, pypi.org/project/elp-mpp02 (2019–2023).
16. ev: also known as STARS, TWIN, or "The Eggleton code": a detailed binary-stellar evolution code by Peter Eggleton; several contributions to the "Utrecht branch" of this code, stars.vandersluys.nl (2005–2023).
17. AstroTools: assorted command-line tools for astronomy and astrophysics, written in Fortran, GPL, astrotools.sf.net (2002–2022).
18. PG2PLplot: aids the transition from Fortran code linked against PGPlot to linking it against PLplot, GPL, pg2plplot.sf.net (2013–2022).

19. AnalyseMCMC: analyses and presents output from the MCMC codes SPINspiral and LALInference_mcmc, GPL, analysemcmc.sf.net (2006–2022).
20. SPINspiral: a PT-MCMC parameter-estimation code to analyse gravitational-wave binary-inspiral signals detected with LIGO/Virgo, including spin effects, GPL, spinspiral.sf.net (2006–2022).
21. RTschedule: a real-time-schedule generator to create and present simple and idealised RT schedules from task lists, GPL, rtschedule.sf.net (2016–2021).
22. LALInference_mcmc: parameter-estimation code using LAL to analyse GW binary-inspiral signals detected with LIGO/Virgo, several contributions, GPL, tiny.cc/lal (2010–2015).

18. Contributions to conferences and workshops

1. April 15, 2013, *Third Bonn workshop on formation and evolution of neutron stars*, Bonn, Germany. Talk: **Measuring neutron-star properties with LIGO and Virgo**
2. August 16, 2012, *EuroWD12*, Krakow, Poland. Talk: **The formation of double white dwarfs**
3. June 25, 2012, *Virgo week 2012*, Pisa, Italy. Talk: **Using astrophysical knowledge in gravitational-wave data analysis of binary inspirals**
4. April 12, 2011, *NOVA Network-3 meeting*, Leiden, The Netherlands. Talk: **Using astrophysical knowledge in gravitational-wave data analysis of binary inspirals**
5. March 11, 2011, *The evolution of compact binaries*, Viña del Mar, Chile. Talk: **Using astrophysical knowledge in gravitational-wave data analysis of binary inspirals**
6. March 9, 2011, *The evolution of compact binaries*, Viña del Mar, Chile. Invited review: **Gravitational waves from compact binaries**
7. January 28, 2011, *GWPAW-15*, Milwaukee, WI, U.S.A. Talk: **Using astrophysical knowledge in gravitational-wave data analysis of binary inspirals**
8. November 5, 2010, *Dutch Physics Society (NVV)*, Lunteren, The Netherlands. Talk: **Using astrophysical knowledge in gravitational-wave data analysis**
9. June 22, 2010, *Binary star evolution: mass loss, accretion and mergers*, Mykonos, Greece. Talk: **Population synthesis of common-envelope mergers on the giant branches**
10. September 29, 2009, *Stellar Mergers workshop*, Leiden, the Netherlands. Talk: **The formation of single sdB stars through common-envelope mergers / Observing BH/NS mergers with LIGO/Virgo**
11. June 4, 2009, *LSC-Virgo meeting*, Orsay, France. Talk (on behalf of the CBC group): **Bayesian inference in the CBC follow-up pipeline**
12. March 17, 2009, *Wild Stars in the Old West II*, Tucson, Az, USA. Talk: **Magnetic capture and the CV formation channel for AM CVn stars**
13. January 19–22, 2009, *GWDAW-13*, San Juan, Puerto Rico. Poster: **Gravitational-wave astronomy using Markov-chain Monte-Carlo parameter estimation for compact binary inspirals with spinning objects**
14. September 20–25, 2008, *LSC-Virgo meeting*, Amsterdam, The Netherlands. Talk: **Dependence of sky-position degeneracies on the detector network and black-hole spin**
15. September 1–5, 2008, *2nd International Workshop on AM CVn stars*, Cape Town, S.A. Talk: **Formation of double white dwarfs and AM CVn stars**
16. June 10, 2008, *LIGO-Virgo meeting*, Orsay, France. Talk: **The effect of spin on the accuracy of parameter estimation of binary black-hole inspirals**
17. April 12, 2008, *American Physical Society Meeting*, St. Louis, Mo, USA. Talk: **Parameter estimation of spinning binary black-hole inspirals using MCMC**
18. March 15–20, 2008, *CBC F2F, LIGO-Virgo meeting, Caltech*, Pasadena, Ca, USA. Talk: **Parameter estimation of spinning binary black-hole inspirals using MCMC on LIGO data**
19. December 13–16, 2007, *GWDAW 12, MIT, Boston*, Boston, Ma, USA. Poster: **Parameter estimation of spinning binary inspirals using MCMC**

20. October 20–25, 2007, *CBC F2F, LIGO-Virgo meeting*, Hannover, Germany. Talk: **Bayesian follow-up in the CBC pipeline**
21. August 29 – 31, 2005: Workshop: *Modest 6*, Evanston, Il, USA. Poster: **Creating ultra-compact X-ray binaries in globular clusters**
22. July 4 – 8, 2005 *Workshop on AM CVn Stars*, Nijmegen, The Netherlands. Talk: **Modelling the evolution of double white-dwarf systems**
23. December 15 – 17, 2004: Workshop: *Modest 5a*, Edinborough, Scotland. Talk: **Creating ultra-compact binaries in globular clusters through stable mass transfer**
24. July 4 – 10, 2004: Conference: *Interacting binaries*, Cefalù, Sicily, Italy. Poster: **Creating ultra-compact binaries through stable mass transfer**

19. Selected talks for colloquia, seminars and group meetings

1. March 19, 2024, Monash University, Melbourne Australia, Astrophysics seminar: **The formation of (double-lined) double white dwarfs and other GW sources**
2. March 21, 2012, Centro de Astrofisica, Universidad de Valparaíso, Chile, Astrophysics colloquium: **Compact binaries and gravitational waves**
3. March 20, 2012, ESO Vitacura office, Santiago, Chile, Astrophysics colloquium: **Compact binaries and gravitational waves**
4. May 12, 2010, Astronomical Institute/SRON, Utrecht University, Astrophysics Colloquium: **Gravitational-wave astronomy with LIGO and Virgo**
5. May 11, 2010, Astron, Dwingeloo, the Netherlands, Colloquium: **Population synthesis of common-envelope mergers on the giant branches**
6. May 4, 2010, Max Planck Institute for Astrophysics, Garching, Germany, Astrophysics seminar: **Population synthesis of common-envelope mergers on the giant branches**
7. May 3, 2010, Innsbruck University, Astrophysics colloquium: **Gravitational-wave astronomy with LIGO and Virgo**
8. April 29, 2010, Leiden Observatory, Leiden University, Astrophysics colloquium: **Gravitational-wave astronomy with LIGO and Virgo**
9. April 27, 2010, Department of astrophysics, Radboud Universiteit Nijmegen, Astrophysics seminar: **Gravitational-wave astronomy with LIGO and Virgo**
10. March 11, 2010, Canadian Institute for Theoretical Astrophysics, University of Toronto, CITA seminar: **Gravitational-wave astronomy with LIGO and Virgo**
11. March 3, 2010, Department of physics & astronomy, McMaster University, astrophysics seminar: **Population synthesis of common-envelope mergers on the giant branches**
12. January 11, 2010, Department of physics & astronomy, University of British Columbia, astrophysics colloquium: **Population synthesis of common-envelope mergers on the giant branches / Gravitational-wave astronomy with LIGO and Virgo**
13. March 27, 2008, Center for gravitational-wave physics, Penn State University, seminar: **Parameter estimation of spinning binary black-hole inspirals using MCMC**
14. October 19, 2007, University of Birmingham, Gravity group meeting: **The formation of ultra-compact binaries in globular clusters**
15. October 4, 2007, Northwestern University, Theoretical astrophysics group meeting: **Parameter estimation of spinning binary black-hole inspirals using MCMC**
16. October 19, 2006, Northwestern University, Theoretical astrophysics group meeting: **How the Giant lost its mantle and became a Dwarf**
17. October 7, 2004, Student Seminar, Utrecht University: **How not to create ultra-compact binaries in globular clusters**
18. December 4, 2003, Student Seminar, Utrecht University: **No double white dwarfs from stable mass transfer**

19. December 17, 2002, Astrophysical Seminar, University of Innsbruck: **Backward evolutionary calculations to explain double white dwarf systems**
20. March 27, 2002, Colloquium, University of Innsbruck: **The dynamics of the nebula M1-67 around the run-away Wolf-Rayet star WR 124**
21. August 27, 2001, Graduation Talk, Utrecht University: **A bowshock model for the run-away Wolf-Rayet star WR 124**

20. Editor of conference proceedings

1. **International conference on binaries**, in celebration of Ron Webbink's 65th birthday, Mykonos, Greece, 22–25 June 2010. Editors: Vicky Kalogera and Marc van der Sluys. Melville, New York, 2010, AIP Conference Proceedings 1314.

21. Editor, columns, letters and Wikipedia

1. **Sonnenborgh Berichten**, newsletter of Sonnenborgh public observatory in Utrecht: chief editor and column (1995–1997).
2. **Sterrenwachtpost**, newsletter of Sonnenborgh public observatory in Utrecht: chief editor and column (1998–2001).
3. **Vrijbrief**, newsletter of the Dutch Linux user group (NLLGG): columns (2021–2022).
4. **Volkskrant**, Dutch national newspaper: six of my 91 letters to the editor since 2011 were published (though in some cases (a) similar letter(s) was/were published instead).
5. **Wikipedia edits**: 461 (Dutch, English, German; varying from typos to new pages).

22. Popular talks and public lectures since 2009

I have given about **160 public lectures** *in total, many of them at public observatories (*e.g. *Sonnenborgh observatory in Utrecht, Radboud University observatory in Nijmegen), museums (*e.g. *the Adler museum in Chicago and ESTEC's Space expo in Noordwijk), clubs (*e.g. *students, rotary) and schools. I started keeping track of them in 2009, but could recover many earlier ones from old calendars. See* `hemel.waarnemen.com/lectures` *for a more complete list of my public lectures.*

1. 3 April 2024, IMC Weekendschool, Amersfoort:
   How can you 'hear' black holes? (children)
2. 15 February 2024, Sonnenborgh – museum & observatory, Utrecht:
   Course: The Sun and the solar spectrum
3. 11 October 2023, Sonnenborgh – museum & observatory, Utrecht:
   Course: The Sun and the solar spectrum
4. 20 April 2023, Sonnenborgh – museum & observatory, Utrecht:
   Course: Stars and stellar evolution
5. 30 March 2023, Sonnenborgh – museum & observatory, Utrecht:
   Course: The Sun and solar spectrum
6. 27 January 2023, Public observing night, Radboud University Nijmegen:
   Comet C/2022 E3 (ZTF)
7. 16 October 2022, Sonnenborgh – museum & observatory, Utrecht:
   MuseumYouthUniversity: How can you 'hear' black holes? (children)
8. 13 October 2022, Sonnenborgh – museum & observatory, Utrecht:
   Course: The Sun and solar spectrum
9. 1 April 2022, Public observing night, Radboud University Nijmegen:
   The night sky this summer
10. 16 March 2022, Sonnenborgh – museum & observatory, Utrecht:
    Course: The Sun and solar spectrum
11. 4 March 2022, Public observing night, Radboud University Nijmegen:
    The night sky in March

12. 4 February 2022, Public observing night, Radboud University Nijmegen:
    The night sky in February
13. 14 October 2021, Sonnenborgh – museum & observatory, Utrecht:
    Course: The Sun and solar spectrum
14. 24 September 2021, Public observing night, Radboud University Nijmegen:
    The night sky in October
15. 26 March 2021, Public observing night, Radboud University Nijmegen:
    The night sky this summer
16. 26 February 2021, Public observing night, Radboud University Nijmegen:
    The night sky in March
17. 29 January 2021, Public observing night, Radboud University Nijmegen:
    The night sky in February
18. 12 February 2020, Sonnenborgh – museum & observatory, Utrecht:
    Course: The Sun and solar spectrum
19. 17 October 2019, Sonnenborgh – museum & observatory, Utrecht:
    Course: The Sun and solar spectrum
20. 5 October 2019, Space expo Noordwijk, Science week 2019:
    Lecture: We are made of stardust!
21. 13 February 2019, Sonnenborgh – museum & observatory, Utrecht:
    Course: The Sun and solar spectrum
22. 11 November 2018, InScience Film Festival 2018, Nijmegen:
    Short lecture: Cielo, and our connection to the cosmos
23. 18 October 2018, Sonnenborgh – museum & observatory, Utrecht:
    Course: The Sun and solar spectrum
24. 22 April 2018, Sonnenborgh – museum & observatory, Utrecht:
    MuseumYouthUniversity: How can you 'hear' black holes? (children)
25. 22 February 2018, Sonnenborgh – museum & observatory, Utrecht:
    Course: The Sun and solar spectrum
26. 11 October 2017, Sonnenborgh – museum & observatory, Utrecht:
    Course: The Sun and solar spectrum
27. 16 February 2017, Sonnenborgh – museum & observatory, Utrecht:
    Course: The Sun and solar spectrum
28. 12 October 2016, Sonnenborgh – museum & observatory, Utrecht:
    Course: The Sun and solar spectrum
29. 31 March 2016, HAN University of Applied Sciences, Arnhem:
    Lunch lecture: GW 150914: the first detection of gravitational waves
30. 1 March 2016, HAN University of Applied Sciences, Arnhem:
    Lunch lecture: GW 150914: the first detection of gravitational waves
31. 18 February 2016, Sonnenborgh – museum & observatory, Utrecht:
    Course: The Sun and solar spectrum
32. 18 February 2016, Sonnenborgh – museum & observatory, Utrecht:
    Short lecture: GW 150914: the first detection of gravitational waves
33. 15 October 2015, Sonnenborgh – museum & observatory, Utrecht:
    Course: The Sun and solar spectrum
34. 15 March 2015, IMC Weekend school, Nijmegen:
    Guest lecture: The Sun and sunlight (children)
35. 18 February 2015, Sonnenborgh – museum & observatory, Utrecht:
    Course: The Sun and solar spectrum

36. 11 January 2015, Sonnenborgh – museum & observatory, Utrecht:
    Minicourse Astronomy
37. 28 November 2014, Public observing night, Radboud University Nijmegen:
    Lecture: Stars, galaxies and gravitational waves
38. 28 November 2014, Public observing night, Radboud University Nijmegen:
    Lecture: We are made of stardust!
39. 28 October 2014, Public observatory, Amsterdam:
    Lecture: Compact binaries and gravitational waves in our universe
40. 9 October 2014, Sonnenborgh – museum & observatory, Utrecht:
    Course: The Sun and solar spectrum
41. 13 March 2014, Sonnenborgh – museum & observatory, Utrecht:
    Course: The Sun and solar spectrum
42. 16 October 2013, Sonnenborgh – museum & observatory, Utrecht:
    Course: The Sun and solar spectrum
43. 5 October 2013, Flemish Astronomers Club, Blankenberge, Belgium:
    Lecture: Compact binaries and gravitational waves in our universe
44. 22 March 2013, Public observing night, Radboud University Nijmegen:
    Lecture: Stars, galaxies and gravitational waves
45. 22 March 2013, Public observing night, Radboud University Nijmegen:
    Lecture: We are made of stardust!
46. 26 October 2012, Public observing night, Radboud University Nijmegen:
    Lecture: Stars, galaxies and gravitational waves
47. 18 October 2012, Thales, Zwolle:
    Lecture: Compact binaries and gravitational waves in our universe
48. 10 October 2012, Sonnenborgh – museum & observatory, Utrecht:
    Course: The Sun and solar spectrum
49. 21 May 2012, Astra Alteria, Putten:
    Lecture: Compact binaries and gravitational waves in our universe
50. 28 April 2012, Halley Observatory, Heesch:
    Lecture: Compact binaries
51. 30 March 2012, Public observing night, Radboud University Nijmegen:
    Lecture: The Sun
52. 16 February 2012, Sonnenborgh – museum & observatory, Utrecht:
    Course: The Sun and solar spectrum
53. 27 January 2012, Public observing night, Radboud University Nijmegen:
    Lecture: We are made of stardust!
54. 12 October 2011, Sonnenborgh – museum & observatory, Utrecht:
    Course: The Sun and solar spectrum
55. 15 June 2011, Dutch Astronomy Olympiad, Radboud University Nijmegen:
    Lecture: Supernovae and supernova remnants
56. 8 April 2011, Students association Marie Curie, Radboud University Nijmegen:
    Lecture: Compact binaries, explosions and gravitational waves in our universe
57. 12 October 2010 Wessel Knoops, Arnhem:
    Lecture: Compact binaries and gravitational waves in our universe
58. 25 July 2009 Adler planetarium, Chicago:
    Lecture: Gravitational waves with LIGO and Virgo
59. 16 July 2009 Adler planetarium, Chicago:
    Lecture: Gravitational waves with LIGO and Virgo

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