

# Curriculum Vitae

## Personal

Full name: Wolf Maximilian Harmening  
Date of birth: 16.03.1978  
Family status: Married, two children  
Nationality: German  
Office address: Department of Ophthalmology  
University of Bonn,  
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## Education and academic positions

2013 – Now Research group leader (*DFG Emmy Noether-Nachwuchsgruppenleiter*)  
at the Department of Ophthalmology, University of Bonn, Germany  
2011 – 2013 Post-doctoral fellow at the School of Optometry,  
University of California, Berkeley, USA, with Prof. Dr. Austin Roorda  
2008 – 2010 Research assistant at the Department of Zoology and Animal Physiology,  
Rheinisch Westfälische Technische Hochschule Aachen (RWTH), Aachen, Germany  
2005 – 2008 Ph.D. program and dissertation on *Spatial vision in barn owls*, RWTH Aachen  
Grade: summa cum laude; Supervisor: Prof. Dr. Hermann Wagner  
2004 – 2005 Diploma thesis in biology on *Hyperacute perception in barn owls*, RWTH Aachen  
Major: animal physiology  
2000 – 2005 Biology, RWTH Aachen  
1998 – 1999 Electrical engineering, RWTH Aachen  
1997 – 1998 Electrical engineering, Distance Teaching University, Hagen, Germany  
1997 Abitur, Helmholtz-Gymnasium, Bonn, Germany

## Competitive prizes and awards

2015 Best scientific talk at the annual meeting of the German Retina Society, Göttingen  
2014 „Reinhard von König Förderpreis für Technik und Fortschritt“,  
Stiftung Schloss Fachsenfeld, Aalen, Germany  
2014 Research grant of the Carl Zeiss Education and Science Fund  
2013 Emmy Noether-Program of the German Research Foundation (DFG)  
2013 Return stipend (*Rückkehrstipendium*) awarded by the DFG  
2012 Finalist in the return program of the federal Ministry of Innovation, Science and  
Research (*NRW-Rückkehrerprogramm*)  
2011 Two-year research fellowship awarded by the DFG  
2011 Feodor-Lynen research fellowship awarded by the Alexander von Humboldt  
Foundation (*Returned by awardee to avoid overlap with DFG fellowship, see above*)  
2009 Awarded the “Borchers Plakette” for excellent dissertation, RWTH Aachen  
2007 Postgraduate scholarship for highly qualified doctoral candidates, RWTH Aachen  
2006, 2007 Travel stipends awarded by the DFG and the German Neuroscientific Community for  
visiting international and national conferences: European Conference on Visual

Perception (ECP) 2007, Arezzo, Italy; the German Neuroscientific Meeting 2007, Göttingen, Germany; and ECP 2006, St. Petersburg, Russia

## Research Interests

Optical, physiological and perceptual characteristics of human and animal vision.

Methods: adaptive optics, high-resolution retinal imaging, visual psychophysics, behavioral testing

## Research funding

- 2018 – 2020 *Scotopic Adaptive optics scanning laser ophthalmoscopy (Scotopic-AOSLO)*  
PI: Dr. Wolf Harmening; Gertrud Kusen Stiftung, Hamburg, Budget: 76k EUR
- 2015 – 2016 *High-contrast single cell micro-stimulation with adaptive optics (HC-AOSLO)*  
PI: Dr. Wolf Harmening; Carl Zeiss Förderfonds, Budget: 60k EUR
- 2013 – 2019 *Advanced adaptive optics instrumentation for ophthalmic imaging and function testing: the single cell approach to visual function and dysfunction*  
PI: Dr. Wolf Harmening; German Research Foundation, DFG (Ha 5323/5-1)  
Budget: 1.7Mio EUR
- 2011 – 2013 *Single cone contributions to color perception using adaptive optics*  
PI: Dr. Austin Roorda; National Eye Institute, NIH (EY021642)  
Role: primary postdoctoral researcher, Budget: 400k EUR
- 2011 – 2012 *Probing retinal and neural mechanisms of vision by hyperacute optical stimulation of single photoreceptor cells*  
PI: Dr. Wolf Harmening; German Research Foundation, DFG (Ha 5323/2-1)  
Budget: 100k EUR
- 2007 – 2010 *Mechanisms of active vision in barn owls: From atomic head movements to complex visual behaviors*  
PI: Dr. Hermann Wagner; German Research Foundation, DFG (Wa 606/17-1)  
Role: primary postdoctoral researcher, Budget: 200k EUR

## Teaching activity

- 2016 – Now Journal Club and scientific methods for Orthoptik students
- 2013 – Now Internal seminar, *Fortbildung f. ärztliche und wissenschaftliche Mitarbeitende*, Miscellaneous vision science topics
- 2009 Seminar *Neurobiology* for undergraduates, with Prof. Dr. Hermann Wagner (HW)
- 2009 Seminar *Statistics* for graduate students, with Prof. Dr. Jörg Mey
- 2009 Lecture *Biological Information Processing*, topic: Stereovision
- 2008 – 2010 Lecture *Ethology*, topics: *Stereovision, Conditioning, Cognition*
- 2008 Seminar *Neurobiology* for undergraduates, with HW
- 2008 Internal seminar, topic: *Error bars*
- 2008 Seminar *Ethology*, with HW
- 2006 – 2010 Advanced lab class Biological information processing for undergraduates, Course: *Visual psychophysics – experiments and models*
- 2005 – 2010 Lab class *Animal physiology* for undergraduates, course: *Visual psychophysics*

## Scientific mentoring

- 2016 – 2017 Bachelor thesis of Lennart Domdei, *High-contrast light modulation for zero-background micro-stimulation.*
- 2016 – Now Ph.D. thesis of Jenny Reiniger, *Fundus-guided psychophysics.*
- 2014 – Now Ph.D. thesis of Niklas Domdei, *Single-cone psychophysics.*
- 2008 – 2010 Co-supervision of Ph.D. thesis of Anne Schüller, *Evaluating experimental tools for German second grammar school curriculum in mathematics and biology: The stereo acuity toolbox.*
- 2010 Bachelor thesis of Anna-Marina van der Meer, *The influence of stimulus configuration in visual hyperacuity tasks on test repeatability.*
- 2009 Supervision of advanced practical course of Anne Lobecke, *Vernier acuity and its relation to the optics of the human eye.*
- 2008 – 2009 Co-supervision of diploma thesis of Julius Orłowski, *Night vision in barn owls: visual resolution and absolute sensitivity under dark adaptation.*
- 2005 – 2006 Co-supervision of first state examination of Anna Schornstein, *Psychophysical measurement of stereo and Vernier acuity under dark adaptation in the human visual system.*
- 2005 – 2006 Co-supervision of diploma thesis of Katrin Göbbels, *Vernier acuity in barn owls (Tyto alba).*

## Service to the scientific community

Ad-hoc referee for international and national peer-reviewed journals:

*Vision Research, Journal of Vision, Proceedings of the National Academy of Sciences, Journal of Comparative Physiology A, Journal of Ornithology, Der Ophthalmologe, Visual Neuroscience, Biomedical Optics Express, PLOS One, Biological Cybernetics*

Ad-hoc referee for international and national research agencies:

*German Research Foundation (DFG, Germany), Biotechnology and Biological Sciences Research Councils (BBSRC, UK), MJ Murdock charitable trust (USA), FWF Austrian Science Fund (Austria)*

Conference contributions:

2018: Organizer and chair of symposium at the *Annual meeting of the Deutsche Ophthalmologische Gesellschaft (Bonn, Germany)*, title: *Das Bild verstehen: Grundlagen aktueller retinaler Bildgebungstechniken.* German Ophthalmology association.

2017: Organizer and chair of symposium at the *European Conference on Visual Perception 2017 (Berlin, Germany)*, title: *Seeing cells: linking individual photoreceptor function to visual perception.*

2016: Scientific judge for OSA funded student awards at the *European Meeting on Visual and Physiological Optics 2016 (Antwerpen, Belgium)*

2006: Member of the scientific committee of the *European Conference on Visual Perception 2006 (St. Petersburg, Russia)*

Foundation membership:

Since 2017: Member of the scientific advisory board for the *Dr. Eberhard and Hilde Rüdiger charitable trust (Stiftung) (NRW, Germany)*

## Publications

(\*denotes equal contribution)

### Peer-reviewed journal articles and book chapters

1. Domdei N\*, Domdei L\*, Reiniger J, Linden M, Holz FG, Roorda A, **Harmening WM** (2018) Ultra-high contrast retinal display system for single photoreceptor psychophysics. *Biomedical Optics Express*. 9: 157-172 DOI 10.1364/BOE.9.000157
2. Fang PP, Domdei N, Herrmann P, Schmitz-Valckenberg S, Holz FG, **Harmening WM**, Krohne TU (2017) Minimal optical coherence tomography B-scan density for reliable detection of intra- and subretinal fluid in patients with macular diseases. *Retina*. DOI 10.1097/IAE.0000000000001918
3. Birtel J, **Harmening WM**, Krohne TU, Holz FG, Issa P, Herrmann P (2017) Retinal injury following laser pointer exposure—a systematic review and case series. *Deutsches Ärzteblatt International*. 114: 831-837. DOI 10.3238/arztebl.2017.0831
4. Tuten WS\*, **Harmening WM\***, Sabesan R, Roorda A, Sincich LC (2017) Spatiochromatic interactions between individual cone photoreceptors in the human retina. *The Journal of Neuroscience*, 37(39) 9498-9509. DOI 10.1523/JNEUROSCI.0529-17.2017
5. **Harmening WM** (2017) [Contrast sensitivity and visual acuity in animals] Kontrastempfindlichkeit und Sehschärfe bei Tieren. *Der Ophthalmologe*. DOI 10.1007/s00347-017-0561-4
6. Pfau M, Lindner M, Mueller, PL, Birtel J, Finger RP, **Harmening WM**, Fleckenstein M, Holz FG, Schmitz-Valckenberg S (2017) Effective dynamic range and retest-reliability of two-color scotopic fundus-controlled perimetry using the S-MAIA in patients with macular diseases. *Investigative Ophthalmology & Visual Science*. DOI 10.1167/iovs.17-21454
7. Reiniger JL\*, Domdei N\*, Pfau M, Müller PL, Holz FG, **Harmening WM** (2017) Potential of adaptive optics for the diagnostic evaluation of hereditary retinal diseases. *Klinische Monatsblätter der Augenheilkunde*, 234: 311-319. DOI 10.155/s-0043-100631
8. Ratnam K, Domdei N, **Harmening WM\***, Roorda A\* (2017) Benefits of retinal image motion at the limits of spatial vision. *Journal of Vision*, 17(1): 30. DOI 10.1167/17.1.30
9. **Harmening WM** (2017) Adaptive optics for Ophthalmology. *Der Ophthalmologe*. 114(3): 196-197. DOI 10.1007/s00347-016-0413-7
10. Reiniger JL, Domdei N, Holz FG, **Harmening WM** (2017) Technical principles of adaptive optics in ophthalmology. *Der Ophthalmologe*. 114:198-205. DOI 10.1007/s00347-017-0440-z
11. Sincich LC, Sabesan R, Tuten WS, Roorda A, **Harmening WM** (2016) Functional Imaging of Cone Photoreceptors. In: Baraas R, Marshall J, Kremers J (eds.) *Human Color Vision. Volume 5 of the Springer Series in Vision Research*. pp 71-104
12. Domdei N, Reiniger JL, Pfau M, Charbel Issa P, Holz FG, **Harmening WM** (2016) Histology in the living eye: non-invasive microscopic structure and function analysis of the retina with adaptive optics. *Der Ophthalmologe*. DOI 10.1007/s00347-016-0411-9
13. Pfau M, Lindner M, Fleckenstein M, Finger RP, Rubin G, **Harmening WM**, Morales MU, Holz FG, Schmitz-Valckenberg S (2016) Test–retest reliability of scotopic and mesopic fundus-controlled perimetry using a modified MAIA in normal eyes. *Ophthalmologica*. DOI 10.1159/000453079
14. Meyer J, Fang PP, Krohne TU, **Harmening WM**, Holz FG, Schmitz-Valckenberg S (2016) Optical coherence tomography angiography (OCT-A) in rats. *Der Ophthalmologe*. 114(2): 140-147. DOI 10.1007/s00347-016-0309-6
15. Müller PL, Müller S, Gliem M, Küpper K, Holz FG, **Harmening WM\***, Issa P\* (2016) Perception of Haidinger brushes in macular disease depends on macular pigment density and visual acuity. *Investigative Ophthalmology & Visual Science*, 57(3): 1448-1456
16. Fang PP, **Harmening WM**, Müller PL, Lindner M, Krohne TU, Holz FG (2015) Technical principles of OCT angiography. *Der Ophthalmologe*, 113(1):6-13

17. Bruce KS, **Harmening WM**, Langston BR, Tuten WS, Roorda A, Sincich LC (2015) Normal perceptual sensitivity arising from weakly reflective cone photoreceptors. *Investigative Ophthalmology & Visual Science*, 56(8):4431-4438
18. **Harmening WM\***, Tuten WS\*, Roorda A, Sincich LC (2014) Mapping the perceptual grain of the human retina. *The Journal of Neuroscience*, 34(16):5667-5677
19. **Harmening WM**, Tiruveedhula P, Roorda A, Sincich LC (2012) Measurement and correction of transverse chromatic offsets for multi-wavelength retinal microscopy. *Biomedical Optics Express*, 3(9): 2066-2077
20. Scriba M, **Harmening WM**, Mettke-Hofman C, Vyssotski A, Roulin A, Wagner H, Rattenborg N (2012) Evaluation of two minimally-invasive techniques for electroencephalogram recording in wild or freely behaving animals. *Journal of Comparative Physiology A*, 199(3):183-189
21. Orłowski J, **Harmening WM**, Wagner H (2012) Night vision in barn owls: visual acuity and contrast sensitivity under dark adaptation. *Journal of Vision*, 12(4):1-8
22. **Harmening WM**, Wagner H (2011) From optics to attention: Visual perception in the barn owl. *Journal of Comparative Physiology A*, 197(11): 1031-42
23. **Harmening WM**, Orłowski J, Ben-Shahar O, Wagner H (2011) Overt attention towards oriented objects in free viewing barn owls. *Proceedings of the National Academy of Sciences*, 108(20): 8461-8466
24. van der Willigen RF\*, **Harmening WM\***, Vossen S, Wagner H (2010) Disparity sensitivity in man and owl: psychophysical evidence for equivalent perception of shape-from-stereo. *Journal of Vision*, 10(1): 10, 1-11
25. **Harmening WM**, Nikolay P, Orłowski J, Wagner H (2009) Spatial contrast sensitivity and grating acuity of barn owls. *Journal of Vision*, 9(7): 13, 1-12
26. **Harmening WM** (2009) A case of quasi-infinite visual acuity and illusionary size. *Perception*, 38(5) 781-783
27. Ohayon S, **Harmening WM**, Wagner H, Rivlin E (2008) Through a barn owl's eyes: interactions between scene content and visual attention. *Biological Cybernetics*, 98(2) 115-132
28. **Harmening WM**, Vobig MA, Walter P, Wagner H (2007) Ocular aberrations in barn owl eyes. *Vision Research*, 47(23), 2934-2942
29. **Harmening WM**, Göbbels K, Wagner H (2007) Vernier acuity in barn owls. *Vision Research*, 47(7), 1020-1026

#### Manuscripts submitted/in preparation

30. Bruce KS, **Harmening WM**, Tuten WS, Roorda A, Sincich L (201X) Threshold and summation variability among human cone photoreceptors. In preparation
31. Reiniger JL, Lobecke AC, Verbakel F, de Brabander J, Bach M, Sabesan R, Berendschot TTJM\*, **Harmening WM\*** (201X) Acuity and hyperacuity in the presence of ocular aberrations. In preparation

#### Non-peer reviewed

1. **Harmening WM** (2016) Adaptive Optiken: Möglichkeiten und Grenzen. *Ophthalmologische Nachrichten* 09.2016: 10-11
2. **Harmening WM** (2015) "Adaptive Optics Scanning Laser Ophthalmoscope": Einzelzellfunktionsprüfung möglich. Aus: Visuelle Wahrnehmung wahrgenommen. Abschiedssymposium für Michael Bach in Freiburg. Teil 2. *Z prakt Augenheilkd* 36: 541-544
3. **Harmening WM** (2015) Koppelung von Bildgebung und funktioneller Testung. *Ophthalmologische Nachrichten* 09.2015: 13-14

4. **Harmening WM** (2013) Adaptive Optiken – Scanning Laser Ophthalmoskopie, AOSLO. *Spitzenforschung in der Ophthalmologie. Deutsche Ophthalmologische Gesellschaft*, Ausgabe 2013, ISSN: 1861-4620. pp 92-93
5. **Harmening WM** (2013) Zellgenaue Funktionsprüfung. *Ophthalmologische Nachrichten* 09.2013: 17-18
6. **Harmening WM** (2008) Fundamentals of spatial vision in the barn owl — Ocular aberrations, grating acuity, contrast sensitivity, and vernier acuity. [PhD Thesis] *Rheinisch-Westfälische Technische Hochschule Aachen*. URN: urn:nbn:de:hbz:82-opus-23108

#### Invited talks

1. **Harmening WM** (2018) Neuronale Bildverarbeitung auf Einzelzellebene. *Tagung der Bielschowsky Gesellschaft für Schielforschung und Neuroophthalmologie*, Münster, Germany
2. **Harmening WM** (2018) Einzelzellpsychophysik durch adaptive Optiken. *Jahrestagung der Deutschen Ophthalmologischen Gesellschaft (DOG 2018)*, Bonn, Germany
3. **Harmening WM** (2018) Visuelle Funktion isolierter Photorezeptoren. *Jahrestagung der Deutschen Gesellschaft für angewandte Optik*, Aalen, Germany
4. **Harmening WM** (2018) Single cell stimulation of the living human retina. *Caesar Seminar Series*, Bonn, Germany
5. **Harmening WM** (2017) Visual psychophysics by single cell stimulation. *Seminar lecture at the Institute for Psychology*, Bern, Switzerland.
6. **Harmening WM** (2017) Adaptive Optik für die zellaufgelöste Bildgebung und Funktionstestung der Netzhaut. *Annual Meeting of the German Ophthalmology Society (DOG)*, Berlin, Germany.
7. **Harmening WM** (2017) Single cell psychophysics – Towards foveal cones and rods. *Imaging Series at the Institute of Ophthalmology and Moorfields Eye Hospital*, London, Great Britain
8. **Harmening WM** (2017) Single cell (?) psychophysics. *Kolloquium im Sonderforschungsbereich Wahrnehmung*, Justus-Liebig Universität Giessen, Germany
9. **Harmening WM** (2016) Cellular scale visual function testing. Where we're at. *Vision science seminar, University of Pennsylvania*, Philadelphia, PA, USA.
10. **Harmening WM** (2016) Adaptive optics in visual neuroscience-basics & clinical applications. *Argentinian and Brazilian Chapter of the Association for Research in Vision and Ophthalmology (ARVO) Annual Meeting* Buenos Aires, Argentina
11. **Harmening WM** (2016) Single-cell psychophysics; mapping the perceptual grain of the human retina. *8<sup>th</sup> European Meeting on Visual and Physiological Optics*. Antwerp, Belgium.
12. **Harmening WM** (2016) Adaptive optics in visual neuroscience-basics & clinical applications. *Symposium: Human visual system – Physiology, pathophysiology, rehabilitation and restoration*, Otto-von-Guericke University Magdeburg, Germany.
13. **Harmening WM** (2016) Adaptive Optiken für die ophthalmologische Bildgebung und Funktionsprüfung. *Novartis Makula Update*. Bonn, Germany.
14. **Harmening WM** (2016) Adaptive Optiken für die ophthalmologische Bildgebung und Funktionsprüfung. *178. Versammlung des Vereins Rheinisch-Westfälischer Augenärzte*. Bonn, Germany.
15. **Harmening WM** (2015) Einzelzellpsychophysik. Symposium: Vom Licht zur Wahrnehmung, *Festschrift Prof. Michael Bach*, Universität Freiburg, Germany.
16. **Harmening WM**, Tuten WS, Sincich LC, Roorda A, Holz FG (2015) Single-cone colour perimetry – Where are we now? *Annual Meeting of the German Ophthalmology Society (DOG)*, Berlin, Germany.

17. **Harmening WM**, Roorda A, Holz FG (2015) Adaptive Optiken. *Annual Meeting of the German Ophthalmology Society (DOG)*, Berlin, Germany.
18. **Harmening WM** (2015) Limits of contrast vision and why do owls have poor visual acuity despite their near-perfect optics (with considerations about visual acuity in the animal kingdom). *Annual Meeting of the German Ophthalmology Society (DOG)*, Berlin, Germany.
19. **Harmening WM** (2015) Monitoring of photoreceptor survival by AO-SLO. *VI. International Symposium on AMD*, Baden-Baden, Germany.
20. **Harmening WM**, Domdei N, Holz FG (2015) Neue adaptive Optiken für die ophthalmologische Bildgebung und Funktionsprüfung: Untersuchung visueller Funktion und Dysfunktion auf Einzelzellebene. *28. Tagung der retinologischen Gesellschaft*, Göttingen, Germany.
21. **Harmening WM** (2015) The potential of adaptive optics for retinal degenerations. *10<sup>th</sup> Pro Retina Research-Colloquium*, Potsdam, Germany.
22. **Harmening WM** (2015) Einzelzellpsychophysik. *A<sup>4</sup> Seminar*, Hochschule Aalen, Germany.
23. **Harmening WM** (2015) Single cell psychophysics. *4<sup>th</sup> Winter School and Final OPAL meeting (Optical and Adaptational Limits of Vision)*, Murcia, Spain
24. **Harmening WM**, Tuten WS, Sabesan R, Holz, FG, Roorda A, Sincich LC (2014) Retinale Morphometrie und Funktionsdiagnostik mittels höchstauflösendem adaptive Optics SLO. *22. Jahrestagung der Gesellschaft der Augenärzte Sachsen-Anhalts und Thüringens e.V.*, Magdeburg, Germany
25. **Harmening WM**, Tuten WS, Bruce KS, Holz FG, Roorda A, Sincich LC (2014) Probing single photoreceptor function with adaptive optics. *Macula of Paris, 8th International meeting*, Paris, France
26. **Harmening WM**, Tuten WS, Bruce KS, Holz FG, Roorda A, Sincich LC (2013) Visual function testing on single cone level with a multi-wavelength adaptive optics SLO. *13th EURETINA congress*, Hamburg, Germany
27. **Harmening WM**, Holz FG, Roorda A (2013) Perspektiven retinaler Bildgebung mit adaptiven Optiken bei neurodegenerativen Erkrankungen. *Annual Meeting of the German Ophthalmology Society (DOG)*, Berlin, Germany
28. **Harmening WM**, Holz FG, Roorda A (2013) Retinale Morphometrie und Funktionsdiagnostik mittels höchstauflösendem adaptive optics SLO. *DOG, Berlin*, Germany
29. **Harmening WM**, Sincich LC, Tiruveedhula P, Roorda A (2012) Measurement and correction of transverse chromatic aberration with the adaptive optics scanning laser ophthalmoscope. *Frontiers in Optics: Optical Society of America Annual Meeting*, Rochester, New York, USA
30. **Harmening WM**, Göbbels K, Orłowski J, Nikolay P, Wagner H (2008) Vision in a nocturnal predator: the barn owl. *AVA animal vision meeting*, Cambridge, UK

### Conference talks and posters

1. Roorda A, Schmidt BP, Boehm AE, Bowers NR, **Harmening WM**, Domdei N, Ratnam K, Tuten WS, Sabesan R (2018) Ultra-high contrast, ultra-high resolution gaze-tracking displays for vision research. *Annual meeting of the Society for Information Display (SID)*, Los Angeles, USA
2. **Harmening WM**, Bruce KS, Tuten WS, Roorda A, Sincich LC (2017) Variability in threshold and summation among human cone photoreceptors. *European Conference on Visual Perception (ECVP)*, Berlin, Germany
3. Domdei N, Domdei L, Reiniger JL, Holz FG, Görlitz A, **Harmening WM** (2017) High contrast stimulation with an optimized adaptive optics SLO for cellular level visual psychophysics. *European Conference on Visual Perception (ECVP)*, Berlin, Germany

4. Reiniger JL, Sheehy C, Domdei N, Holz FG, Roorda A, **Harmening WM** (2017) Photoreceptor-resolved visual psychophysics with and without adaptive optics. *European Conference on Visual Perception (ECVP)*, Berlin, Germany
5. Meyer JH, Fang PP, Krohne TU, **Harmening WM**, Holz FG, Schmitz-Valckenberg S (2017) Optical coherence tomography angiography (OCT-A) in an animal model of laser-induced choroidal neovascularization. *ARVO*. Baltimore, MD, USA
6. Fang P, Domdei N, Herrmann P, **Harmening WM**, Schmitz-Valckenberg S, Holz FG, Krohne TU (2017) Effect of optical coherence tomography B-scan density on the identification of intra- and subretinal fluid in patients with macular diseases. *Annual Meeting of the German Ophthalmology Society (DOG)*, Berlin, Germany
7. Pfau M, Lindner M, Müller PL, Birtel J, Finger RP, **Harmening WM**, Fleckenstein M, Holz FG, Schmitz-Valckenberg S (2017) Effective dynamic range and retest-reliability of two-color dark-adapted fundus-controlled perimetry in patients with macular diseases. *Association for Research in Vision and Ophthalmology (ARVO) Annual Meeting*. Baltimore, MD, USA
8. Mueller PL, Mueller S, Gliem M, Küpper K, Holz FG, **Harmening WM**, Charbel Issa P (2016) Wahrnehmung des Haidinger Büschels bei Gesunden und Patienten mit Makulaerkrankungen. *Annual Meeting of the German Ophthalmology Society (DOG)*, Berlin, Germany
9. Roorda A, **Harmening WM**, Neitz J, Sabesan R, Schmidt BP, Sincich LC, Tuten WS (2016) Color percepts elicited by stimulation of individual targeted cones *Fall Vision Meeting of the Optical Society of America*, Rochester, NY, USA
10. Meyer JH, Fang PP, **Harmening WM**, Krohne TU, Holz FG, Schmitz-Valckenberg S (2016) Optical coherence tomography angiography (OCT-A) in an animal model of laser-induced choroidal neovascularization. *ARVO*. Seattle, WA, USA
11. Tuten WS, **Harmening WM**, Sabesan R, Sincich LC, Roorda A (2016) Psychophysical evidence for inhibitory lateral interactions between individual cones in the parafovea. *ARVO*. Seattle, WA, USA
12. Mueller PL, Mueller S, Gliem M, Küpper K, Holz FG, **Harmening WM**, Charbel Issa P (2016) Perception of Haidinger Brushes in retinal disease depends on macular pigment optical density and visual acuity. *ARVO*. Seattle, WA, USA
13. Domdei N, Holz FG, **Harmening WM** (2016) Functional imaging of single photoreceptor cells in the living human eye. *Young Researcher Vision Camp*, Leibertingen, Germany
14. Domdei N, Holz FG, Roorda A, Sincich LC, **Harmening WM** (2015) Characterization of an adaptive optics SLO based retinal display for cellular level visual psychophysics. *European Conference on Visual Perception (ECVP)*, Liverpool, England
15. **Harmening WM**, Ratnam K, Domdei N, Roorda A (2015) Limits of spatial vision in the presence and absence of fixational eye movements. *ECVP*, Liverpool, England.  
DOI: 10.7490/f1000research.1110442.1
16. Ratnam K, **Harmening WM**, Roorda A (2015) Visual acuity is better when retinal images move. *American Academy of Optometry*, New Orleans, LA, USA
17. Domdei N, Holz FG, Sincich LC, **Harmening WM** (2016) Characterization of an adaptive optics SLO-based retinal display for cellular level visual psychophysics. *Young Researcher Vision Camp*, Leibertingen, Germany
18. McKeown AS, Bruce KS, Harmening WM, Sincich LC (2015) Psychophysical estimation of cone connectivity and noise in the human retina, *Annual Meeting of the Society for Neuroscience*. Chicago, IL, USA
19. Bruce KS, **Harmening WM**, Tuten WS, McKeown AS, Roorda A, Sincich LC (2015) Cone signal summation varies with inter-cone distance in the human retina, *Annual Meeting of the Society for Neuroscience*. Chicago, IL, USA
20. Domdei N, Holz FG, Sincich LC, **Harmening WM** (2015) Spatial characteristics of an AOSLO-based micro display for in vivo retinal function testing on single photoreceptor level. *10<sup>th</sup> Annual Research-Colloquium of the Pro Retina*, Potsdam, Germany



21. Ratnam K, **Harmening WM**, Roorda A (2015) Fixational eye movements improve visual performance at the sampling limit. *Vision Science Society Annual Meeting*, St. Pete Beach, FL, USA
22. Domdei N, Sheehy C, Roorda A, Holz FG, **Harmening WM** (2014) Yes, we (s)can: Ein Ophthalmoskop zur Stimulation einzelner Rezeptorzellen. *Jahrestreffen des Arbeitskreises Ophthalmische Optik*, Ilmenau, Germany
23. **Harmening WM**, Domdei N, Tuten WS, Holz FG, Sincich LC (2014) Einzelzellpsychophysik. *Jahrestreffen des Arbeitskreises Ophthalmische Optik*, Ilmenau, Germany
24. Tuten WS, **Harmening WM**, Sabesan R, Sincich LC, Roorda A (2014) Functional mapping of the trichromatic cone mosaic *in vivo*. *Fall Vision Meeting of the Optical Society of America*, Philadelphia, PA, USA
25. Ratnam K, **Harmening WM**, Roorda A (2014) The effects of fixational eye movements on visual acuity measured using Adaptive Optics Scanning Laser Ophthalmoscopy. *European Summer School on Eye Movements*. Freiburg, Germany
26. Bruce KS, **Harmening WM**, Roorda A, Sincich LC (2014) Cone-by-cone threshold variability in the human retina. *Annual Meeting of the Society for Neuroscience*. Washington, D.C., USA
27. Bruce KS, Langston BR, **Harmening WM**, Tuten WS, Roorda A, Sincich LC (2014) Single-cell psychophysical sensitivity of weakly reflective cones in normal subjects. *Association for Research in Vision and Ophthalmology (ARVO) Annual Meeting*. Orlando, FL, USA
28. Bruce KS, **Harmening WM**, Tuten WS, Klein S, Carney T, Roorda A, Sincich LC (2013) Two-cone signal integration in the human retina. *Annual Meeting of the Society for Neuroscience*. San Diego, CA, USA
29. Sabesan R, Tuten WS, **Harmening WM**, Carney T, Klein SA, Roorda A (2013) Measuring color vision on a cellular scale in an adaptive optics scanning laser ophthalmoscope. *Adaptive Optics: Methods, Analysis and Applications*. Arlington, VA, USA
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