

Curriculum Vitæ – HW Broer

August 28, 2018

1 Personal

Private data

Hendrik Wolter Broer
Date of birth 18 February 1950
Married to Dr Trijntje Roggen
(parents of four children)

Johann Bernoulli Institute for Mathematics and Computer Science
University of Groningen
PO Box 407
9700 AK Groningen
The Netherlands

Bernoulliborg (room 478)
Nijenborgh 9
9747 AG Groningen
The Netherlands

Phone: +31 50 363 3959
+31 50 363 3950 (secr.)
Fax: +31 50 363 3800
E-mail: h.w.broer@rug.nl
broerhw@gmail.com
URL: <http://www.math.rug.nl/~broer>

Education at the University of Groningen

Ph.D. 1979 Mathematics and Natural Sciences
M.Sc. 1974 Mathematics
B.Sc. 1971 Mathematics, Physics and Astronomy

Academic position

Professor emeritus of *Dynamical Systems*, University of Groningen
Member *Royal Netherlands Academy of Arts and Sciences* (KNAW)

Membership professional Societies

Koninklijk Wiskundig Genootschap (KWG)
American Mathematical Society (AMS)

2 Professional service and management

Groningen University

Chairman *Johann Bernoulli Foundation for Mathematics*
(organizes annual JB Lectures for a general audience)

Editorial boards

Editor *Discrete and Continuous Dynamical Systems* – Series S

Past services

- Scientific director *Johann Bernoulli Institute (JBI) for Mathematics and Computer Science* 2009-14
Director *School of Mathematics and Computing Science*
(opleidingsdirecteur *Wiskunde & Informatica*) 1997-2002
Managing director NWO-cluster *Nonlinear Dynamics of Natural Systems (NDNS+)* 2005-11
- Editor in Chief *Indagationes Mathematicæ* 2008-18
Editor *Epsilon-Uitgaven*, Utrecht / Amsterdam 1990-2012
Division editor *Journal of Mathematical Analysis and Applications*
(division *Ordinary Differential Equations & Dynamical Systems*) 2005-09
- Chairman Section Mathematics KNAW 2015-2017
Chairman (and vice chairman) *Koninklijk Wiskundig Genootschap (KWG)* 2006-11 (co-initiator of the *Platform Wiskunde Nederland (PWN)*)
Chairman Board National *Mathematics Research Institute (MRI)* (2005-10)
Chairman Chamber of Mathematics *VSNU* 2001-06
(one major achievement was foundation (in company) of the nationwide master education in mathematics, named *Mastermath*)
- Scientific Secretary FOM Programme *Mathematical Physics* 2003-07
- Head of Group *Dynamical Systems & Mathematical Physics* 1996-2014

- Member Mathematics Board *Lorentz Center* Leiden University 2005-09
- Member OCW-committee (stuurgroep) *Natuur, Leven & Technologie* (NLT) 2005-08
- Member OCW-Vernieuwingscommissie Wiskunde *Commissie Toekomst Wiskundeonderwijs* (cTWO) (2005-13)
- Member Program Committee *Nationale Wiskundedagen* (NWD) (2000-16) (annual grand scale national meeting secondary school teachers)

Meetings organized

- Workshop *Dynamical Systems & Bifurcations* (with B.L.J. Braaksma and F. Takens) Groningen 1984
- Workshop *Geometry and Analysis in Nonlinear Dynamics* (with F. Takens) Groningen 1989
- Bernoulli Workshop *Dynamical Systems* (with I. Hoveijn, S.A. van Gils and F. Takens) Groningen 1995
- Workshop *Finite Dimensional Dynamical Systems* (with G. Vegter) Lorentz Center Leiden 1997
- Workshop *Global Analysis of Dynamical Systems* (with B. Krauskopf and G. Vegter) Lorentz Center Leiden 2001
- Large scale conference *Equadiff 2003* (with F. Dumortier, J. Mawhin, A. Vanderbauwhede and S.M. Verduyn Lunel) Hasselt 2003
- Workshop *Nonlinear Dynamics, Ergodic Theory and Renormalization* (with A.C.D. van Enter, M. Martens and F. Takens) Lorentz Center Leiden 2004
- Large scale conference *European Nonlinear Oscillator Conference 2005* (with D.H. van Campen, H. Nijmeijer and F. Verhulst) Eindhoven 2005
- Workshop *Mathematics of Life Sciences* (with A. Doelman, S.M. Verduyn Lunel and A. van der Vaart) Groningen 2005 (in NWO-cluster NDNS+)
- Workshop *Dynamics of Nonlinear Waves* (with A. Doelman, M. Haragus and Th. Gallay) Groningen 2006 (in NWO-cluster NDNS+)
- Workshop *Mathematics of Earth Sciences* (with H.A. Dijkstra, A. Doelman and H.E. de Swart) Groningen 2006 (in NWO-cluster NDNS+)

- Slotsymposium FOM/NWO programma *Mathematische Fysica* (with R.H. Dijkgraaf, N.P. Landsman and A.C.D. van Enter), Amsterdam 2007
- Workshop *The chaotic and ergodic Properties of 'real' Hamiltonian systems* (with Paul Tupper) workshop Centre de Recherche Mathématiques de Montréal CRM/ISM 2007
- Workshop *KAM Theory and its applications* (with H. Hanßmann and M.B. Sevryuk), Lorentz Center 2008 (in NWO-cluster NDNS+)
- Workshop *New Directions in Dynamical Systems* (with S.J. van Strien, H. Hanßmann, A.J. Homburg, G.B. Huitema and F. Takens), Lorentz Center 2009
- Workshop *Nonlinear Dynamics of Natural Systems* (with A. Doelman, A. van der Vaart, S.M. Verduyn Lunel; local organizers A. Muntean, M.A. Peletier), EURANDOM TU/e 2010 (in NWO-cluster NDNS+)
- Special Session *Complexity of Geometry and Analysis of Larger Scale Dynamical Systems* (with Carles Simó, Renato Vitolo and Gert Vegter): The 8th AIMS Conference on Dynamical Systems, Differential Equations and Applications, Dresden University of Technology 2010
- Workshop *Coherent Structures in Dynamical Systems* (with Francisco J. Beron-Vera, Mara J. Olascoaga and Thomas Peacock), Lorentz Center, May 2011
- Workshop *Extreme Events in chaotic systems with applications to the weather* (with Mark Holland, Alef Sterk and Pau Rabassa), Groningen University, May 2012
- Workshop *Resonance and Synchronization* (with Domien Beersma and Henk Nijmeijer), Lorentz Center, August 2012
- Workshop *Taking the Measure of One-Dimensional Dynamics* (with Henk Bruin, Robert Fokkink, Frank de Hollander, Ale Jan Homburg and Marco Martens), Lorentz Center, April 2016
- Workshop *Transformations in Statistical Mechanics: Pathologies and Remedies* (with Frank de Hollander, Frank Redig and Wiloetta Ruszel), Lorentz Center, October 2016
- *Symposium on advances in semi-classical methods in mathematics and physics* (Erik Bergshoeff and Daniel Roest - Van Swinderen Institute; Henk Broer and Holger Waalkens - Johann Bernoulli Institute), Van Swinderen Huys, October 2016

3 Research

PhD supervision and examination

PhD supervision

1. George B. Huitema, *Unfoldings of quasi-periodic tori*. University of Groningen, February 1988. Promotor: B.L.J. Braaksma, referent: H.W. Broer. (Funded by the Netherlands Organisation for Scientific Research NWO.)
2. Bernd Krauskopf, *On the 1:4 resonance problem*. University of Groningen, June 1995. Promotores: F. Takens and H.W. Broer.
3. Heinz Hanßmann, *Quasi-periodic motions of a rigid body, a case-study on perturbations of superintegrable systems*, University of Groningen, October 1995. Promotor: H.W. Broer, referent: R.H. Cushman.
4. Hinke M. Osinga, *Computing invariant manifolds, variations on the graph transform*. University of Groningen, June 1996. Promotor: H.W. Broer, co-promotor: G. Vegter. (Funded by the Netherlands Organisation for Scientific Research NWO.)
5. Florian O.O. Wagener, *On the skew Hopf–bifurcation*. University of Groningen, January 1998. Promotores: F. Takens and H.W. Broer. (Funded by the Netherlands Organisation for Scientific Research NWO.)
6. Gerton A. Lunter, *Bifurcations in Hamiltonian systems: Computing singularities by Gröbner bases*. University of Groningen, December 1999. Promotor: H.W. Broer, co-promotor: G. Vegter.
7. Hans H. de Jong, *Quasiperiodic breathers in systems of weakly coupled pendulums: Applications of KAM theory to classical and statistical mechanics*. University of Groningen, December 1999. First promotor: H.W. Broer, second promotor: M. Winnink, referent: A.C.D. van Enter. (Funded by the Netherlands Organisation for Scientific Research NWO (FOM).)
8. Evgeny Verbitskiy, *Generalized entropies in dynamical systems*. University of Groningen, October 2000. Promotores: F. Takens and H.W. Broer. (Funded by the Netherlands Organization for Scientific Research NWO.)
9. Martijn van Noort, *Global coherent dynamics of the parametrically forced pendulum: a case study in one-and-a-half degrees of freedom*. University of Groningen, May 2001. Promotor: H.W. Broer, co-promotor: G. Vegter. (Funded by the Netherlands Organisation for Scientific Research (NWO): Foundations FOM and SMC.)

10. Renato Vitolo, *Bifurcations of attractors in 3D diffeomorphisms: a study in experimental mathematics*. University of Groningen, October 2003. Promotor: H.W. Broer, co-promotores: C. Simó (University of Barcelona) and F. Takens.
11. Maria Cristina Ciocci, *Bifurcation of periodic solutions and persistence of quasi-periodic solutions in reversible systems*. University of Ghent, November 2003. Promotor: A. Vanderbauwhede (University of Gent), co-promotor: H.W. Broer.
12. Taede A. Smedes, *Avoiding Balaam's mistake: exploring Divine action in an age of scientism*. University of Groningen, March 2004. Promotor: L.J. van den Brom, second promotor: H.W. Broer, co-promotor: A.F. Sanders.
13. Jun Hoo, *Quasi-periodic bifurcations in a strong resonance: combination tones in gyroscopic stabilisation*. University of Groningen, January 2005. Promotor: H.W. Broer. (Funded by the Netherlands Organisation for Scientific Research NWO (FOM).)
14. Khairul Saleh, *Organising centres in semi-global analysis of dynamical systems*. University of Groningen, December 2005. Promotor: H.W. Broer, with J.M. Tuwankotta and E. Soewono (ITB-Bandung, Indonesia) as counterparts. (Funded by the Royal Dutch Academy of Sciences KNAW and the Dutch Ministry of Economic Affairs.)
15. Iris Gulikers, *Reinvention of geometry*. University of Groningen, December 2005. Promotor: H.W. Broer, with J.A. van Maanen and A. van Streun as co-advisors. (Partly funded by the Netherlands Organisation for Scientific Research NWO).
16. Harry Sitters, *Sybrandt Hansz Cardinael 1578-1647, Rekenmeester en wiskundige, zijn leven en zijn werk*. University of Groningen, November 2007. Promotores: H.W. Broer and J.A. van Maanen. (Funded by the Netherlands Organisation for Scientific Research NWO (Program LION).)
17. Easwar Naga Subramanian, *Attractor switching in neuron networks and Spatiotemporal filters for motion processing*. Promotores: H.W. Broer and N. Petkov, University of Groningen, February 29th, 2008.
18. Olga Lukina, *Geometry of torus bundles in Hamiltonian dynamics*. Promotor: H.W. Broer, University of Groningen, September 2008.

19. Sarma Chandramouli, *Renormalization and non-rigidity*. Promotores: H.W. Broer, University of Groningen and M. Martens (Stony Brook), December 2008.
20. Peter Hazard, *Hénon-like maps and renormalization*. Promotores: H.W. Broer, University of Groningen and M. Martens (Stony Brook), December 2008.
21. Alex Opoku, *On Gibbs properties of transforms of lattice and mean-field systems*. Promotores: Ch. Külske, A.C.D. van Enter and H.W. Broer, University of Groningen, 4 September 2009.
22. Sijbo-Jan Holtman, *Dynamics and geometry of resonant bifurcations*. Promotores: H.W. Broer and G. Vegter, University of Groningen, 18 September 2009. (Funded by the Netherlands Organisation for the Advancement of Scientific Research NWO.)
23. Alef Sterk, *Atmospheric variability and the Atlantic Multidecadal Oscillation. Part B: Mathematical analysis of reduced models*. Promotores: H.W. Broer, H.A. Dijkstra (IMAU) and C. Simó (University of Barcelona), University of Groningen, 1 October 2010. (Funded by the Netherlands Organisation for Scientific Research NWO, area Earth- and Life Sciences.)
24. Jos Tolboom, *The potential of a classroom network to support teacher feedback, a study in statistics education*. Promotores: H.W. Broer and W.A.J.M. Kuiper (SLO), University of Groningen, 15 June 2012.
25. Xia Liu, *The discontinuous Hopf-transversal system and its geometric regularization*. Promotor: H.W. Broer. (Funded by the Netherlands Organisation for Scientific Research NWO, area Exact Sciences - Applied Mathematics.) University of Groningen, 22 February 2013.
26. Hildeberto Jardon Kojakhmetov, *Geometric Desingularization of Constrained Differential Equations in Terms of Slow-Fast Systems*. Promotores: Henk Broer and Gert Vegter. Funded by Mexican National Council for Science and Technology. University of Groningen, 12 June 2015.
27. Nikolay Martynchuk, *On Monodromy in Integrable Hamiltonian Systems*. Promotores: H.W. Broer and K. Efsthathiou. University of Groningen, 21 September 2018.
28. Dirk van Kekem, *Dynamics of the Lorenz-96 Model*. Promotores: H.W. Broer and A.E. Sterk. University of Groningen, 12 October 2018.

29. Swier Garst, *Dynamics amidst Folding and Twisting in 2-dimensional Maps*. Promotores: H.W. Broer, A.E. Sterk and J.M. Aarts (Technische Universiteit Delft). University of Groningen, 19 October 2018.

PhD examination

1. Igor Hoveijn, *Aspects of resonance in dynamical systems*, promotor F. Verhulst, Utrecht 1992.
2. Gert H.M. van der Heijden, *Nonlinear drillstring dynamics*, promotor F. Verhulst, Utrecht 1994.
3. Jeroen S.W. Lamb, *Reversing symmetries in dynamical systems*, promotor H.W. Capel, University of Amsterdam 1994.
4. Joost Hermans, *Rolling rigid bodies with and without symmetries*, promotor J.J. Duistermaat, Utrecht 1995.
5. Roland J.P. Boon, *Bifurcation in fluid flow near a boundary surface*, promotores P.G. Bakker and J.W. Reyn, Delft 1997.
6. Willem Cazemier, *Proper orthogonal decomposition and low dimensional models for turbulent flows*, promotor A.E.P. Veldman, Groningen 1997.
7. Jordi Villanueva, *Normal forms around lower dimensional tori of Hamiltonian systems*, promotor À. Jorba, Universitat Politècnica de Catalunya (Barcelona) 1997.
8. Stefano Stramigioli, *From differentiable manifolds to interactive robot control*, promotores G. Honderd and G.J. Olsder, Delft 1998.
9. Claudia Valls, *The classical Arnold example of diffusion with two equal parameters*, promotor C. Simó, Universitat de Barcelona 1999.
10. Sebastian Wiczorek, *The dynamical complexity of optically injected semiconductor lasers*, promotores D. Lenstra and B. Krauskopf, Vrije Universiteit Amsterdam 2002.
11. Lennaert van Veen, *Time scale interaction in low-order climate models*, promotores F. Verhulst and J.D. Opsteegh, Utrecht 2002.
12. Johan M. Tuwankotta, *Higher order resonances in dynamical systems*, promotor F. Verhulst, Utrecht 2002.

13. Bob Rink, *Geometric dynamics of Hamiltonian lattices*, promotores F. Verhulst and J.J. Duistermaat, Utrecht 2003.
14. Kevin Webster, *Bifurcations of reversible systems with application to the Michelson system*, promotor J.S.W. Lamb, Imperial College London 2003.
15. Joaquim Puig, *Reducibility of quasi-periodic skew-products and the spectrum of Schrödinger operators*, promotor C. Simó, Universitat de Barcelona 2004.
16. Nguyen Huu Khanh, *Heteroclinic cycles in thermal convection models*, promotores A. Doelman and A.J. Homburg, University of Amsterdam 2005.
17. Olivier Sapin, *Flot croisé aus-dessus d'un solénoïde et théorème de gap labelling pour l'opérateur de Schrödinger matriciel*, promotor H. Jauslin, Université de Bourgogne (Dijon) 2005.
18. Hendrikjan G. Schaap, *Ising models and neural networks*, promotores A.C.D. van Enter and M. Winnink, Groningen 2005.
19. Nenad Mehajlovic, *Torsional and lateral vibrations in rotor/drillstring systems*, promotor H. Nijmeijer, Eindhoven 2005.
20. Hill Meijer, *Co-dimension 2 bifurcations of iterated maps*, promotores F. Verhulst and Yu. Kuznetsov, Universiteit Utrecht 2006.
21. Hartmut Erzgräber, *Dynamics of delay-coupled semiconductor laser systems*, promotores D. Lenstra and B. Krauskopf, Vrije Universiteit Amsterdam 2006.
22. Mathilde Kammerer - Colin de Verdière, *Bifurcations de variétés invariantes*, promotor R. Moussu, Université de Bourgogne (Dijon) 2006.
23. Taoufik Bakri, *Averaged behaviour of nonconservative coupled oscillators*, promotores F. Verhulst and Yu. Kuznetsov, Universiteit Utrecht 2007.
24. Hicham Zmarrou, *Bifurcations of random maps*, promotor A. Doelman, copromotor A.J. Homburg, Universiteit van Amsterdam 2008.
25. Arturo Vieiro, *Study of the effect of conservative and weakly dissipative perturbations on symplectic maps and Hamiltonian systems*, promotor C. Simó, Universitat de Barcelona 2009.
26. Pau Rabassa, *Contribution to the study of perturbations of low dimensional maps*, promotor Àngel Jorba, Universitat de Barcelona 2010.

27. Erik Steur, *Synchronous behavior in networks of coupled systems, with applications to neuronal dynamics*, promotor Henk Nijmeijer, Eindhoven 2011.
28. Jaap Eldering, *Persistence of noncompact Normally Hyperbolic Invariant Manifolds in bounded geometry*, promotores Erik van den Ban and Heinz Hanßmann, Utrecht 2012.
29. Quang Sang PHAN, *Monodromie spectrale d'opérateurs non-autoadjoints*, promotores Christophe CHEVERRY, Francis NIER, San VU NGOC, Université de Rennes 1, 2012.
30. Blaz Mramor, *Some destructive results in the Aubry–Mather theory*, promotor Rob van der Vorst, VU Amsterdam 2012

Postdoctoral fellows and guest researchers

1. Dr I. Hoveijn, in NWO-program *Mathematical Aspects of Nonlinear Dynamical Systems*, 1992–1996.
2. Dr A.L. Hagen, NWO-postdoc, with G. Vegter (PI), 1997–1999.
3. Dr H.P. Bruin, KNAW-fellow, 2000–2003.
4. Dr V. Naudot, FWN-postdoc (compensating for Directorship *School of Mathematics and Computer Science*), 2001–2005.
5. Dr K. Efsthathiou, FWN-postdoc (compensating for Managing Directorship NWO-cluster *NDNS+* and for the scientific directorship *JBI*), 2005–2012.
6. Dr Pau Rabassa Sans, NWO-postdoc (under the auspices of Complexity-NET European network), 2011–2013.
7. Dr Zhao Lei, FWN-postdoc (compensating for scientific directorship *JBI*), 2013–2015.

Grant support

1. All workshops under 2 were funded by the Royal Netherlands Academy of Arts & Sciences (KNAW) and the Netherlands Organisation for the Advancement of Scientific Research (NWO). *Equadiff*2003 moreover was sponsored by the European Science Foundation *Prodyn*, the Mathematics Research Institute (MRI) and the FOM Program *Mathematical Physics*.

2. NWO Priority Program *Mathematical Aspects of Nonlinear Dynamical Systems* with S.A. van Gils (UTwente) and F. Takens (RUG), 1993-1997. Amounted to 1.3 Mf.
3. NWO *Open / Free Competition Mathematics*, totally 5 PhD students. The NWO area *Earth- and Life Sciences* is funding 1 PhD student. See 3 for details.
4. FOM program *Mathematical Physics*, totally 2 PhD students. See 3 for details.
5. KNAW program *Extended Program in Applied Mathematics (EPAM)*, 1 PhD student, see 3.
6. From KNAW postdoc program, 1 postdoc jointly with J.M. Tuwankotta (PI) ITB-Bandung.
7. One postdoctoral three-year KNAW-fellow, see above.
8. NWO cluster *Nonlinear Dynamics of Natural Systems (NDNS+)* and Ministry of Economic Affairs with A. Doelman (CWI, Amsterdam), S.M. Verduyn Lunel (Leiden) and A. van der Vaart (VU Amsterdam) 2005–2009. Amounts to 4.0 MEuro, of which 1.7 MEuro for Groningen University Mathematics research infrastructure.
9. NWO Complexity-NET *Predictability of Extreme Weather Events*, in cooperation with R. Vitolo (Exeter), M. Holland (Exeter), 21 Months of postdoctoral research.
10. NWO cluster *Nonlinear Dynamics of Natural Systems (NDNS+)* and Ministry of OCW 2013–2016: three year prefinancing of a tenure track assistant professor 240 KEuro.

Scientific publications

In international refereed journals

1. HWB, Quasi-periodicity in local bifurcation theory, *Nieuw Arch. Wisk.* **4**(1), (1983), 1–32.
2. HWB and G. Vegter, Subordinate Sil’nikov bifurcations near some singularities of vector fields having low codimension, *Ergod. Th. & Dynam. Sys.*, **4**, (1984), 509–525.

3. HWB and F.M. Tangerman, From a differentiable to a real analytic perturbation theory, applications to the Kupka Smale theorems, *Ergod. Th. & Dynam. Sys.*, **6**, (1986), 345–362.
4. B.L.J. Braaksma and HWB, On a quasi-periodic Hopf bifurcation, *Ann. Institut Henri Poincaré, Analyse non linéaire*, **4**, no.2, (1987), 115–168.
5. HWB and F. Takens, Formally symmetric normal forms and genericity, *Dynamics Reported*, **2**, (1989), 36–60.
6. HWB, G.B. Huitema and F. Takens, Unfoldings of quasi-periodic tori, *Mem. AMS*, **83**(421), (1990), 1–82.
7. B.L.J. Braaksma, HWB and G.B. Huitema, Toward a quasi-periodic bifurcation theory, *Mem. AMS*, **83**(421), (1990), 83–175.
8. HWB and G.B. Huitema, A proof of the iso-energetic KAM-theorem from the ‘ordinary’ one, *Journ. Diff. Eqns.*, **90**(1), (1991), 52–60.
9. HWB and G. Vegter, Bifurcational aspects of parametric resonance, *Dynamics Reported, New Series* **1**, (1992), 1–51.
10. HWB, S.-N. Chow, Y. Kim and G. Vegter, A normally elliptic Hamiltonian bifurcation, *ZAMP* **44**, (1993), 389–432.
11. HWB and F. Takens, Mixed spectrum and rotational symmetry, *Arch. Rational Mech. An.* **124**, (1993), 13–42.
12. HWB, Huygens’ isochrone slinger, *Euclides*, **70**(4) (1995), 110–117.
13. HWB and G.B. Huitema, Unfoldings of quasi-periodic tori in reversible systems, *Journ. Dynamics and Differential Equations*, **7**(1), (1995) 191–212.
14. HWB and M. Levi, Geometrical aspects of stability theory for Hill’s equations, *Archive Rat. Mech. An.* **131**, (1995), 225–240.
15. HWB, KAM-Theory: Multi-Periodicity in conservative and dissipative systems, *Nieuw Arch. Wisk.* **14**(1), (1996), 1–15.
16. HWB, R. Roussarie and C. Simó, Invariant circles in the Bogdanov-Takens bifurcation for diffeomorphisms, *Ergod. Th. & Dynam. Sys.* **16**, (1996), 1147–1172.

17. HWB, G.B. Huitema and M.B. Sevryuk, Quasi-periodic tori in families of dynamical systems: order amidst chaos, *Springer LNM* **1645**, (1996), Springer-Verlag (195 p).
18. HWB, H.M. Osinga and G. Vegter, Algorithms for computing normally hyperbolic invariant manifolds, *ZAMP*, **48**, (1997), 480–524.
19. HWB, De chaotische schommel, *Pythagoras* **35**(5), (1997), 11–15.
20. HWB, I. Hoveijn and M. van Noort, A reversible bifurcation analysis of the inverted pendulum, *Physica D*, **112**, (1998), 50–63.
21. HWB, G.A. Lunter and G. Vegter, Equivariant singularity theory with distinguished parameters, two case studies of resonant Hamiltonian systems, *Physica D*, **112**, (1998), 64–80.
22. HWB, C. Simó and J.C. Tatjer, Towards global models near homoclinic tangencies of dissipative diffeomorphisms, *Nonlinearity*, **11**(3), (1998), 667–770.
23. HWB, I. Hoveijn, G.A. Lunter and G. Vegter, Resonances in a Spring-Pendulum: algorithms for equivariant singularity theory, *Nonlinearity*, **11**(5), (1998), 1–37.
24. HWB and C. Simó, Hill's equation with quasi-periodic forcing: resonance tongues, instability pockets and global phenomena, *Bol. Soc. Bras. Mat.* **29**, (1998) 253–293.
25. HWB, F. Takens and F.O.O. Wagener, Integrable and non-integrable deformations of the skew Hopf bifurcation, *Regular and Chaotic Dynamics* **4**(2), (1999), 17–43.
26. HWB, I. Hoveijn, M. van Noort and G. Vegter, The inverted pendulum: a singularity theory approach, *Journ. Diff. Eqns.* **157**, (1999), 120–149.
27. HWB, The how and what of chaos, *Nieuw Arch. Wisk. 5th series* **1**(1), (2000), 34–43.
28. HWB and F.O.O. Wagener, Quasi-periodic stability of subfamilies of an unfolded skew Hopf bifurcation, *Archive Rat. Mech. An.* **152**, (2000), 283–326.
29. HWB and C. Simó, Resonance tongues in Hill's equations: a geometric approach, *Journ. Diff. Eqns.* **166**, (2000), 290–327.

30. HWB and C. Simó, Reducible linear quasi-periodic systems with positive Lyapunov exponent and varying rotation number, *Journ. Diff. Eqns.* **168**, (2000), 60–66.
31. HWB, Quasi-periodicity in dissipative systems, *MIHMI (Journ. Indonesian Math. Soc.)*, **7**(3), (2001), 7–33.
32. HWB, C. Simó and R. Vitolo, Bifurcations and strange attractors in the Lorenz-84 climate model with seasonal forcing. *Nonlinearity* **15**(4), (2002), 1205–1267.
33. HWB, A. Hagen and G. Vegter: Multiple purpose algorithms for invariant manifolds, *Dynamics of Continuous, Discrete and Impulsive Systems*, Series B: Applications and Algorithms, **10**(3), (2003), 331-34
34. HWB, I. Hoveijn, G.A. Lunter and G. Vegter, Bifurcations in Hamiltonian systems: Computing singularities by Gröbner bases. Springer *LNM* **1806**, 2003.
35. HWB and M. Golubitsky and G. Vegter, The geometry of resonance tongues: A Singularity Theory approach. *Nonlinearity* **16** (2003) 1511-1538.
36. HWB, H. Hanßmann, À. Jorba, J. Villanueva and F.O.O. Wagener, Normal-internal resonances in quasi-periodically forces oscillators: a conservative approach, *Nonlinearity* **16** (2003) 1751-1791.
37. HWB, C. Simó and J. Puig, Resonance tongues and instability pockets in the quasi-periodic Hill-Schrödinger equation, *Commun. Math. Phys.*, **241**, (2003) 467-503.
38. HWB, Coupled Hopf-bifurcations: Persistent examples of n -quasiperiodicity given by families of 3-jets, *Astérisque*, **286** (2003), 223-229.
39. HWB, Ken uw klassieken: Kolmogorov in het Concertgebouw. *Nederl. Tijdschr. voor Natuurkunde*, jaargang 70 nummer 1 (2004), 20-21.
40. HWB, KAM theory: the legacy of Kolmogorov’s 1954 paper. *Bull. AMS* (New Series), **41**(4) (2004), 507-521.
41. HWB, I. Hoveijn, M. van Noort, C. Simó and G. Vegter, The parametrically forced pendulum: a case study in $1\frac{1}{2}$ degree of freedom, *Journ. Dynamics and Differential Equations*, **16**(4) (2004), 897-947.
42. HWB, Kolmogorov, la ‘K’ de KAM, *Butlletí de la Societat Catalana de Matemàtiques*, **18**(2) (2004), 39-57.

43. HWB, H. Hanßmann and J. You, Bifurcations of normally parabolic tori in Hamiltonian systems, *Nonlinearity* **18** (2005) 1735-1769.
44. HWB, V. Naudot, R. Roussarie and K. Saleh, Bifurcations of a predator-prey model with non-monotonic response function, *C.R. Acad. Sci. Paris Ser. I* **341** (2005), 601-604.
45. HWB, Wiskunde als kritische succesfactor? *Euclides* **81**(6) (2006), 282-285.
46. HWB, H. Hanßmann and J. You, Umbilical torus bifurcations in Hamiltonian systems, *Journ. Diff. Eqns.* **222** (2006) 233-262.
47. HWB, V. Naudot, R. Roussarie and K. Saleh, A predator-prey model with non-monotonic response function. *Regular and Chaotic Dynamics* **11**(2) (2006), 155-165.
48. HWB, V. Naudot and R. Roussarie, Catastrophe theory in Dulac unfoldings. *Ergod. Th. & Dynam. Sys.* **26** (2006), 1-35.
49. HWB, J. Hoo and V. Naudot, Normal linear stability of quasi-periodic tori, *Journ. Diff. Eqns.* **232**(2) (2007), 355-418.
50. HWB, H. Hanßmann and J. Hoo, The quasi-periodic Hamiltonian Hopf bifurcations, *Nonlinearity* **20** (2007), 417-460.
51. HWB, A. Hagen and G. Vegter, Numerical continuation of normally hyperbolic invariant manifolds, *Nonlinearity* **20** (2007), 1499-1534.
52. HWB and F. Takens, Unicity of KAM tori, *Ergod. Th. & Dynam. Sys.* **27** (2007), 713-724.
53. HWB, R.H. Cushman, F. Fassò and F. Takens, Geometry of KAM tori for nearly integrable Hamiltonian systems, *Ergod. Th. & Dynam. Sys.* **27** (2007), 725-741.
54. HWB, V. Naudot, R. Roussarie and K. Saleh, Dynamics of a predator-prey model with non-monotonic response function, *DCDS-A* **18**(2&3) (2007), 221-251.
55. HWB, Computergebruik en demathematisering, *Nieuw Arch. Wisk. 5th series* **5**(3) (2007), 201-206.
56. HWB, M.C. Ciocci and H. Hanßmann, The quasi-periodic reversible Hopf bifurcation, *IJBC* **17**(8) (2007), 2605-2623.

57. HWB, V. Naudot, R. Roussarie, K. Saleh and F.O.O. Wagener, Organising centres in the semi-global analysis of dynamical systems, *IJAMAS* **12**(D07) (2007), 7-36.
58. HWB, K. Efstathiou and E. Subramanian, Robustness of unstable attractors in arbitrarily sized pulse-coupled systems with delay, *Nonlinearity* **21**(1) (2008), 13-49.
59. HWB, K. Efstathiou and E. Subramanian, Heteroclinic cycles between unstable attractors, *Nonlinearity* **21** (2008), 1385-1410.
60. HWB and G. Vegter, Generic Hopf-Neimark-Sacker bifurcations in feed forward systems, *Nonlinearity* **21** (2008), 1547-1578.
61. HWB, S.J. Holtman and G. Vegter, Recognition of the bifurcation type of resonance in mildly degenerate Hopf-Neimark-Sacker families, *Nonlinearity* **21** (2008), 2463-2482.
62. HWB, C. Simó and R. Vitolo, The Hopf-Saddle-Node bifurcation for fixed points of 3D-diffeomorphisms, analysis of a resonance ‘bubble’, *Physica D* **237** (2008), 1773-1799.
63. HWB, C. Simó and R. Vitolo, The Hopf-Saddle-Node bifurcation for fixed points of 3D-diffeomorphisms: the Arnol'd resonance web, *Bull. Belgian Math. Soc. Simon Stevin* **15** (2008), 769-787.
64. HWB and R. Vitolo, Dynamical systems modeling of low-frequency variability in low-order atmospheric models, *DCDS-B* **10**(2/3) (2008) 401-419.
65. Lukina, O.V., F. Takens and HWB, Global properties of integrable Hamiltonian systems, *Regular and Chaotic Dynamics* **13**(6) (2008), 588-630.
66. HWB, M.C. Ciocci, H. Hanßmann and A. Vanderbauwhede, Quasi-periodic stability of normally resonant tori, *Physica D* **238** (2009), 309-318
67. HWB, S.J. Holtman, G. Vegter and R. Vitolo, Geometry and dynamics of mildly degenerate Hopf-Neimark-Sacker families near resonance. *Nonlinearity* **22** (2009), 2161-2200.
68. HWB and V.A. Gaiko, Global qualitative analysis of a quartic ecological model. *Nonlinear Analysis Series A: Theory, Methods & Applications* (2009): DOI information: 10.1016/j.na.2009.07.004.

69. Sterk, A.E., R. Vitolo, HWB, C. Simó and H.A. Dijkstra, New nonlinear mechanisms of midlatitude atmospheric low-frequency variability. *Physica D: Nonlinear Phenomena* **239** (2010), 701-718; DOI information: 10.1016/j.physd.2010.02.003
70. Brandhof, A. van den, HWB and K.P. Hart, Andrei N. Kolmogorov (1903-1987), bouwer van de kansaxioma's, *Pythagoras* **49**(5) (2010), 18-23.
71. HWB en K. van der Straaten, Complexe getallen voor Wiskunde D en NLT, *Euclides* **85**(6) (2010), 239-241.
72. HWB, Do Diophantine vectors form a Cantor bouquet? *Journ. Difference Equations and Applications* **16**(5,6) (2010) 433-434.
73. HWB, C. Simó and R. Vitolo, Chaos and quasi-periodicity in diffeomorphisms of the solid torus. *DCDS-B* **14**(3) (2010) 871-905.
74. HWB, S.J. Holtman and G. Vegter, Recognition of resonance type in periodically forced oscillators. *Physica D: Nonlinear Phenomena* **239**(17) (2010) 1627-1636.
75. HWB, K. Efsthathiou and O.V. Lukina, A geometric fractional monodromy theorem. *DCDS-S* **3**(4) (2010) 517-532.
76. R. Vitolo, C. Simó, and H.W. Broer, Routes to chaos in the Hopf-saddle-node bifurcation for fixed points of 3D-diffeomorphisms. *Nonlinearity* **23**(8) 1919-1947 DOI: 10.1088/0951-7715/23/8/007
77. HWB, S.J. Holtman, G. Vegter and R. Vitolo, Dynamics and geometry near resonant bifurcations. *Regular and Chaotic Dynamics* (on the occasion of Henk Broer's 60th birthday) **16**(1-2), (2011) 39-50. DOI: 10.1134/S1560354710520023
78. R. Vitolo, HWB, and C. Simó, Quasi-periodic Bifurcations of Invariant Circles in Low-dimensional Dissipative Dynamical Systems. *Regular and Chaotic Dynamics* (on the occasion of Henk Broer's 60th birthday) **16**(1-2), (2011) 154-184.
79. HWB, In Memoriam Floris Takens: A total mathematician. *Nieuw Archief Wiskunde 5th series* **12**(1) (2011) 2024.
80. HWB and S.J. van Strien, In Memoriam Floris Takens 1940-2010. *Indag. Math.* **22**(3-4) (2011) 137-143.

81. HWB, H.A. Dijkstra, C. Simó, A.E. Sterk and R. Vitolo, The dynamics of a low-order model for the Atlantic Multidecadal Oscillation. *DCDS-B* **16**(1) (2011) 73-102.
82. D.G.M. Beersma, HWB, K. Efstathiou, K.A. Gargar and I. Hoveijn, Pacer cell response to periodic Zeitgebers. *Physica D* **19** (2011) 1516-1527.
83. M.P. Holland, R. Vitolo, P. Rabassa, A.E. Sterk and HWB, Extreme value laws in dynamical systems under physical observables. *Physica D: Nonlinear Phenomena* **241** (2012) 497-513.
84. HWB, Resonance and fractal geometry. *Acta Applicandæ Mathematicæ* **120**(1) (2012) 61-86.
85. HWB, Perspectives on the legacy of Poincaré in the field of dynamical systems. *Nieuw Archief voor Wiskunde 5th series* **13**(3) (2012) 2012.
86. HWB, M. Levi and C. Simó, Large scale radial stability density of Hills equation. *Nonlinearity* **26** (2013) 565589.
87. HWB, Bernoulli's lichtstraal-oplossing van het brachistochrone probleem door de ogen van Hamilton. *Nieuw Archief voor Wiskunde 5th series* **14**(2) (2013) 99-107.
88. A.E. Sterk, R. Vitolo and HWB, Het onvoorspelbare venijn van de staart. *Nieuw Archief voor Wiskunde 5th series* **14**(3) (2013) 164-167.
89. HWB, T.J. Kaper and M. Krupa, Geometric desingularization of a cusp singularity in slow fast systems with applications to Zeemans examples. *JDDE* **25** (2013) 925-958. doi:10.1007/s10884-013-9322-5
90. K. Efstathiou and HWB, Uncovering fractional monodromy. *Comm. Math. Phys.* **324** (2013) 549-588.
91. HWB, Review of 'Henri Poincaré: a scientific biography' by Jeremy Gray. *BSHM Bulletin: Journ. British Soc. Hist. Math.* **29**(1) (2014) 77-79.
92. Ü. Çiftçi, H. Waalkens and HWB, Cotangent bundle reduction and Poincaré-Birkhoff normal forms. *Phys. D* **268** (2014) 1-13.
93. H. Jardón-Kojakhmetov and HWB, Polynomial normal forms of constrained differential equations with three parameters. *Journ. Diff. Eqns.* **257**(4) (2014) 1012-1055. doi: 10.1016/j.jde.2014.04.022

94. HWB, Bernoulli's light ray solution of the brachistochrone problem through Hamilton's eyes. *IJBC* **4**(8) (2014) 19 pp.
95. HWB, Near-horizon celestial phenomena, a study in geometric optics. *Acta Applicandæ Mathematicæ* DOI 10.1007/s10440-014-9989-6 (2015).
96. K. Efsthathiou Xia LIU and HWB, The Boundary-Hopf-Fold Bifurcation in Filippov Systems. *SIAM Journal on Applied Dynamical Systems* **14**(2) (2015) 914-941.
97. H. Jardón-Kojakhmetov, HWB and R. Roussarie, Analysis of a slow fast system near a cusp singularity. *Journ. Diff. Eqns.* **260**(4) (2016) 3785-3843.
98. HWB, Laudatie voor John Mather (uitreiking Brouwer-medaille 2014). *Nieuw Archief voor Wiskunde 5th series* **17**(5) (2016) 19-20.
99. HWB, Laudatie voor Marius Crainic (uitreiking NG de Bruijn-medaille 2015). *Nieuw Archief voor Wiskunde 5th series* **17**(5) (2016) 105-106.
100. HWB, Alles beweegt, maar waarheen. *Nieuw Archief voor Wiskunde 5th series* **17**(5) (2016) 128-136.
101. HWB and Heinz Hanßmann, On Jupiter and his Galilean satellites: librations of De Sitter's periodic motions. *Indag Math NS* **27**(5) (2016) 1305-1337.
102. HWB and Lei ZHAO, De Sitter's Theory of Galilean Satellites and the Related Quasi-periodic Orbits. *Celest Mech Dyn Astr* **127** (2017) 95-119.
103. HWB, H. Hanßmann and F.O.O. Wagener, Persistence properties of normally hyperbolic tori. *Regular and Chaotic Dynamics* (2018) to appear.
104. HWB and H. Hanßmann, A Galilean dance: 1:2:4 resonant periodic motions and their librations of Jupiter and his Galilean moons. *DCDS-S* (2018) to appear.

Other publications

1. HWB, Formal normal form theorems for vector fields and some consequences for bifurcations in the volume preserving case. In D. Rand and L.-S. Young (eds.): *Dynamical Systems and Turbulence, Warwick*, 1980, LNM **898**, (1981), Springer-Verlag, 54-74.

2. HWB, Quasi-periodic flow near a codimension one singularity of a divergence free vector field in dimension three. In D. Rand and L.-S. Young (eds.): *Dynamical Systems and Turbulence, Warwick*, 1980, LNM **898**, (1981), Springer-Verlag, 75–89.
3. HWB and B.L.J. Braaksma, Quasi-periodic flow near a codimension one singularity of a divergence free vector field in dimension four. In: *Bifurcation, Théorie Ergodique et Applications* (Dijon, 1981), Astérisque, **98–99**, (1982), 74–142.
4. HWB and S.J. van Strien, Infinitely many moduli of strong stability in divergence free unfoldings of singularities of vector fields. In J. Palis (ed.): *Geometric Dynamics, Proceedings*, Rio de Janeiro 1981, LNM **1007**, (1983), Springer-Verlag, 39–59.
5. HWB, Quasi-periodic Hopf-bifurcations in forced oscillations, *Proceedings of the 15th Meeting of the Brazilian Mathematical Society*, (1987), 317–328, IMPA, Rio de Janeiro.
6. HWB, Quasi-periodic bifurcations, applications, *Proceedings of the 11th C.E.D.Y.A. 1989*, Universidad de Málaga (1990), 3–22.
7. HWB, On some quasi-periodic bifurcations. In: *Proceedings of the 16th Meeting of the Brazilian Mathematical Society*, (1989), 559–581, IMPA, Rio de Janeiro.
8. HWB, C. Simó and R. Roussarie, A numerical survey on the Takens-Bogdanov bifurcation for diffeomorphisms. In C. Mira *et al* (eds.), *European Conference on Iteration Theory*, **89**, World Scientific, Singapore, (1992), 320–334.
9. HWB, Notes on perturbation theory 1991, Erasmus ICP *Mathematics and Fundamental Applications*, Aristotle University Thessaloniki, (1993), 44 p.
10. HWB, R. Roussarie and C. Simó, On the Bogdanov-Takens bifurcation for planar diffeomorphisms. In C. Perelló, C. Simó, J. Solà-Morales (eds.), *Proceedings Equadiff 91*, World Scientific, Singapore, (1993), 81–92.
11. HWB, S.-N. Chow, Y. Kim and G. Vegter, The Hamiltonian double-zero eigenvalue, In: W.F. Langford, W. Nagata (eds.), *Normal Forms and Homoclinic Chaos, Waterloo 1992*, Fields Institute Communications, **4**, (1995), 1–19.
12. HWB. G.B. Huitema and M.B. Sevryuk, Families of quasi-periodic tori in dynamical systems depending on parameters. In: H.W. Broer, S.A. van

- Gils, I. Hoveijn and F. Takens (eds.), *Nonlinear Dynamical Systems and Chaos*, Progress in Nonlinear Differential Equations and Their Applications **19**, Birkhäuser Verlag, (1996), 171–212.
13. HWB, H.M. Osinga and G. Vegter, On the computation of normally hyperbolic invariant manifolds. In: H.W. Broer, S.A. van Gils, I. Hoveijn and F. Takens (eds.), *Nonlinear Dynamical Systems and Chaos*, Progress in Nonlinear Differential Equations and Their Applications **19**, Birkhäuser Verlag, (1996), 423–448.
 14. HWB, H.M. Osinga and G. Vegter, Computing a normally hyperbolic invariant manifold of saddle type. In: *Proceedings of Dynamic Systems & Applications* **2**, G.S. Ladde and M. Sambandham (eds.), Dynamic Publishers (Atlanta), (1996), 83-90.
 15. HWB, H.M. Osinga and G. Vegter, Computing a normally attracting invariant manifold of a Poincaré map. In: P.L. Butzer, H. Th. Jongen, W. Oberschelp (eds.) *Charlemagne and his Heritage, 1200 years of Civilization and Science in Europe*, BREPOLs (1998), 541-549.
 16. HWB and B. Krauskopf, Chaos in periodically driven systems. In B. Krauskopf and D. Lenstra (eds.), *Fundamental Issues of Nonlinear Laser Dynamics*, American Institute of Physics Conference Proceedings **548**, (2000), 31-53. ISBN 1-56396-977-7.
 17. HWB and R. Roussarie, Exponential confinement of chaos in the bifurcation set of real analytic diffeomorphisms. In H.W. Broer, B. Krauskopf and G. Vegter (eds.), *Global Analysis of Dynamical Systems, Festschrift dedicated to Floris Takens for his 60th birthday*, Bristol and Philadelphia IOP, 2001, 167-210. ISBN 0 7503 0803 6.
 18. HWB, A global KAM-Theorem: monodromy in near-integrable perturbations of the spherical pendulum, *Proc. ITB* **34**(2&3) (2003) 309-324.
 19. HWB, A. Hagen and G. Vegter, Numerical approximation of normally hyperbolic invariant manifolds, Proceedings of the 4th AIMS Meeting 2002 at Wilmington *Discrete Contin. Dynam. Systems B*, supplemental volume (2003), 133-140.
 20. HWB, R.H. Cushman and F. Fassò, A Hamiltonian KAM Theorem for bundles of Lagrangean tori. In F. Dumortier, H.W. Broer, J. Mahwin, A. Vanderbauwhede and S.M. Verduyn-Lunel (eds.), *Proceedings Equadiff* World Scientific, Singapore, 2005, 696-701

21. HWB, H. Hanßmann, À. Jorba, J. Villanueva and F.O.O. Wagener, Quasi-periodic response solutions at normal-internal resonances. In: F. Dumortier, H.W. Broer, J. Mawhin, A. Vanderbauwhede and S.M. Verduyn Lunel (eds.), *Equadiff 2003*, Proceedings International Conference on Differential Equations, Hasselt 2003, World Scientific, Singapore, 2005, 702-707. ISBN 981 256 169 2.
22. HWB, J. Hoo and V. Naudot, Normal Linear stability of Quasi-Periodic Tori in the Hamiltonian $1 : -1$ resonance case. In: F. Dumortier, H.W. Broer, J. Mawhin, A. Vanderbauwhede and S.M. Verduyn Lunel (eds.), *Equadiff 2003*, Proceedings International Conference on Differential Equations, Hasselt 2003, World Scientific, Singapore, 2005, 708-713. ISBN 981 256 169 2.
23. HWB, V. Naudot and R. Roussarie, Extension of catastrophe theory to Dulac unfoldings. In: F. Dumortier, H.W. Broer, J. Mawhin, A. Vanderbauwhede and S.M. Verduyn Lunel (eds.), *Equadiff 2003*, Proceedings International Conference on Differential Equations, Hasselt 2003, World Scientific, Singapore, 2005, 714-719. ISBN 981 256 169 2.
24. HWB, C. Simó and R. Vitolo, Quasi-periodic Hénon-like strange attractors in the Lorenz-84 climate model with seasonal forcing. In: F. Dumortier, H.W. Broer, J. Mawhin, A. Vanderbauwhede and S.M. Verduyn Lunel (eds.), *Equadiff 2003*, Proceedings International Conference on Differential Equations, Hasselt 2003, World Scientific, Singapore, 2005, 601-606. ISBN 981 256 169 2.
25. HWB, M. van Noort and C. Simó, Existence and measure of invariant tori in Hamiltonian one-and-a-half degree of freedom systems. In: F. Dumortier, H.W. Broer, J. Mawhin, A. Vanderbauwhede and S.M. Verduyn Lunel (eds.), *Equadiff 2003*, Proceedings International Conference on Differential Equations, Hasselt 2003, World Scientific, Singapore, 2005, 595-600. ISBN 981 256 169 2.
26. HWB, Quasi-periodicity in dissipative and conservative systems. *Proceedings Symposium Henri Poincaré*, Université Libre de Bruxelles 2004, Solvay Institutes (2005)
<http://www.ulb.ac.be/sciences/ptm/pmif/ProceedingsHP/Proceedings.html>
27. HWB, H. Hanßmann, J. Hoo and V. Naudot, Nearly-integrable perturbations of the Lagrange top: applications of KAM theory. In D. Denteneer, W.Th.F. den Hollander and E. Verbitskiy (eds.), *Dynamics and Stochastics*

Festschrift in Honor of M. S. Keane IMS Lecture Notes – Monograph Series
48 (2006) 286–303.

28. HWB, M. Golubitsky and G. Vegter, Geometry of resonance tongues. In D. Chéniot, N. Dutertre, C. Murolo, D. Trotman and A. Pichon (eds.), *Singularity Theory, Proceedings of the 2005 Marseille Singularity School and Conference, dedicated to Jean-Paul Brasselet on His 60th Birthday*, World Scientific, 2007, 327-356.
29. HWB, R. van Dijk and R. Vitolo, Survey of strong normal-interenal $k : \ell$ resonances in quasi-periodically driven oscillators for $\ell = 1, 2, 3$. In G. Gaeta, R. Vitolo and S. Walcher (eds.), *Symmetry and Perturbation Theory, Proceedings of the International Conference SPT 2007*, World Scientific, 2007, 45-55.
30. R. Vitolo, HWB and C. Simó, The Hopf-saddle-node for fixed points of 3D-diffeomorphisms. In G. Gaeta, R. Vitolo and S. Walcher (eds.), *Symmetry and Perturbation Theory, Proceedings of the International Conference SPT 2007*, World Scientific, 2007, 280-281.
31. HWB and H. Hanßmann, Perturbation theory (dynamical systems), *Scholarpedia*, **3**(9):2399, 2008.
32. J.M. Aarts and HWB, Schoolmeetkunde in het Horologium Oscillatorium van Christiaan Huygens. Preprint University of Groningen 2010.
33. HWB, H. Hanßmann and J. You, On the destruction of resonant Lagrangean tori in Hamiltonian systems. In: A. Johann, H.-P. Kruse, F. Rupp en F. Schmitz (eds.), *Recent Trends in Dynamical Systems, Proceedings of a Conference in Honor of Jürgen Scheurle*, Ch. 13. Springer-Verlag 2013
34. HWB and G. Vegter, Resonance and singularities. In: Santiago Ibáñez, Jesús S. Pérez de Rio, Antonio Pumariño and J. Ángel Rodríguez (eds.), *Progress and Challenges in Dynamical Systems*, Springer Proceedings in Mathematics & Statistics **54**, (2013) 89-126.

Books or chapters in books

1. HWB, On some quasi-periodic bifurcations. In: C.P. Bruter, A. Aragnol, A. Lichnérowicz (eds.): *Bifurcation Theory, Mechanics and Physics*, (1983), Reidel, 177-208.

2. HWB and F. Takens, Wegen naar chaos en vreemde aantrekking, een fenomenologische benadering. In: H.W. Broer and F. Verhulst (eds.), *Dynamische Systemen en Chaos, een Revolutie vanuit de Wiskunde*, Epsilon-Uitgaven **14**, (1990), 1-76.
3. HWB, Introduction to dynamical systems. In: H.W. Broer, F. Dumortier, S.J. van Strien and F. Takens, *Structures in dynamics, finite dimensional deterministic studies*, North-Holland (Studies in Mathematical Physics, 1991), 1-23.
4. HWB and F. Dumortier, Genericity and structural stability. In: H.W. Broer, F. Dumortier, S.J. van Strien and F. Takens, *Structures in dynamics, finite dimensional deterministic studies*, North-Holland (Studies in Mathematical Physics, 1991), 25-52.
5. HWB, A family of quasi-periodic attractors. In: H.W. Broer, F. Dumortier, S.J. van Strien and F. Takens, *Structures in dynamics, finite dimensional deterministic studies*, North-Holland (Studies in Mathematical Physics, 1991), 79-96.
6. HWB, Conservative dynamical systems. In: H.W. Broer, F. Dumortier, S.J. van Strien and F. Takens, *Structures in dynamics, finite dimensional deterministic studies*, North-Holland (Studies in Mathematical Physics, 1991), 267-302.
7. HWB, J. van de Craats and F. Verhulst, *Het einde van de voorspelbaarheid? Chaostheorie, ideeën en toepassingen*, Aramith Uitgevers – Epsilon Uitgaven **35**, 1995; Reprint *Chaostheorie – Het einde van de voorspelbaarheid?* Epsilon Uitgaven **35**, 2003.
8. HWB and F. Takens, Mathematical aspects of nonlinear dynamical systems, in: *Images of SMC Research 1996*, Stichting Mathematisch Centrum, (1996), 179–198.
9. HWB, *Meetkunde en fysica, met differentiaalvormen en integraalstellingen*, Epsilon Uitgaven **44**, 1999.
10. M.C. Ciocci, A. Litvak-Hinenzon and HWB, Survey on dissipative KAM theory including quasi-periodic bifurcation theory based on lectures by Henk Broer. In: J. Montaldi and T. Ratiu (eds.): *Geometric Mechanics and Symmetry: the Peyresq Lectures*, LMS Lecture Notes Series, **306**. Cambridge University Press, 2005, 303-355.

11. HWB, A. Hagen and G. Vegter, A versatile algorithm for computing invariant manifolds. In: A.N. Gorban, N. Kazantzis, I.G. Kevrekidis, H.C. Oettinger and C. Theodoropoulos (eds.): *Model Reduction and Coarse-Graining Approaching for Multiscale Phenomena*, Springer: Complexity, Springer-Verlag 2006, 17-38.
12. HWB, Normal forms in perturbation theory. In: R. Meyers (ed.), *Encyclopædia of Complexity & System Science*. Springer; New York (2009), 6310-6329.
13. HWB and H. Hanßmann, Hamiltonian perturbation theory (and transitions to chaos). In: R. Meyers (ed.), *Encyclopædia of Complexity & System Science*. Springer; New York (2009), 4515-4540.
14. HWB and F. Takens, Preliminaries in Dynamical Systems Theory. In: H.W. Broer, B. Hasselblatt and F. Takens (eds.), *Handbook of Dynamical Systems*, Volume 3. North-Holland (2010), 1-42.
15. HWB and M.B. Sevryuk, KAM Theory: quasi-periodicity in dynamical systems. In: H.W. Broer, B. Hasselblatt and F. Takens (eds.), *Handbook of Dynamical Systems*, Volume 3. North-Holland (2010), 249-344.
16. HWB and F. Takens, *Dynamical Systems and Chaos*, Epsilon Uitgaven **64**, 2009; Appl. Math. Sciences **172**, Springer-Verlag 2011.
17. HWB, *Hemelsverschijnselen nabij de horizon, naar Minnaert en Wegener; Bernoulli en Hamilton*, Epsilon Uitgaven **77**, 2013.
18. HWB, *Near the horizon: an invitation to geometric optics*, The Carus Mathematical Monographs **33** MAA 2016.
19. HWB, H. Hanßmann and F.O.O. Wagener, *Quasi-Periodic Bifurcation Theory, the geometry of KAM* (2019, in preparation).

Editing

20. HWB, B.L.J. Braaksma and F. Takens (eds.), *Dynamical Systems and Bifurcations*, LNM **1125**, (1985), Springer-Verlag.
21. HWB and F. Verhulst (eds.), *Dynamische systemen en chaos, een revolutie vanuit de wiskunde*, Epsilon-Uitgaven **14**, (1990).
22. HWB and F. Takens (eds.), *Geometry and analysis in nonlinear dynamics*, Pitman Research Notes in Mathematics Series **222**, (1992), Longman.

23. HWB, S.A. van Gils, I. Hoveijn and F. Takens (eds.), *Nonlinear Dynamical Systems and Chaos*, Progress in Nonlinear Differential Equations and Their Applications **19**, (1996), Birkhäuser.
24. HWB, B. Krauskopf and G. Vegter (eds.), *Global Analysis of Dynamical Systems, Festschrift dedicated to Floris Takens for his 60th birthday*. Bristol and Philadelphia IOP, 2001. ISBN 0 7503 0803 6.
25. HWB, F. Dumortier, J. Mawhin, A. Vanderbauwhede and S.M. Verduyn Lunel (eds.), *Equadiff 2003*, Proceedings International Conference on Differential Equations, Hasselt 2003, World Scientific, Singapore, 2005. ISBN 981 256 169 2.
26. HWB, B. Hasselblatt and F. Takens (eds.), *Handbook of Dynamical Systems* Volume 3. North-Holland, 2010.

Series Editing

27. Florin Diacu, *Relative equilibria of the curved N -body problem*. In: series editors HWB and B. Hasselblatt, ATLANTIS STUDIES IN DYNAMICAL SYSTEMS Volume 1, Atlantic Press 2012
28. Jaap Eldering, *Normally hyperbolic invariant manifolds*. In: series editors HWB and B. Hasselblatt, ATLANTIS STUDIES IN DYNAMICAL SYSTEMS Volume 2, Atlantic Press 2013
29. Pedro Duarte and Silviu Klein, *Lyapunov Exponents of linear cocycles*. In: series editors HWB and B. Hasselblatt, ATLANTIS STUDIES IN DYNAMICAL SYSTEMS Volume 3, Atlantis Press 2016
30. Zhiqiang LI, *Ergodic Theory of Expanding Thurston Maps*. In: series editors HWB and B. Hasselblatt, ATLANTIS STUDIES IN DYNAMICAL SYSTEMS Volume 4, Atlantis Press 2016
31. Svetlin G. Georgiev, *Integral Equations on Time Scales*. In: series editors HWB and B. Hasselblatt, ATLANTIS STUDIES IN DYNAMICAL SYSTEMS Volume 5, Atlantis Press 2016
32. Stephan Mescher, *Perturbed Gradient Flow Trees and A_∞ -algebra Structures in Morse Cohomology*. In: series editors HWB and B. Hasselblatt, ATLANTIS STUDIES IN DYNAMICAL SYSTEMS Volume 6, Atlantis Press 2018

33. Carlos Matheus Silva Santos, *Dynamical Aspects of Teichmüller Theory: $SL(2, \mathbb{R})$ -Action on Moduli Spaces of Flat Surfaces*. In: series editors HWB and B. Hasselblatt, ATLANTIS STUDIES IN DYNAMICAL SYSTEMS Volume 7, Atlantis Press 2018