Michel Versluis

Personal information

Last name : Versluis
Full names : Andreas Michael
Date of birth : 6 September 1963
Marital status : married to José Roodenburg
Children : 2 daughters, Eva (26) and Nadia (23)

Work address

Physics of Fluids Group
Technical Medical (TechMed) Centre
MESA+ Research Institute for Nanotechnology
University of Twente
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Education

1985 Bachelor degree in Physics, University of Nijmegen
1985 Bachelor degree in Astronomy, University of Nijmegen
1988 Master degree in Physics and Astrophysics, University of Nijmegen
1992 PhD Doctorate in Science, University of Nijmegen

Languages

Dutch: native speaker
English: fluent - CEFR score C2 – June 2014
C2 = excellent level for effective teaching in English.

Research interests

My research interests lie in the area of physical and medical acoustics. I am particularly interested in the use of microbubbles and microdroplets for medical applications, both in imaging and in therapy, and in the physics and control of bubbles and droplets in microfluidic applications for medicine and for nanotechnology industry.

Professional experience

since 2013 **Full Professor** at University of Twente, the Netherlands.
Chair Physical and Medical Acoustics.

2017-2019 **Chair** (a.i.) Multimodality Medical Imaging M3i at University of Twente.

2006-2012 **Associate Professor** at University of Twente, the Netherlands.
Medical ultrasound and microfluidics.

1999-2006 **Assistant Professor** at University of Twente, the Netherlands.
Two-phase flows, granular flows, bubbles in ultrasound, and microfluidics.

1996–1999 **Research Fellow** at Delft University of Technology, the Netherlands.
Turbulent jet diffusion flames and solid rocket propellants.

1994–1996 **Research Fellow** at Lund Institute of Technology, Sweden.
Internal combustion engines and flame diagnostics.

1992–1994 **Research Fellow** at Griffith University, Brisbane, Australia.
Molecular beam spectroscopy of vanderWaals complexes.

1990 **Visiting scientist** at the Laser Laboratory Göttingen, Germany.
Internal combustion engine diagnostics with Volkswagen.

1989 **Visiting scientist** at the Max Planck Institute for Flow Research, Germany.
Planar laser-induced fluorescence techniques for flames research.

1988–1992 **Ph.D. student** at the University of Nijmegen, the Netherlands.
Combustion diagnostics with tunable excimer lasers.

1987, 1988 **Visiting scientist** at the Dutch Observatory, Ausserbinn, Switzerland.
Photometric studies of the eclipsing binary star SZ Cam.

1988 **Visiting scientist** at the Space Research Organization of the Netherlands.
HIFI far-infrared heterodyne detection for Herschel Space Observatory.

1987–1988 **Research student** at the University of Nijmegen, the Netherlands.
Free radicals and molecular ions far-infrared spectroscopy.

Teaching

I teach courses in Applied Physics, Biomedical Engineering and Technical Medicine. These courses are also attended by students from Chemical Engineering, Mechanical Engineering, Electrical Engineering, and Applied Mathematics.

since 2006	Urogenital system (technical contribution: ultrasound contrast agents, shockwave lithotripsy and molecular imaging with ultrasound).
since 2005	Medical Acoustics.
since 2004	Lab course Physics of Fluids.
since 2004	Physics of Bubbles.
2007-2012	Renal Pathophysiology (technical contribution in Molecular Life Sciences).
2005-2009	Experimental Methods in Fluid Mechanics.
2003	Bubbles and Waves.
2003	Physics of Fluids tutorials.
2003-2015	Ultrasound contrast agents: Theory and experiment IEEE Ultrasonics annual short course (with N. de Jong).
2000, 2001	Statics and Introduction to Mechanics tutorials.
1999, 2000	Transport Phenomena: Fluid Mechanics tutorials.
1999-2002	Experimental Methods in Fluid Mechanics.

Organization

2017-2019	Chair of the 16th CBMS Conference on Acoustofluidics, Twente, 2019.
2016-2018	Chair of the 32nd International Conference of High-Speed Imaging and Photonics (`ichsip-32`), University of Twente, October 2018.
since 2018	Board member User Council TCO Techno Centre for Research & Education.
2017	Organizer ICU Special Session in Physical Acoustics on “Bubbles and Cavitation”.
2017	Organizer of the Fall Meeting of the Dutch Society for Medical Ultrasound.
since 2004	Organizer biennial PhD Workshop Exp. Techniques in Fluid Mechanics.
2015	Organizer of the Medical Tour of the Center for Medical Imaging Twente to Sunnybrook, VisualSonics, OSHU, CIMU, Siemens, and Philips.
2013	Organizer ICA/ASA Special Session in Physical Acoustics on “Acoustics for Microfluidics and Particle Separation”.
2012	Organizer Lorentz Center Workshop Leiden “Acoustic Waves for the Control of Microfluidics Flows”.
2012	Organizer ASA Special Session in Biomedical Acoustics on “Subharmonic Contrast Imaging”.
2011	Program committee Physics@FOM annual national physics congress.
2003-2008	Coordinator of the design and construction of new office space and laboratories, including consultation with technical staff, advisors and building contractors.
2003-2006	Public relations officer for Dept. of Science and Technology for prospective Bachelor students in Applied Physics.
2003-2005	Coordinator VIP days for high-school students.
2002-2004	Design and implementation lab course Physics of Fluids for Applied Physics.
2002-2004	Head of the Commission of Education Quality and Assessment in Applied Physics (COKE).
2002-2003	Relocation officer for full relocation (offices and labs) Physics of Fluids group.
2001,2003	Organizer Ph.D. Workshop Multiphase Flow.
2003-2015	Safety officer Physics of Fluids group.
since 2002	Public relations officer for Physics of Fluids group for prospective Master students in Applied Physics (until 2006) and Biomedical Engineering.
1999-2015	Lab coordinator for experimental large-scale facilities (turbulent water channel, Brandaris ultra high-speed camera, high-power laser facilities).

Other professional activities

since 2021	Member of the NWO Science Round Table Advisory Committee for Physics.
2018-2020	Member of the NWO Science Advisory Committee on Fluids and Soft Matter.
since 2018	Program leader 4TU HTSF program Precision Medicine.
since 2018	Cluster leader domain Imaging and Diagnostics, TechMed Centre, University of Twente.
2016-2017	Program director NanoNextNL 3C Nanomedicine/Molecular Imaging.
2014-2018	Discipline leader Imaging and Diagnostics, MIRA Institute for Biomedical Technology and Technical Medicine, University of Twente.
2013-2018	Member of the FOM Advisory Committee on Phenomenological Physics.
since 2011	Board member of the Dutch Society for Medical Ultrasound.
2009-2014	Discipline leader Ultrasound, Center for Medical Imaging CMI[NEN], a joint initiative with the University of Groningen, UMC Groningen, and Siemens.
since 2002	Board member of the Contact group on Experimental Methods J.M. Burgerscentre for Fluid Mechanics.
2000-2006	Board member of the Contact group on Two-phase flow J.M. Burgerscentre for Fluid Mechanics.
distinction	Fellow of the Acoustical Society of America.

Member of the Acoustical Society of America in the technical areas of Biomedical Acoustics and Physical Acoustics; the American Physical Society, Division of Fluid Dynamics, the IEEE Society of Ultrasonics, Ferroelectrics and Frequency Control/Medical Ultrasonics, the Dutch Society for Medical Ultrasound, the European Federation of Societies for Ultrasound in Medicine and Biology, and the World Federation for Ultrasound in Medicine and Biology.

Reviewer for manuscripts of Physical Review Letters, Applied Physics Letters, Physical Review E, Physical Review Fluids, Journal of the Acoustical Society of America, Ultrasound in Medicine and Biology, Physics of Fluids, IEEE Transactions on Ultrasonics Ferroelectrics, and Frequency Control, Applied Physics B, Experiments in Fluids, Nonlinear Dynamics, Biomaterials, Ultrasonics, Ultrasonics Sonochemistry, International Journal of Multiphase Flow, Journal Micromech. Microengineering, Journal of Fluid Mechanics, Physics in Medicine and Biology, Journal of Biomedical Optics, Lab on a Chip, European Physics Letters, Langmuir, Microfluidics and Nanofluidics, Experimental Thermal and Fluid Science, Journal of Controlled Release, Biomaterials, Biomicrofluidics, Advanced Materials, Science Advances, ACS Nano, Nature Scientific Reports and Nature Communications.

Reviewer for proposals of Technology Foundation STW, Foundation for Fundamental Research of Matter FOM, Research Foundation Flanders FWO, Cancer TMOI of the French National Alliance for Life and Health Sciences (AVIESAN), the French National Cancer Institute (INCa), French National Research Agency (ANR) and the European Research Council (ERC-St, ERC-Adv).

Jury member of the Technology Foundation STW Open Technology Program and FOM Projectruimte. Jury member of the NWO Innovational Research Incentives Scheme VIDI for STW 2013 and 2014.

Member of Tenure Track committees at KTH Royal Institute of Technology, Stockholm, Sweden and University of Colorado, Boulder, CO, USA.

Plenary lectures and keynotes

2021	"Bubbles for medical imaging and therapy", Point of Care Ultrasound Conference (online).
2021	"Microbubble Nanotechnology for Nanomedicine", MinacNed the micro- and nano association for industry and science (online).
2020	"Bubbles and droplets nanotechnology for ultrasound diagnostics and therapy", Forum Acusticum 2020 Lyon, France.
2020	"Ultrasound-mediated drug delivery: microbubble physics", Centre for Innovative Ultrasound Solutions CIUS Fall Meeting 2020, Trondheim, Norway.
2019	"Bubbles and droplets nanotechnology for ultrasound diagnostics and therapy", 2019 Frontier Acoustics Symposium, SIAT Chinese Academy of Sciences, Shenzhen, China.
2018	"Monodisperse microbubble ultrasound contrast agents: formulations, characterization, and advanced imaging potential", Leeds Microbubble Symposium, Leeds, UK.
2017	"Engineering microbubbles for precision medicine with ultrasound", plenary talk at the 21st International Conference on Miniaturized Systems for Chemistry and Life Sciences (μTAS 2017), Savannah, GA, USA.
2017	"Bubble acoustics: streaming and cavitation", keynote at the 14th CBMS Conference on Acoustofludics, San Diego, CA, USA.
2017	"Phospholipid-coated microbubbles for ultrasound imaging and therapy", keynote at the 91st ACS Colloid and Surface Science Symposium, New York, NY, USA.
2017	"Microbubbles for Molecular Imaging", keynote at the International Symposium "Molecular Imaging Agents in Medicine", UMC Groningen, The Netherlands.
2016	"Bubbles and Droplets for sensing and actuation", keynote at the International Workshop on Novel Developments and Applications in Sensor and Actuator Technology, Coburg, Germany.
2015	"The Science of Sound", Arago Congress "The Sound of Science", Enschede, The Netherlands.
2015	"Droplets and bubbles nanotechnology for medical imaging and therapy". keynote at MIRA Event Top Technology for Patients, Enschede, The Netherlands.
2014	"Droplets and bubbles nanotechnology for medical imaging and therapy". IEEE International Ultrasonics Symposium, Chicago, USA.
2011	"Interaction of Microbubbles and Microdroplets with Ultrasound". Physiological Fluid Mechanics, Brunel, London, UK.
2010	"Vasa vasorum imaging with ultrasound contrast agents". IEEE International Ultrasonics Symposium, San Diego, USA.
2010	"The Physics of Microbubbles for Imaging and Therapy". Distinguished speaker International Congress on Acoustics ICA, Sydney, NSW, Australia.
2010	"Nonlinear behavior of ultrasound contrast agent microbubbles and why shell buckling matters" Bubbles & Encapsulation Symposium, London, UK.
2008	"Optical and acoustical characterization of microcapsules for drug delivery". Dutch Nephrology Days, Veldhoven, The Netherlands.
2007	"Bubbles and Jets for Diagnosis and Therapy". Fysica 2007 annual congress of the Dutch Physics Society NNV, Eindhoven, The Netherlands. "Where curiosity may lead to" on how the results of curiosity-driven research finds its ways into industrial applications.
2005	International Seminar on Acoustics, Gdansk, Poland. "On the Sound of Bubbles and Shrimp"
2004	Medical Technology Symposium, AMC Academic Medical Center, Amsterdam, The Netherlands. "Microbubbles for Ultrasound Imaging and Therapy".
2003	The plenary speaker, 2003 IEEE International Ultrasonics Symposium, Honolulu, USA. "Shrimp, Snap, Bubble, and Pop".

PhD thesis supervision

Number of (co)supervised PhD thesis: 39
Formally acting as (co)promotor (since 2007): 25
Current number of PhD students: 17

25. Yaxing Li
    Evaporating Multicomponent Droplets
    University of Twente, Enschede, the Netherlands (26 June 2020).
24. Simon Overeem
    Geometrical changes of stent graft configurations after complex endovascular surgery
    University of Twente, Enschede, the Netherlands (20 September 2019).
23. Arjen Fraters
    Inkjet printing: bubble entrainment and satellite formation
    University of Twente, Enschede, the Netherlands (21 December 2018).
22. Erik Groot Jebbink
    Aortoiliac stenting: how blood flow and stents interact
    University of Twente, Enschede, the Netherlands (01 December 2017).
21. Pascal Sleutel
    Droplets: Drag, Coalescence and Impact.
    University of Twente, Enschede, the Netherlands (17 February 2017).
20. Erik-Jan Staat
    Droplet dynamics during flight, impact and evaporation.
    University of Twente, Enschede, the Netherlands (31 March 2016).
19. Guillaume Lajoinie (cum laude)
    Ultrasound contrast agents: bubbles, drops, and particles
    University of Twente, Enschede, the Netherlands (24 September 2015).
18. Tim Segers
    Monodisperse bubbles and droplets for medical applications
    University of Twente, Enschede, the Netherlands (29 May 2015).
17. Mark-Jan van der Meulen
    Meniscus motion and drop formation in inkjet printing
    University of Twente, Enschede, the Netherlands (19 February 2015).
16. Tom Kokhuis
    StemBells: a novel stem cell delivery platform using microbubbles and ultrasound
    Erasmus MC, Rotterdam, the Netherlands (19 November 2014).
15. Ying Luan
    Ultrasound-controlled lipid shedding from vibrating microbubbles
    Erasmus MC, Rotterdam, the Netherlands (19 November 2014).
14. Oleksandr Shpak
    Acoustic Droplet Vaporization
    University of Twente, Enschede, the Netherlands (29 August 2014).
13. Ricardo Gomes de Macedo
    Optimizing the chemical aspects of root canal irrigation
    University of Amsterdam, Amsterdam, the Netherlands (20 December 2013).
12. Telli Faez
    Subharmonic venture
    Erasmus MC, Rotterdam, the Netherlands (18 October 2012).
11. Bram Verhaagen
    Root canal cleaning, through cavitation and microstreaming
    University of Twente, Enschede, the Netherlands (28 September 2012).
10. Erik Gelderblom
    Ultra high-speed fluorescence imaging
    University of Twente, Enschede, the Netherlands (20 April 2012).
9. Lei-Meng Jiang
    Insights into passive ultrasonic irrigation
    University of Amsterdam, Amsterdam, the Netherlands (04 April 2012).

8. Aaldert Zijlstra
   Acoustic surface cavitation
   University of Twente, Enschede, the Netherlands (02 September 2011).
7. Wim van Hoeve
   Fluid dynamics at a pinch - droplet and bubble formation in microfluidic devices
   University of Twente, Enschede, the Netherlands (23 March 2011).
6. Arjan van der Bos
   Air entrainment and drop formation in inkjet printing
   University of Twente, Enschede, the Netherlands (14 january 2011).
5. Marlies Overvelde
   Ultrasound contrast agents: Dynamics of coated bubbles
   University of Twente, Enschede, the Netherlands (09 April 2010).
4. Jeroen Sijl
   Ultrasound contrast agents: Optical and acoustical characterization
   University of Twente, Enschede, the Netherlands (16 December 2009).
3. Sander van der Meer
   Ultrasound contrast agents: Resonances of coated bubbles
   University of Twente, Enschede, the Netherlands (12 September 2007).
2. Jos de Jong
   Air entrapment in piezo inkjet printing
   University of Twente, Enschede, the Netherlands (25 April 2007).
1. Valeria Garbin
   Optical tweezers for the study of microbubble dynamics in ultrasound
   University of Trieste, Trieste, Italy (12 February 2007).

Cosupervised PhD theses:

- Huanshu Tan – Evaporation and dissolution of droplets in ternary – University of Twente, Enschede, the Netherlands (24 August 2018).
- Jorrit Boersen – Validation of Endovascular Aneurysm Sealing for Treatment of Abdominal Aortic Aneurysm – University of Twente, Enschede, the Netherlands (14 July 2017).
- Tom van Rooij – Ultrasound Contrast Agents for Imaging and Therapy – Erasmus MC, Rotterdam, the Netherlands (18 January 2017).
- Ine De Cock – Unraveling microbubble-cell interactions and drug delivery mechanisms in ultrasound-guided therapy – Ghent University, Ghent, Belgium (25 January 2016).
- Christos Boutsioukis – Application of a Computational Fluid Dynamics model to the study of root canal irrigation – Aristotelian University of Thessaloniki, Thessaloniki, Greece (28 June 2010).
- Rik Vos – Single Microbubble Imaging – Erasmus MC, Rotterdam, the Netherlands (20 January 2010).
- Marcia Emmer – The onset of bubble vibration – Erasmus MC, Rotterdam, the Netherlands (23 January 2009).
- Christian Veldhuis – Leonardo's Paradox: Path and Shape Instabilities of Particles and Bubbles – University of Twente, Enschede, the Netherlands (07 February 2007).
- Peggy Palanchon – Ultrasound Harmonic Classification of Microemboli – Erasmus MC, Rotterdam, the Netherlands (22 September 2004).
- Judith Rensen – Bubbly Flow – University of Twente, Enschede, the Netherlands (26 September 2003).
- Greger Juhlin – Development and Application of Laser Diagnostics for Studies of Phenomena Related to IC Engine Combustion – Lund Institute of Technology, Lund, Sweden (12 December 2003).
- Ruediger Toegel – Reaction-Diffusion Kinetics of a Single Sonoluminescing Bubble –University of Twente, Enschede, the Netherlands (11 December 2002).
- Jeroen Louwers – Combustion and decomposition of hydrazinium nitroformate (HNF) and HNF propellants – Delft University of Technology, Delft, the Netherlands (02 June 2000).
- Pieter Nooren – Stochastic modeling of turbulent natural-gas flames – Delft University of Technology, Delft, the Netherlands (14 September 1998).

Research projects and grants

Number of completed research projects: 45 (since 1999).
Number of running research project: 14
As principal investigator, main applicant and/or co-applicant

59. Quantifying the unknowns in breastfeeding: infant milk intake and composition.
    NWO VIDI Nienke Bosschaart.
58. reMIND - Regenerative Medicine Innovative products as enabling technologies for the treatment of Alzheimer and other Neurological Diseases.
    REACT-EU European Commission - 3.4 MEUR – 2 researchers –consortium with BIOS and AST groups, Demcon, and local SMEs.
57. Optical coherence tomography and high-fidelity flow simulations for improved stent planning in femoropopliteal disease.
    Top Technology Twente: Connecting Industry.
    1 PhD and 116 kEUR running cost – with Michel Reijnen and Kartik Jain.
    with Abbott Vascular.
56. Microbubbles and ultrasound to guide radioembolization therapy: implementation of a patient-specific treatment strategy.
    NWO VENI Erik Groot Jebink.
55. ULTIMO - Understanding liver treatment to improve microsphere optimal distribution.
    NWO-TTW Open Technology Programme – 914 kEUR - 3 PhDs - with Frank Nijsen (Radboudumc), Erik Groot Jebbink and Rob Hagmeijer.
54. 2ACP - In vitro and in vivo characterization of injectable in situ curing polymers and interaction with stent grafts used for aortic aneurysm treatment.
    Health Holland – 861 kEUR - 1 PhDs with Erik Groot Jebbink and Michel Reijnen.
    with TripleMed.
53. ADEAR - Aorta aneurysm dynamics and aortic endograft outcome
    Top Technology Twente: University of Twente Connecting Industry program – 1.2 MEUR - 2 PhDs with with Erik Groot Jebbink, Michel Reijnen and Bob Geelkerken.
    with Terumo Aortic.
52. VORTECS - Ultrafast ultrasound blood flow quantification for diagnosis and treatment of vascular disease
    NWO-TTW Open Technology Programme – 1.0 MEUR - 2 PhDs and 1 postdoc 4 yr
    with Chris de Korte.
51. ULTRA-X-TREME - Ultrafast Ultrasound Imaging for Extended Diagnosis and Treatment of Vascular Disease
    NWO-TTW Perspectief – 4.2 MEUR - 8 PhDs and 2 postdocs in 5 host institutions.
    with Chris de Korte.
50. Water and fire: A new intumescent coating based on heat-induced vaporization of water-filled microcapsules.
    NWO VENI Guillaume Lajoinie.
    with PPG Coatings.
49. UCOM Ultrasound Cavitation in Soft Materials
    EU Innovative Training Networks
    15 PhDs in 8 host institutions, including City University of London, TU Munich, EPFL Lausanne, UPMC Sorbonne University, Institute of Cancer Research UK
    with Detlef Lohse and David Fernandez-Rivas
48. Precision Medicine by integrating Multiscale Functional Imaging and Advanced Machine Learning
    4TU.Federation High Tech for a Sustainable Future – 4.6 MEUR
    7 tenure trackers and 7 postdocs and 980 kEUR running costs
    programme leader with 18 PIs (UTwente, TU Delft, TU Eindhoven, WUR Wageningen).
47. Ultrafast flow quantification in patients with aortoiliac occlusive disease.
    Stichting Lijf en Leven – 1 researcher 3 years and 105 kEUR materials
    with Michel Reijnen.

46. Fundamentals in Inkjet Printing (FIP)
    FOM Industrial Partnership Program – 12 PhDs, 4 postdocs, and 2 group leaders
    with Detlef Lohse, Herman Wijshoff and Harald van Brummelen.

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45. Mono-RAILS: monodisperse, resonant, activatable, innovative, long-lasting, and specific microbubbles
    Top Technology Twente: Connecting Industry
    1 postdoc (2 yr) and 55 kEUR running costs
    with Bracco Suisse S.A.
44. A breakthrough in viscous fluid atomization by overturning the physics of droplet generation.
    Keck Foundation – 2 PhDs and 1 postdoc and 400 kEUR investments
    with James Friend (UCSD).
43. Directional instabilities in piezoelectric inkjet printing
    HTSM call STW – 2 PhDs, 1 postdoc and 60 kEUR investments
    with Detlef Lohse and Federico Toschi and Océ.
42. Rapid microsensor to diagnose bacterial infection in COPD exacerbations
    MIRA/MST/ZGT Pioneers in Health Care (PIHC) – 1 researcher 8 months
    with David Fernandez Rivas and Frans de Jongh.
41. SUPERA popliteal aneurysm stent.
    Abbott – 1 researcher 8 months
    with Jörg Tessarek (Bonifatius Hospital Lingen) and Michel Reijnen (Rijnstate Hospital Arnhem).
40. Non-surgical aortic repair
    TripleMed – 1 researcher 6 months
    with Experimental Centre Technical Medicine University of Twente.
39. Plane wave imaging with contrast
    MIRA – 1 postdoc 3 yr
    with Chris de Korte and Srirang Manohar.
38. How do meniscus shape instabilities lead to air entrapment in piezo-acoustic inkjet printing?
    HTSM call STW – 1 PhD and 80 kEUR investments
    with Detlef Lohse and Andrea Prosperetti and Océ.
37. Flow visualization around kissing stents in the aortic bifurcation
    ECTM – 1 PhD and 60 kEUR investments
    with Kees Slump/EWI.
36. Self-resonating micronozzles
    NanoNextNL 10B Sensors and Actuators – 1 PhD
    with Medspray, Detlef Lohse and Miko Elwenspoek/TST.
35. Contact line instability and surface nanobubbles in immersion lithography
    NanoNextNL 10B Sensors and Actuators – 1 PhD
    with ASML and Detlef Lohse.
34. Towards faster piezo-acoustic inkjet printing
    NanoNextNL 10B Sensors and Actuators – 1 PhD
    with Océ and Detlef Lohse.
33. Understanding surface acoustic wave atomisation for pulmonary delivery of drug aerosols in personalized medicine
    ARC Australian Research Council Discovery Project (980 kAUD)
    with James Friend/RMIT Melbourne and Hsueh-Chia Chang/Notre Dame.
32. Towards renal nanomedicine: Targeting of ultrasound-sensitive siRNA-loaded microbubbles as research tool and therapeutic agent in renal disease
    Nierstichting Dutch Kidney Foundation – 1 postdoc and 40 kEUR for preclinical small animal studies
    with Peter Deen/Radboud UMCN.
31. Nanofluidics for Lab-on-a-Chip NanoLOC
    NanoNextNL 3B Nanomedicine – 1PhD
    with Detlef Lohse and Albert van den Berg/BIOS.

30. Molecular Imaging
    NanoNextNL 3C Nanomedicine – 2 PhDs
    with Nanomi, Lionix and Nico de Jong/Erasmus MC.
29. BμbClean – Controlled cleaning with microbubbles
    STW Valorization Grant phase 1 – 25 kEUR for market research
    with Bram Verhaagen, David Fernadez-Rivas and Han Gardeniers.
28. A monodisperse microbubble generator for the production of ultrasound contrast agents
    STW Valorization Grant phase 2 – 200 kEUR for prototype development
    with Wim van Hoeve/Tide Microfluidics and Detlef Lohse.
27. Directing adipose tissue-derived stem cells using targeted microbubbles
    STW Open Technology Program – 1 PhD
    with Nico de Jong/Erasmus MC and Otto Kamp/VUMC.
26. Sonodrugs: Image-controlled ultrasound-induced drug delivery
    EU NMP Program of the European Commission's 7th Framework – 1 PhD
    with Nico de Jong/Erasmus MC.
25. Contact line control during wetting and dewetting
    FOM Industrial Partnership Project – 1 PhD
    with Detlef Lohse, Jacco Snoeijer, and Océ.
24. Superheated nanodroplets
    FOM Projectruimte – 1 PhD + 80 kEUR investments
    with Nico de Jong/Erasmus MC.
23. ENDO Ultrasonic cleaning of root canals
    Endodontic therapy through microstreaming and cavitation (extension)
    STW - 1 yr postdoc for product development
    with Luc van der Sluis/Paul Sabatier University and Acteon Satelec and FKG Dentaire.
22. On the physical and (sono)chemical effects of ultrasound or laser activation for endodontic therapy – 1 PhD
    with Luc van der Sluis/Paul Sabatier University and Paul Wesselink/ACTA
21. CFD Ultrasound
    EU Marie Curie Intra-European Fellowships – 2 yr postdoc.
20. ECIU European Consortium of Innovative Universities
    Joint PhD program University of Twente-Swinburne – 20 kEUR travel funds
    with Stefan Luding and Richard Boucherie.
19. A monodisperse microbubble generator
    STW Valorization Grant phase 1 – 25 kEUR for market research
    with Wim van Hoeve and Detlef Lohse.
18. Carotid Ultrasound CARUS
    SenterNovem – 1PhD
    with Nico de Jong/Erasmus MC.
17. Ultra high-speed fluorescence imaging
    University of Pittsburgh Medical Center – 10 kEUR
    with Liza Villanueva/UPMC.
16. ENDO Ultrasonic cleaning of root canals
    Endodontic therapy through microstreaming and cavitation
    STW Open Technology Programma – 2 PhDs + 250 kEUR investments
    with Luc van der Sluis/ACTA and Paul Wesselink/ACTA.
15. Optical micromanipulation and pN force measurements for US molecular imaging
    ICIN Netherlands Heart Institute – 1 yr postdoc
    with Nico de Jong/Erasmus MC.
14. Investigation of bubble interaction dynamics in medical ultrasound
    Acoustical Society of America Hunt Fellowship – 1 yr postdoc.
13. Optical micromanipulation and pN force measurements for US molecular imaging
    NWO Rubicon programme – 1 yr postdoc.

12. Optical tweezers
    MESA+ Institute of Nanotechnology strategic resources – 190 kEUR
    with Detlef Lohse and Albert van den Berg.
11. Entrained bubbles in ink-jet printing
    FOM/STW programme on dispersed multiphase flow
    with Detlef Lohse and Océ.
10. Monodisperse drop formation
    MicroNed II-A Atomization – 1 PhD
    with Medspray and FrieslandCampina.
9. Megasonic cleaning
    Interuniversity Microelectronics Centre IMEC, Leuven, Belgium – 1 PhD
    with Detlef Lohse and Claus-Dieter Ohl.
8. IOP Photonic Devices: Plasmonic nanoparticle based molecular imaging and therapy
    SenterNovem – 40 kEUR for in-vitro physical characterization with Brandaris camera
    with Ton van Leeuwen/AMC.
7. HTA Hydrotesting Alliance
    High-speed imaging in ship propulsion technology
    EU European Network of Excellence (NoE) – 100 kEUR for human capital mobility
    with MARIN, INSEAN, HSVA, SSPA.
6. TAMIRUT Targeted Microbubbles and Remote Ultrasound Transduction
    EU Commission specific targeted research project STREP project – 2 PhDs
    with Esaote, Bracco, Vermon, Fraunhofer IBMT, Innsbruck Medical University and Nico de Jong/Erasmus MC.
5. BURST Bubbles for Ultrasound and Therapy
    SenterNovem Innovation Subsidy project – 3 yr postdoc + 1 PhD
    with Philips Research, Nico de Jong/Erasmus MC, and Remko Boon/WUR.
4. NIMTIK Non-invasive molecular tumor imaging and killing
    UT Spearhead portfolio research project – 1 PhD
    with Ton van Leeuwen, Nico de Jong and Jan Feijen.
3. Ultrasound contrast agents: a tool for diagnosis and therapy
    FOM Physics for Technology – 2 PhDs + 2 × 3 yr postdoc + 408 kEUR investment
    with Detlef Lohse, and Nico de Jong/Erasmus MC.
2. Disturbing bubbles in ink-jet printing
    FOM Dispersed multiphase flow Programme –1 PhD
    with Detlef Lohse, and Océ.
1. Dispersed multiphase flow
    FOM Dispersed multiphase flow programme – 5 yr assistant professorship
    with Detlef Lohse.

Patents

1. W. van Hoeve, E. de Castro-Hernández, J.M. Gordillo, M. Versluis, and D. Lohse,
   “Apparatus and method for mass producing a monodisperse microbubble agent”,
   Patent Application PCT/NL2012/050179 (filing date 22 March 2012).

2. T. Segers and M. Versluis,
   “Method for size-sorting microbubbles and apparatus for the same”,
   International application nr. PCT/NL2013/050357 (filing date 14 May 2013).

3. B. Verhaagen, D. Fernandez-Rivas, J.G.E.G. Gardeniers, M. Versluis,
   “Micropits for ultrasonic treatment”,
   International application nr. PCT/EP2015/056806 (filing date 27 March 2015).

Outreach 2013-2021

- Vibrant nanocapsules - interview for biannual magazine NanoTextNL of the NanoNextNL nanotechnology consortium, with Gert Veldhuis/Nanomi, July 2013.
  http://issuu.com/nanonextnl/docs/ntxt2-web/23
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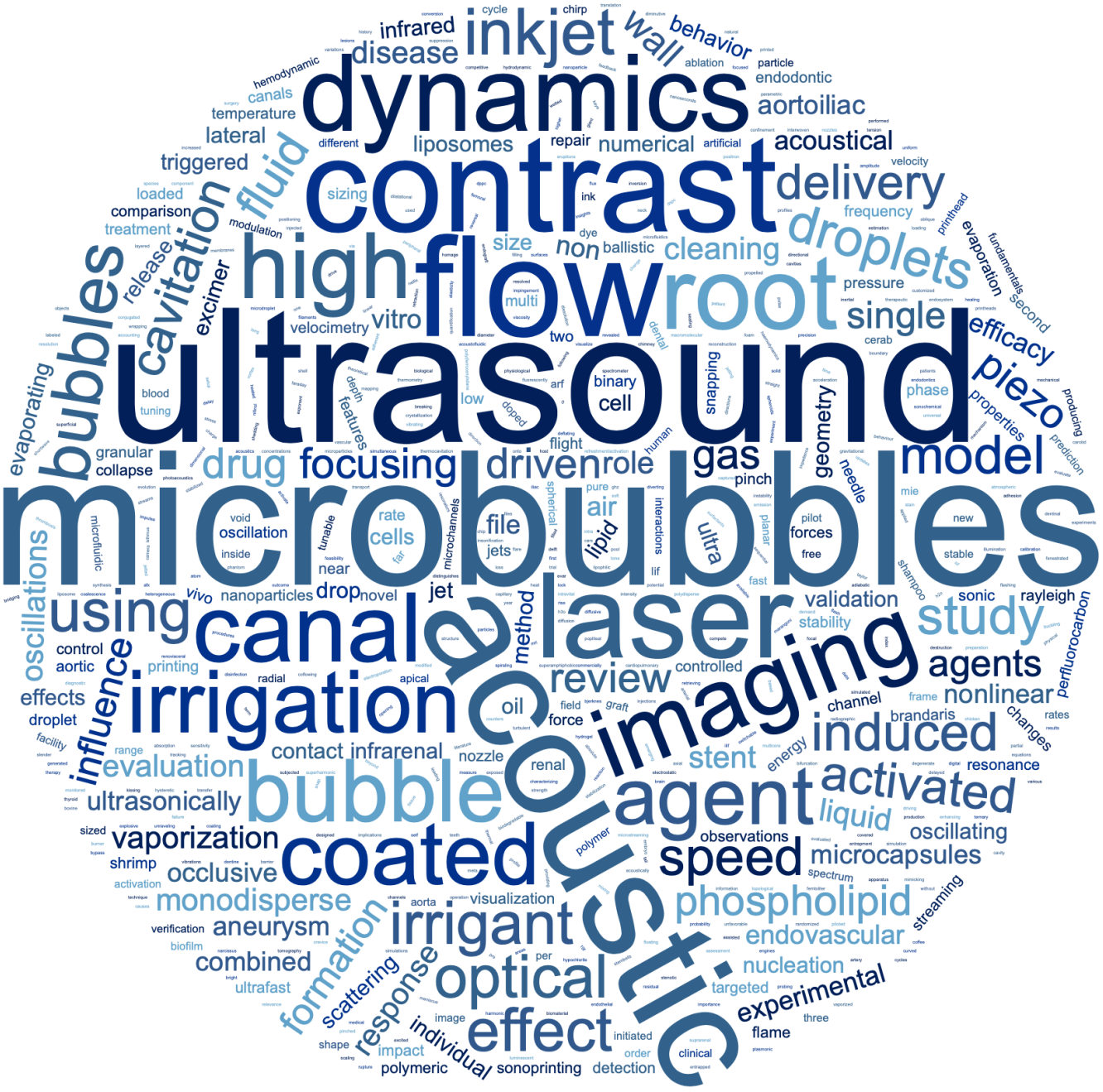

Bubble word cloud

containing all words from the titles of my published works

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