# Prof. (FH) PD Dr. Thomas Haslwanter

## Education

**ETH (*Swiss Federal Institute of Technology*), Dept. of Physics.** Zürich, Switzerland.
Habilitation for the field of *Biophysics*, with thesis entitled *Computational and Experimental Aspects of Rotatory Eye Movements in Three Dimensions*. April 2001

**ETH (*Swiss Federal Institute of Technology*), Inst. for Theoretical Physics.** Zürich, Switzerland.
Doctoral Degree in Physics („Doctor rerum naturarum") with thesis entitled *Listing's law as an organizational principle for eye-, head-, and arm-movements.*
Graduated February 1992.

**University of Innsbruck, Dept. of Theoretical Physics.** Innsbruck, Austria.
Undergraduate Degree in Physics („Magister rerum naturarum") with thesis entitled *Two-photon excitation of Rydberg-states close to the ionization threshold.*
Graduated with honors, March 1988.

**Humanistic Gymnasium.** Hall / Tirol, Austria.
Graduated with honors, June 1982.

## Work experience

**University of Applied Sciences, Medical Technology.** Linz, Austria.
Professor for Biomechanics. Video-based measurement of 3D eye movements, 3D movement kinematics, and rehabilitation. Professorship awarded July 2008.
March 2006 – present.

**UAR (Upper Austrian Research), Dept of Medical Informatics.** Linz, Austria.
Head of Research. Mechanical models of the oculomotor system and of the vestibular system. Video-based measurement of pupil constriction and eye movements.
Jan 2004 – March 2006.

**ETH, Inst. for Theoretical Physics & Univ. of Zürich, Dept. of Neurology.** Zürich, Switzerland.
Senior postdoctoral fellow. Lectures on biophysics of sensory systems. Experimental investigation and theoretical modeling of the vestibular system.
February 1999 – 2003.

**DLR (Deutsche Weltraumagentur).** Munich, Germany.
Scientific adviser for the development of a video-based eye-tracking device for the *ISS* (International Space Station).
1998 – 2002.

**University Hospital Tübingen, Dept. of Neurology.** Tübingen, Germany.
Scientific Investigator. Introduction of new diagnostic procedures for testing of vestibular patients. Investigation of interaction of otolith system and semicircular canals in the generation of compensatory eye movements. Supervision of doctoral theses in physics and medicine.
August 1995 – December 1998.

**University of Sydney, Dept. of Psychology.** Sydney, Australia.
NH&MRC Research Officer. Design and implementation of the first accurate video-system for the recording of 3-dimensional eye movements. Investigation of the effects of vestibular deafferentation

on oculomotor control during combined angular and linear accelerations (in collaboration with the Neuro-otology Department, Royal Prince Alfred Hospital).
October 1992 - April 1995.

**University of Zürich, Dept. of Neurology.** Zürich, Switzerland.
Research assistant. Investigation of the effects of vestibular stimulation on the control of 3-dimensional eye movements in monkeys. Application of control principles of eye-movements to head- and arm-movements in humans.
January 1990 - August 1992.

**ETH Zürich, Inst. of Quantum Optics.** Zürich, Switzerland.
Teaching and research assistant. Tutorials for physics lectures. Development of Monte Carlo simulation program to evaluate laser-atom interaction. Electronic stabilization of diode laser systems.
October 1988 - December 1989.

## Research Visits

**Johns Hopkins School of Medicine.** Baltimore, Maryland, USA.
Otolaryngology-Head and Neck Surgery.
February 1998 - April 1998; Oct 2000

**Collège de France, CNRS.** Paris, France.
Laboratoire de Physiologie de la Perception et de l'Action (LPPA).
June 1995 - August 1995.

**Joint Institute for Laboratory Astrophysics (JILA).** Boulder, Colorado, USA.
March 1988 - July 1988.

**University of Aarhus, Dept. of Physics.** Aarhus, Denmark.
July 1987.

**Stanford Research Institute (SRI).** Menlo Park, California, USA.
July 1986 - September 1986.

## Additional Information

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|---|---|
| **Date of Birth**: | May 2, 1964 |
| **Nationality**: | Austrian |
| **Memberships**: | *American Society for Neuroscience* |
| **Military Service**: | September 1982 - April 1983 |
| **Interests**: | Mountaineering, Reading, Photography |
| **Contact Address**: | Hubertusgasse 26, A-4060 Leonding, Austria |
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# Scientific Work

## Books

Fetter M, Haslwanter T, Misslisch M, Tweed D (1997) *Three-dimensional kinematic principles of eye-, head-, and limb movements*. Harwood Academic Publishers: Amsterdam.

## Reviewed Journal Articles

1. K. Eibenberger, J. P. Carey, T. Ehtiati, C. Trevino, J. Dolberg, and T. Haslwanter. A Novel Method of 3D Image Analysis of High Resolution Cone Beam CT and Multi Slice CT for the Detection of Semicircular Canal Dehiscence. *Otol.Neurotol.* 35 (2), 329-37, 2014.

2. M. H. Ring, D. F. Rabensteiner, J. Horwath-Winter, I. Boldin, R. Horantner, and T. Haslwanter. Introducing a new parameter for the assessment of the tear film lipid layer. Invest Ophthalmol.Vis.Sci. 53 (10):6638-6644, 2012.

3. K. Eibenberger, M. Ring, and T. Haslwanter. Sustained effects for training of smooth pursuit plasticity. *Exp.Brain Res.* 218 (1):81-89, 2012.

4. Brandner M, Buchberger M, Kaltofen T, Haslwanter T, Hoerantner R, Langmann A Biomechanical analysis of x-pattern exotropia. Am J Ophthalmol 152(1):141-146, 2011.

5. B. Buki, M. Platz, T. Haslwanter, H. Junger, and P. Avan. Results of Electrocochleography in Meniere's Disease after Successful Vertigo Control by Single Intratympanic Gentamicin Injection. *Audiol.Neurootol.* 16 (1):49-54, 2011.

6. J. K. Ong and T. Haslwanter. Measuring torsional eye movements by tracking stable iris features. *J.Neurosci.Methods* 192 (2):261-267, 2010.

7. T. Haslwanter and J. Waldhoer. Measuring 3D Arm Movements for Activities of Daily Living. Measuring Behavior. A. J. Spink, F. Grieco, O. E. Krips, L. W. S. Loijens, L. P. J. J. Noldus, and P. H. Zimmerman. Wageningen, The Netherlands: Noldus Information Technology bv. 306-309, 2010.

8. M. Platz, T. Haslwanter, and J. K. Y. Ong. Optimizing Video- Oculography Systems by Simulating the Effect of Slippage Artifacts. Proceedings of the 21st European Modeling & Simulation Symposium (EMSS09). C. Frydman, F. Longo, and K. Mekouar. Anonymous. Proceedings of the 21st European Modeling & Simulation Symposium (EMSS09)Universidad de la Laguna, 2009. 148-153, 2009

9. T. Haslwanter and J. Ong. Applying knowledge--challenges in bringing scientific advances to dizzy patients. *Ann.N.Y.Acad.Sci.* 1164:309-315, 2009

10. R. Jaeger, A. V. Kondrachuk, and T. Haslwanter. The distribution of otolith polarization vectors in mammals: comparison between model predictions and single cell recordings. *Hear.Res* 239 (1-2):12-19, 2008.

11. A. H. Clarke and T. Haslwanter. The orientation of Listing's Plane in microgravity. *Vision Res* 47 (25):3132-3140, 2007.

12. C. J. Bockisch and T. Haslwanter. Vestibular contribution to the planning of reach trajectories. *Exp.Brain Res.* 182 (3):387-397, 2007.

13. R. Hoerantner, T. Kaltofen, S. Priglinger, C. M. Fock, M. Buchberger, and T. Haslwanter. Model-based improvements in the treatment of patients with strabismus and axial high myopia. *Invest Ophthalmol Vis.Sci.* 48 (3):1133-1138, 2007.

14. R. Hoerantner, S. Priglinger, and T. Haslwanter. A comparison of two different techniques for oculomotor torque reduction. *Acta Ophthalmol Scand* 85 (7):734-738, 2007.

15. M. Koch, S. Priglinger, R. Hoerantner, and T. Haslwanter. Computer assisted dosage calculation for strabismus therapy in myopic patients. *Acta Ophthalmol Scand* [in press], 2007.

16. C. J. Bockisch, D. Straumann, and T. Haslwanter. Human 3-D aVOR with and without otolith stimulation. *Exp Brain Res* 161 (3):358-367, 2005.

17. F. R. Lin, A. A. Migliaccio, T. Haslwanter, L. B. Minor, and J. P. Carey. Angular vestibulo-ocular reflex gains correlate with vertigo control after intratympanic gentamicin treatment for Meniere's disease. *Ann.Otol.Rhinol.Laryngol.* 114 (10):777-785, 2005.

18. C. J. Bockisch, D. Straumann, K. Hess, and T. Haslwanter. Enhanced smooth pursuit eye movements in patients with bilateral vestibular deficits. *NeuroReport* 15 (17):2617-2620, 2004.

19. T. Haslwanter, R. Hoerantner, and S. Priglinger. Reduction of ocular muscle power by splitting of the rectus muscle I: biomechanics. *Br.J Ophthalmol.* 88 (11):1403-1408, 2004.

20. R. Hoerantner, S. Priglinger, and T. Haslwanter. Reduction of ocular muscle torque by splitting of the rectus muscle II: technique and results. *Br.J Ophthalmol.* 88 (11):1409-1413, 2004.

21. R. Jaeger and T. Haslwanter. Otolith responses to dynamical stimuli: results of a numerical investigation. *Biol.Cybern.* 90 (3):165-175, 2004.

22. K. Schreiber and T. Haslwanter. Improving calibration of 3-D video oculography systems. *IEEE Trans.Biomed.Eng* 51 (4):676-679, 2004.

23. K. P. Weber, K. Landau, A. Palla, T. Haslwanter, and D. Straumann. Ocular rotation axes during dynamic Bielschowsky head-tilt testing in unilateral trochlear nerve palsy. *Invest Ophthalmol.Vis.Sci.* 45 (2):455-465, 2004.

24. C. J. Bockisch, D. Straumann, and T. Haslwanter. Eye movements during multiaxis whole-body rotations. *J Neurophysiol* 89:355-366, 2003.

25. T. Jarchow, M. Wirz, T. Haslwanter, V. Dietz, and D. Straumann. Perceived horizontal body position in healthy and paraplegic subjects: effect of centrifugation. *J Neurophysiol* 90 (5):2973-2977, 2003.

26. S. B. Yakushin, A. Palla, T. Haslwanter, C. J. Bockisch, and D. Straumann. Dependence of adaptation of the human vertical angular vestibulo-ocular reflex on gravity. *Exp Brain Res* 152 (1):137-142, 2003.

27. J. P. Carey, L. B. Minor, G. C. Peng, C. C. Della Santina, P. D. Cremer, and T. Haslwanter. Changes in the Three-Dimensional Angular Vestibulo-Ocular Reflex following Intratympanic Gentamicin for Meniere's Disease. *J Assoc.Res.Otolaryngol* 3 (4):430-443, 2002.

28. R. Jaeger, A. Takagi, and T. Haslwanter. Modeling the relation between head orientations and otolith responses in humans. *Hear.Res.* 173 (1-2):29-42, 2002.

29. C. J. Bockisch and T. Haslwanter. Three-dimensional eye position during static roll and pitch in humans. *Vision Res* 41 (16):2127-2137, 2001.

30. S. Priglinger, H. Hametner, and T. Haslwanter. Functional topography as a guideline for differential diagnosis of vertical eye movement disorders and oblique muscle surgery. *Spektrum Augenheilkd* 15 (1):16-26, 2001.

31. S. T. Aw, T. Haslwanter, M. Fetter, and J. Dichgans. Three-dimensional spatial characteristics of caloric nystagmus. *Exp Brain Res* 134 (3):289-294, 2000.

32. M. C. Brodsky, T. Haslwanter, A. A. Kori, and D. Straumann. The Role Of Volitional Effort In The Bielschowsky Head Tilt Test: A Clinical And Oculographic Assessment. *Binocul.Vis.Strabismus Q.* 15 (4):325-330, 2000.

33. T. Haslwanter, R. Jaeger, S. Mayr, and M. Fetter. Three-dimensional eye-movement responses to off-vertical axis rotations in humans. *Exp Brain Res* 134 (1):96-106, 2000.

34. M. Fetter, T. Haslwanter, M. Bork, and J. Dichgans. New insights into positional alcohol nystagmus using three-dimensional eye-movement analysis. *Ann Neurol* 45 (2):216-223, 1999.

35. T. Haslwanter and L. B. Minor. Nystagmus induced by circular head shaking in normal human subjects. *Exp.Brain Res.* 124 (1):25-32, 1999.

36. Z. Kapoula, M. Bernotas, and T. Haslwanter. Listing's plane rotation with convergence: role of disparity, accommodation, and depth perception. *Exp.Brain Res.* 126 (2):175-186, 1999.

37. L. B. Minor, T. Haslwanter, D. Straumann, and D. S. Zee. Hyperventilation-induced nystagmus in patients with vestibular schwannoma. *Neurology* 53 (9):2158-2168, 1999.

38. D. B. Tweed, T. P. Haslwanter, V. Happe, and M. Fetter. Non-commutativity in the brain. *Nature* 399 (6733):261-263, 1999.

39. D. Anastasopoulos, T. Haslwanter, M. Fetter, and J. Dichgans. Smooth pursuit eye movements and otolith-ocular responses are differently impaired in cerebellar ataxia. *Brain* 121 ( Pt 8):1497-1505, 1998.

40. S. T. Aw, T. Haslwanter, M. Fetter, J. Heimberger, and M. J. Todd. Contribution of the vertical semicircular canals to the caloric nystagmus. *Acta Otolaryngol* 118 (5):618-627, 1998.

41. S. Curthoys, T. Haslwanter, R. A. Black, A. M. Burgess, G. M. Halmagyi, A. N. Topple, and M. J. Todd. Off-center yaw rotation: effect of naso-occipital linear acceleration on the nystagmus response of normal human subjects and patients after unilateral vestibular loss. *Exp.Brain Res.* 123 (4):425-438, 1998.

42. M. Fetter, S. Aw, T. Haslwanter, J. Heimberger, and J. Dichgans. Three-dimensional eye movement analysis during caloric stimulation used to test vertical semicircular canal function. *Am.J.Otol.* 19 (2):180-187, 1998.

43. D. Tweed, T. Haslwanter, and M. Fetter. Optimizing gaze control in three dimensions. *Science* 281 (5381):1363-1366, 1998.

44. D. Anastasopoulos, T. Haslwanter, A. Bronstein, M. Fetter, and J. Dichgans. Dissociation between the perception of body verticality and the visual vertical in acute peripheral vestibular disorder in humans. *Neurosci.Lett.* 233 (2-3):151-153, 1997.

45. S. T. Aw, G. M. Halmagyi, T. Haslwanter, I. S. Curthoys, R. A. Yavor, and M. J. Todd. Three-dimensional vector analysis of the human vestibuloocular reflex in response to high-acceleration head rotations. II. responses in subjects with unilateral vestibular loss and selective semicircular canal occlusion. *J.Neurophysiol.* 76 (6):4021-4030, 1996.

46. S. T. Aw, T. Haslwanter, G. M. Halmagyi, I. S. Curthoys, R. A. Yavor, and M. J. Todd. Three-dimensional vector analysis of the human vestibuloocular reflex in response to high-acceleration head rotations. I. Responses in normal subjects. *J.Neurophysiol.* 76 (6):4009-4020, 1996.

47. T. Haslwanter, I. S. Curthoys, R. A. Black, A. N. Topple, and G. M. Halmagyi. The three-dimensional human vestibulo-ocular reflex: response to long- duration yaw angular accelerations. *Exp Brain Res* 109 (2):303-311, 1996.

48. S. T. Moore, T. Haslwanter, I. S. Curthoys, and S. T. Smith. A geometric basis for measurement of three-dimensional eye position using image processing. *Vision Res* 36 (3):445-459, 1996.

49. T. Haslwanter and S. T. Moore. A theoretical analysis of three-dimensional eye position measurement using polar cross-correlation. *IEEE Trans.Biomed.Eng* 42 (11):1053-1061, 1995.

50. T. Haslwanter, I. S. Curthoys, R. Black, and A. Topple. Orientation of Listing's plane in normals and in patients with unilateral vestibular deafferentation. *Exp.Brain Res.* 101 (3):525-528, 1994.

51. S. T. Moore, T. Haslwanter, I. S. Curthoys, and S. T. Smith. Measurement of three dimensional eye position using image processing: a geometric approach. In: *Proceedings of the IEEE - International Conference on Image Processing*,Anonymous 1994, p. 436-440.

52. T. Haslwanter, D. Straumann, B. J. Hess, and V. Henn. Static roll and pitch in the monkey: shift and rotation of Listing's plane. *Vision Res.* 32 (7):1341-1348, 1992.

53. D. Straumann, M. Suzuki, V. Henn, B. J. Hess, and T. Haslwanter. Visual suppression of torsional vestibular nystagmus in rhesus monkeys. *Vision Res.* 32 (6):1067-1074, 1992.

54. T. Haslwanter, D. Straumann, K. Hepp, B. J. Hess, and V. Henn. Smooth pursuit eye movements obey Listing's law in the monkey. *Exp.Brain Res.* 87 (2):470-472, 1991.

55. D. Straumann, T. Haslwanter, M. C. Hepp-Reymond, and K. Hepp. Listing's law for eye, head and arm movements and their synergistic control. *Exp.Brain Res.* 86 (1):209-215, 1991.

56. T. Haslwanter and J. Mlynek. Laser cooling in the center-of-mass system: a proposal for the creation of a monoenergetic atomic beam. *Annalen der Physik* 47 (7):583-590, 1990.

57. Alber, T. Haslwanter, and P. Zoller. One-photon resonant two-photon excitation of Rydberg series close to threshold. *J Opt Soc Am B* 5:2439-2445, 1988.

58. T. Haslwanter, H. Ritsch, J. Cooper, and P. Zoller. Laser-noise-induced population fluctuations in two- and three-level systems. *Physical Review A* 38 (11):5652-5659, 1988.

## Review Articles

1. T. Haslwanter and A. H. Clarke. Eye movement measurement: Electro-Oculography and Video-Oculography. In: ***Vestibular and Balance Disorders***, edited by D. S. Zee and S. D. Eggers,Elsevier, 2010, p. 61-80.

2. Straumann D and Haslwanter T. Ocular motor disorders. *Curr.Opin.Neurol.* 14 (1):5-10, 2001.

3. Fetter M and Haslwanter T. 3D eye movements - basics and clinical applications. *J Vestib Res* 9 (3):181-187, 1999.

4. Haslwanter T. Mathematics of three-dimensional eye rotations. *Vision Res.* 35 (12):1727-1739, 1995.

## Book contributions and non-reviewed articles

1. K. Eibenberger, B. G. Eibenberger, D. Roberts, J. Carey, and T. Haslwanter. Development of a Universal Search Coil Monitor System for High Acceleration Head Impulse Tests on Human Subjects. In: Forschungsforum der Österreichischen Fachhochschulen 2014. Kufstein: 156, 2014.

2. H. Egger, T. Haslwanter, and R. Merwa. Gedanken steuern Maschinen - Moderne Technologien für Schwerstbehinderung. In: Integrierte Versorgung: "Neu Denken - Innovativ Handeln" (Ed: S. Neumann-Ponesch). Linz:Wagner Verlag. 118-121, 2014.

3. T. Rumetshofer, T. Haslwanter, and M. Lehner. Datenbank für Hilfsmittel im Internet. In: Integrierte Versorgung: "Neu Denken - Innovativ Handeln" (Ed: S. Neumann-Ponesch). Linz:Wagner Verlag. 125-127, 2014.

4. T. Haslwanter and J. Ong. New Medical Technologies: The Journey from the Laboratory to the Patient. FH Science Day. A. Auinger, C. Engelhardt-Nowitzki, M. Gumpinger, H. Hofstadler, A. Jaeger, H. Jodlbauer, J. Kastner, H. Kindermann, J. Langer, M. Lehner, H. C. Leindecker, and M. Zauner. Anonymous. Aachen:Shaker Verlag. 123-128, 2008. 11-06-2008.

5. M. Platz and T. Haslwanter. Reducing motion artifacts in Video-Oculography systems during horizontal rapid head impulses. A. Auinger, C. Engelhardt-Nowitzki, M. Gumpinger, H. Hofstadler, A. Jaeger, H. Jodlbauer, J. Kastner, H. Kindermann, J. Langer, M. Lehner, H. C. Leindecker, and M. Zauner. Anonymous. Aachen:Shaker Verlag. 129-133, 2008. 11-06-2008.

6. M. Platz and T. Haslwanter. Diagnoseverbesserung durch verbesserte Video-Okulographie. Forschungsforum der österreichischen Fachhochschulen. Ed: J. Kastner. Aachen:Shaker Verlag. 14-18, 2008.

7. T. Haslwanter. Measuring Eye Movements: Improved Diagnosis Through Improved Technology. Eds: T. Eidenberger, H. Jodlbauer, M. Jungwirth, J. Kastner, H. Kindermann, T. Reiter, M. Selg, F. Staberhofer, W. Steiner, and M. Zauner. Aachen:Shaker Verlag. 212-215, 2007.

8. R. Hoerantner and T. Haslwanter. Physiological Effects of Different Absorption Properties of Intraocular Lenses. T. Eidenberger, H. Jodlbauer, M. Jungwirth, J. Kastner, H. Kindermann, T. Reiter, M. Selg, F. Staberhofer, W. Steiner, and M. Zauner. Anonymous. Aachen:Shaker Verlag. 209-211, 2007.

9. T. Haslwanter, M. Aichinger, M. Stoettinger, R. Jaeger, V. Keppler, and S. Ramat. Putting the head on the neck: a realistic biomechanic model of human head-neck mechanics. International Mediterranean Modelling Multiconference. A. G. Bruzzone, A. Guasch, M. Angel Piera, and J. Rozenblit. Anonymous. Barcelona:LogiSim. 625-628, 2006. 10-04-2006.

10. T. Haslwanter, M. Buchberger, T. Kaltofen, R. Hoerantner, and S. Priglinger. SEE++: A Biomechanical Model of the Oculomotor Plant. *Ann.N.Y.Acad.Sci.* 1039:9-14, 2005.

11. K. P. Weber, A. Palla, K. Landau, T. Haslwanter, and D. Straumann. Incomitance of ocular rotation axes in trochlear nerve palsy. *Ann N Y Acad Sci* 1004:347-351, 2003.

12. J. P. Carey, T. Hirvonen, G. C. Peng, C. C. Della Santina, P. D. Cremer, T. Haslwanter, and L. B. Minor. Changes in the angular vestibulo-ocular reflex after a single dose of intratympanic gentamicin for Meniere's disease. *Ann N Y Acad Sci* 956:581-584, 2002.

13. T. Haslwanter. Mechanics of eye movements: implications of the "orbital revolution". *Ann N Y Acad Sci* 956:33-41, 2002.

14. T. Haslwanter. "Denn erstens kommt es anders, ..". *Berg & Steigen* 3 (01):18-19, 2001.

15. D. Anastasopoulos, A. Bronstein, T. Haslwanter, M. Fetter, and J. Dichgans. The role of somatosensory input for the perception of verticality. *Ann N Y Acad Sci* 871:379-383, 1999.

16. S. Curthoys, G. M. Halmagyi, T. Haslwanter, A. M. Burgess, R. A. Black, and A. Topple. Human three dimensional eye movements in response to interaural linear acceleration during off center yaw rotation on a centrifuge. *Archives Italiennes de Biologie* 137 (Suppl):44-45, 1999.

17. M. Fetter, D. Anastasopoulos, and T. Haslwanter. Three-dimensional properties of saccadic eye movements in patients with cerebellar ataxia. In: *Current Oculomotor Research: Physiological and Psychological Aspects*, edited by W. Becker, H. Deubel, and T. Mergner, New York:Plenum, 1999, p. 391-396.

18. T. Haslwanter and L. B. Minor. Curicular head-shaking: a new way of tesing the vertical canals? *Archives Italiennes de Biologie* 137 (Suppl):46, 1999.

19. T. Haslwanter, R. Jaeger, and M. Fetter. Otolith-canal interaction during pitch while rotating. *Ann N Y Acad Sci* 871:410-413, 1999.

20. T. Haslwanter, D. Tweed, and M. Fetter. Drehung ermöglicht scharfes Bild. Anonymous. Anonymous. *Ophthalmologische Nachrichten* 2:28-29, 1999.

21. Z. Kapoula, M. Bernotas, and T. Haslwanter. Listing's plane orientation with vergence: effect of disparity and accommodation. In: *Current Oculomotor Research: Physiological and Psychological Aspects*, edited by W. Becker, H. Deubel, and T. Mergner, New York:Plenum, 1999, p. 165-174.

22. S. T. Aw, T. Haslwanter, G. M. Halmagyi, I. S. Curthoys, R. A. Yavor, and M. J. Todd. 3d analysis of the human vestibulo-ocular reflex during high-acceleration head rotations in normals and after unilateral vestibular deafferentation. In: *Three-dimensional kinematic principles of eye-, head-, and limb movements*, edited by M. Fetter, T. Haslwanter, H. Misslisch, and D. Tweed,Harwood Academic Publishers, 1997, p. 265-274.

23. S. Curthoys, G. M. Halmagyi, R. A. Black, T. Haslwanter, and A. Topple. Three-dimensional eye movement recordings during off-center yaw rotation of human subjects: how the linear VOR modifies the angular VOR. In: *Three-dimensional kinematic principles of eye-, head-, and limb movements*, edited by M. Fetter, T. Haslwanter, H. Misslisch, and D. Tweed,Harwood Academic Publishers, 1997, p. 187-190.

24. T. Haslwanter. Measurement and analysis techniques for 3d eye-movements. In: *Three-dimensional kinematic principles of eye-, head-, and limb movements*, edited by M. Fetter, T. Haslwanter, H. Misslisch, and D. Tweed,Harwood Academic Publishers, 1997,

25. S. T. Moore, I. S. Curthoys, T. Haslwanter, and G. M. Halmagyi. Measuring 3D eye position using image processing - the VTM system. In: *Three-dimensional kinematic principles of eye-, head-, and limb movements*, edited by M. Fetter, T. Haslwanter, H. Misslisch, and D. Tweed,Harwood Academic Publishers, 1997, p. 445-450.

26. T. Haslwanter. Eye movement analysis with search coils and video systems. Interdisciplinary aspects on computers helping people with special needs. Anonymous. Anonymous. Linz, Austria:1:393-399, 1996. 1996.

27. T. Haslwanter, I. S. Curthoys, G. M. Halmagyi, R. A. Black, A. N. Topple, and M. J. Todd. Torsional eye velocity components during yaw angular acceleration identify the side of unilateral vestibular deafferentation. *Acta Otolaryngol Suppl* 520 Pt 1:62-64, 1995.

28. S. T. Moore, I. S. Curthoys, and T. Haslwanter. Potential clinical applications of video-based eye position measurement. Anonymous. Anonymous. Montreal, Canada: 1995. IEEE Engineering in Medicine and Biology.

29. S. Curthoys, S. T. Moore, T. Haslwanter, R. A. Black, S. T. Smith, and G. Lennerstrand. Video procedures for the measurement and display of the three dimensions of eye movements. In: *Eye movement in reading (Proceedings of the Wenner Gren Center International Symposium)*, edited by J. Ygge, Oxford:Pergamon Press, 1994, p. 39-49.

30. T. Haslwanter, I. S. Curthoys, and G. M. Halmagyi. Does unilateral vestibular deafferentation affect Listing's Plane? In: *Neural Control of Gaze: Information Processing Underlying Gaze Control*, edited by J. M. Delgado-Garcia, E. Godaux, and P. P. Vidal, Oxford:Pergamon Press, Elsevier, 1994, p. 217-220.

31. T. Haslwanter, S. Wearne, I. S. Curthoys, W. Teiwes, and G. M. Halmagyi. Effects of unilateral vestibular loss on the axis of eye rotation: on-centre rotations with large accelerations. In: *Contemporary Ocular Motor and Vestibular Research: A Tribute to David A. Robinson*, edited by A. F. Fuchs, T. Brandt, U. Buettner, and D. Zee, Stuttgart, New York:Georg Thieme Verlag, 1994,

32. T. Haslwanter, I. S. Curthoys, G. M. Halmagyi, R. A. Black, A. N. Topple, and M. J. Todd. Torsional eye velocity components during yaw angular acceleration identify the side of unilateral vestibular deafferentation. Torsional eye velocity components during yaw angular acceleration identify the side of unilateral vestibular deafferentation. *Acta Otolaryngol Suppl* 520 (1):62-64, 1994.

33. T. Haslwanter, B. J. Hess, and J. Jerabek. 3d compensatory nystagmus elicited by rotations about off-vertical axes. In: *Proceedings of XVIIth Barany Society Meeting*, edited by H. Krejcova, 1993, p. 140-144.

34. T. Haslwanter, D. Straumann, B. J. Hess, and V. Henn. Does counterrolling violate Listing's law? *Ann N Y Acad Sci* 656:931-932, 1992.

35. V. Henn, D. Straumann, B. J. Hess, T. Haslwanter, and N. Kawachi. Three-dimensional transformations from vestibular and visual input to oculomotor output. *Ann N Y Acad Sci* 656:166-180, 1992.

36. K. Hepp, T. Haslwanter, D. Straumann, M. C. Hepp-Reymond, V. Henn, P. B. Johnson, and Burnod. The control of arm, gaze and head by Listing's law. In: *Control of Arm Movement in Space: Neurophysiological and Computational Approaches*, edited by R. Caminiti, 1992, p. 307-319.

## Grants & Fellowships

1. FH Oberösterreich, Basisfinanzierung 2014
   *"Motion and Prosthetics Lab"*.
   Linz, Austria, 2014-2015

2. *Regio13 (Land Oberösterreich & European Regional Development Fund)* Reha@Home
   Linz, Austria, 2012-2014

3. *European Union – REGINS Initiative IV (*REGional standardised Interfaces for a better INtegration of regional SMEs in the European Economy)
   Co-Investigator in Research Grant *FitRehab*, May 2010-Sept 2011

4. *FWF (Fonds zur Förderung der wissenschaftlichen Forschung)*
   Research Grant, for *„Improved Eye Movements Recordings for Medical Diagnostics“*.
   Linz, Austria, 2007-2010

5. *FH Oberösterreich, Basisfinanzierung 2007*
   *„Praktische Anwendung Video-basierter Augenbewegungs-Messung“.*
   Linz, Austria, 2007-2010

6. *European Union – REGINS Initiative (*REGional standardised Interfaces for a better INtegration of regional SMEs in the European Economy)
   Research Grant, for "*Linear accelerations and otolith-induced postural responses,* together with the University of Stuttgart, University of Pavia, and Daimler-Chrysler. Grant Leader
   Linz, Austria, May 2005-May 2006

7. *EMDO Stiftung Zürich.*
   Research Grant, for " Otolith modeling ". Zurich, Switzerland, 2003

8. *Schweizer Nationalfond*
   Research Grant, for "*Effects of Spatial Disorientation on Eye- and Arm-Movements in Humans".* Zurich, Switzerland, 2001 - 2004

9. *Olga-Mayenfisch-Stiftung*
   Research Grant, for "*Kompensation bei bilateralem vestibulären Ausfall".* Zurich, Switzerland, 2001

10. *EMDO Stiftung Zürich.*
    Research Grant, for " *Ein biomechanisches Modell der Augenmuskulatur* ". Zurich, Switzerland, 2001-2002

11. *Hartmann Müller-Stiftung Zürich*
    Research Grant, for "*Kompensation bei bilateralem vestibulären Ausfall".* Zurich, Switzerland, 2000 - 2001

12. *Deutsche Luft- und Raumfahrtagentur (DLR)*
    Research Grant "Modeling the 3-dimensional dynamic response properties of otolith organs". Tübingen, Germany, 1999-2003

13. *EMDO Stiftung Zürich.*
    Research Grant, for "Kompensation von chronischem bilateralen Ausfall des Gleichgewichtsorgans". Zurich, Switzerland, 1999-2000

14. *European Commission.*
    Grant for the organization of an international workshop on *Coordination of developments of video systems for the measurement of 3-dimensional eye movements*. 1999.

15. *Human Frontier Science Project Organization.*
    Travel and Research Grant, for research at: Collège de France, LPPA, CNRS. Paris, France. June 1995 - August 1995.

16. *Austrian Ministry of Science and Research (through Fulbright Commission).*
    Travel and Research Grant, for research at: JILA, Boulder, Colorado. March 1988 - July 1988.

17. *Tyrolian Ministry for Education and Science.*
    Travel and Research Grant, for research at: Univ. of Aarhus, Denmark. June 1987.

18. *Austrian Ministry of Science and Research (through Fulbright Commission).*
    Travel and Research Grant, for research at: SRI, Menlo Park, California. July 1986 - September 1986.

## Conferences (organized)

1. *23rd Oculomotor Meeting 2013*. Linz, January 25-26, 2013

2. *Clinical and Basic Ocular Motor Research* (Meeting in Honor of David S. Zee). Siena, Italy, July 3-5, 2004

3. *Workshop on models of the extraocular muscles. (Satellite meeting of* Development and Perspectives in Visual Processing and Eye Movements - International Symposium of the German Ophthalmological Society.) Heidelberg, Germany, Oct 11, 2002

4. *Workshop on the coordination of developments of video systems for the measurement of 3-dimensional eye movements*. Tübingen, Germany, Nov 30 - Dec 2, 1999.
   Supported by the *Fifth Framework Programme of the European Community for Research, Technological Development and Demonstration Activities (1998 - 2002)*

## Postdoctoral Fellows

- Dr. James Ong, Feb 2008 – now
  University of Applied Sciences, Medical Technology. Linz, Austria.

- Dr. Michael Aichinger, May 2005 – May 2006
  Upper Austrian Research GmbH, Dept of Medical Informatics. Linz, Austria.

- Dr. Rudolf Jäger, Sept 2003 – Feb 2004
  Dept of Neurology, Univ. Hospital Zurich, Switzerland

- Dr. Chris Bockitsch, Jan. 2000 – Dec 2003
  Dept of Neurology, Univ. Hospital Zurich, Switzerland

## Research Contracts

- Otto Bock (Viennea, Austria) *Investigation of Cooling Systems for Mechatronic Knees* (Jan – April 2009)

- Market Institut (Linz, Austria) *Augenbewegungsmessung im Rahmen der Wahrnehmungs- und Werbewirkungsforschung mittels VOG-System.* (Sept. – Oct. 2008)

- Polytech (Germany) *Physiological effects of different absorption properties of intraocular lenses*. (Aug-Oct 2005)

Consultations & Reviews

## Consultations

1. Bayrische Forschungsstiftung: Forschungsverbund "Bioanaloge Systeme" - ForBiAS, Munich, Germany July 2003 – June 2007.

2. DLR (Deutsche Weltraumagentur). Munich, Germany.
   Scientific adviser for the development of a video-based eye-tracking device for the *ISS* (International Space Station).
   1998 – 2002.

3. National Institute on Deafness and Other Communication Disorders, K23-Grant DC00196: "Vestibular effects of intratympanic gentamicin", Dr. J. Carey, Johns Hopkins School of Medicine, Baltimore, MD; USA

## Journal Reviews

1. ACM Transactions on Applied Perception
2. Aviation, Space and Environmental Medicine
3. Annals of Neurology
4. Audiology & Neurotology
5. Australasian Physical & Engineering Sciences in Medicine
6. Behavior Research Methods, Instruments & Computers
7. Biological Cybernetics
8. Brain Research
9. Brain Research Bulletin
10. Experimental Brain Research
11. IEEE Transactions on Biomedical Engineering
12. Investigative Ophthalmology & Visual Science (IOVS: reviews, and *Guest Editorial Board Member*)
13. Journal of Applied Mathematics and Physics
14. Journal of Computational Neuroscience
15. Journal of Neurophysiology
16. Journal of Vestibular Research
17. Journal of Vision
18. Medical & Biological Engineering & Computing
19. Motor Control
20. Neurology
21. Otology and Neurotology
22. Science
23. Strabismus
24. Vision Research

# Teaching and Talks

## Teaching

SS ... summer semester
WS ... winter semester

**FH OOe (Campus Linz)**

Modellbildung und Simulation in der Biomechanik (gemeinsam mit A. Schrempf):

- WS 2010/11
- WS 2011/12
- WS 2012/13

Motor Control

- SS 2009
- SS 2010
- SS 2011
- SS 2012
- SS 2013

Applied Prosthetics

- WS 2009/2010
- WS 2010/11
- WS 2011/12
- WS 2012/13

Prothetik & Rehabilitationstechnik II

- SS 2010
- SS2011
- SS2012

Rehabilitation, Prothetik und Technische Lebenshilfen

- SS 2007
- SS 2008

Biosignal- und Biosystemanalyse

- WS 2006/7
- SS 2007
- WS 2007/8
- SS 2008
- WS 2011/12
- WS 2012/13

Prothetik, Orthesen, und Rehabilitationstechnik. FH Linz (Österreich) SS 2006

**FH OOe (Campus Hagenberg)**

Lecture on " Computer Simulationen sensorischer Systeme". FH Hagenberg (Österreich), SS 2005

Project advisor on „MicroScout2“. FH Hagenberg & UAR, Dep. Nanotechnology (Österreich), WS 2005/6 & SS 2005

Lecture on " Biophysik und Signalverarbeitung sensorischer Systeme". FH Hagenberg (Österreich), SS 2004

Lecture on " Biophysik und Signalverarbeitung sensorischer Systeme". FH Hagenberg (Österreich), SS 2003

Lab course on "Measurement and Analysis of 3D Eye Movements", Graduate School of Neural & Behavioural Sciences", Eberhard-Karls-Universität Tübingen. 5.-26. Feb., 2001

Lab course on "Measurement and Analysis of 3D Eye Movements", Graduate School of Neural & Behavioural Sciences", Eberhard-Karls-Universität Tübingen. 7.-18. Feb., 2000

**ETH Zurich (Switzerland)**

Computer simulations of sensory systems (227-1046-00 V/U)

- Spring-semester 2013

Computer simulations of sensory systems (402-0981-00 V/U)

- Spring-semester 2012
- Spring-semester 2011
- Spring-semester 2010
- Fall-semester 2008
- Fall-semester 2007
- WS 2006/7
- WS 2005/6
- WS 2004/5

Biophysics and signal processing of sensory systems (Biophysik und Signalverarbeitung sensorischer Systeme; 95-808 V/U )

- SS 2004
- SS 2003
- SS 2002

Tutor for „Continuum Mechanics”. ETH Zürich, Dept. of Physics, SS 2000.

Lecture on the vestibular system, for the regular course “Einführung in die Neurophysiologie II “ in Psychology, at the University of Zurich (May 2000)

Tutor for „Classical Mechanics”. ETH Zürich, Dept. of Physics, WS 1999/2000.

Tutor for „Electrodynamics”. ETH Zürich, Dept. of Physics, SS 1999.

Tutor for „Introductory physics”. ETH Zürich, Dept. of Physics, WS 1989/90.

Tutor for „Physics for computer scientists, ETH Zürich, Dept. of Physics

- WS 1988/89
- SS 1989.

**Uni Tubingen**

Lecture on "Augenbewegungsmessung in der Medizin", for the regular course in Medical Physics at the University Tübingen (July 1998, 2h)

Co-organizer of weekly seminars „Physical aspects of data-analysis and modelling in neurophysiology„. Dept. of Physics, Univ. of Tübingen, (Summer semester 1996 - Summer semester 1997). This included giving three talks:

- *Video-analysis of 3d eye-movements* (May, 1996)
- *Control-theoretical models of eye-movements* (September 1996)
- *Models of the vestibulo-ocular reflex* (May 1997, with J Heimberger and R Jäger)

## Thesis Advisor

**Doctoral Thesis ( PhD)**

- Karin Eibenberger, *Development of a framework of diagnostic measures and device technologies for the assessment of vestibular and oculomotor functions in humans.*( Johannes Kepler Universität Linz, 2012 – now)

- Michael Ring *Development of a Measurement Device for the Quantitative Analysis of the Dry Eye Disease* (Paracelsus Medical University Salzburg, 2009 – 2013)

- Michael Buchberger. *Biomechanical Modelling of the Human Eye.* (Doktors der technischen Wissenschaften, Institut für Anwendungsorientierte Wissensverarbeitung, Johannes Kepler Universität Linz, May 2004).

- Rudolf Jäger. *Modeling of the static and dynamic mechanical properties of human otoliths*. (Doktors der Naturwissenschaften der Fakultät für Physik der Eberhard-Karls-Universität zu Tübingen, Feb 2003).

**Doctoral Thesis (MD)**

- Co-advisor for MD-student Swen Mayr. Thesis on *Interaction of otolith system and semicircular canals during off-vertical-axis rotation and pitch-while rotating.* Dept. of Neurology, Univ. of Tübingen (Nov. 97).

- Co-advisor for MD-student Stefanie Stiefel. Thesis on *Diagnostic tests of the ocular-vestibular system.* Dept. of Neurology, Univ. of Tübingen (Nov 98).

- Co-advisor for MD-student Mathias Dengler. Thesis on *Involvement of the superior and inferior parts of the vestibular nerve during vestibular neuritis.* Dept. of Neurology, Univ. of Tübingen (Nov 98).

- Co-advisor for MD-student Sabine Narr. Thesis on *Involvement of the vestibular system in the generation of torticollis.* Dept. of Neurology, Univ. of Tübingen (Nov 98).

**Master Thesis**

- Karin Eibenberger (2012)
- Markus Rosenfelner (2012)
- Philipp Kaar (2013, in progress)
- Lukas Osl (2013, in progresss)

**Diploma Thesis**

- Andreas Böhler (2010) *Development of a Device for the Assessment of Vestibular Function*
- Patrick Hübner (2010) *Effects of Core Body Temperature on the Vestibulo-ocular Reflex*
- Robert Kiechl (2010) *Evaluation of Validity and Reliability of a Robot-assisted Method*
- Richard Penninger (2010) *Limits of Multi Slice Computer Tomography*
- Markus Winter (2010) *Low-cost Biosignalverstärker*
- Shahab Daban (2009) *P300 Brain-Computer Interface for Communication and Smart Home Control*
- Thomas Eisner (2009) *FEM Modellierung einer aktiven Handorthese mit nachgiebigen Aktuatoren auf Silikon Basis*
- Wolfgang Leitner (2009) *Erforschung der Harmonie und Klangqualität von Tönen und Klängen in Cochlea Implantaten*
- Thomas Minarik (2009) *Analysis of neuronal activity from hippocampus and cerebellum in rats*
- Jürgen Waldhör (2009) *3D-Armbewegungen bei Patienten mit Hemiparese*
- Florian Aigner (2008) *Dreidimensionale Bewegungsanalyse der Schulter*
- Reinhard Aussermayr (2008) *Effects of high gravity on ocular torsion*
- Johannes Kagerer (2008) *Improvement and Comparison of Electrode Insertion Methods for a Larynx Pacemaker*
- Wolfgang Mayr (2008) *Messung der lokalen Druckbelastungen bei Hemi- und Paraplegikern im Rollstuhl*
- Robert Meierhofer (2008) *Characterization of three-dimensional high-frequency angular vestibulo-ocular reflex in the C57Bl/6 mouse.*
- Michael Ring (2008) *Die Plastizität von glatten Augenfolgebewegungen.*
- Stefan Schaffelhofer (2008) *Online position reconstruction of rats by the use of neural spike information from hippocampal place cells and grid cells.*
- Andreas Wögerer (2008) *Neue Wege in der flexiblen Robotik - ein hydraulisches Antriebskonzept medizinisch genutzter Assistenzsysteme.*
- Markus Bruckner, *Kinematische Analyse von Snowboardsprüngen*. Diploma Thesis, FH Linz, Medical Technology (Oct 2007).
- Sara Brunner, *Entwicklung, Implementierung und Validierung der Signalverarbeitung für ein EOG-Kommunikations- und Steuerungssystem*. Diploma Thesis, FH Linz, Medical Technology (July 2007).
- Katrina Evers, *Development of an algorithm for semi-automatic segmentation of the bony tissue of the knee joint based on magnetic resonance images.*. Diploma Thesis, FH Linz, Medical Technology (Oct 2007).
- Michael Kolbitsch, *Development of a minimal invasive Electrode Insertion Tool to stimulate vocal cords in patients with vocal cord impaired mobility*. Diploma Thesis, FH Linz, Medical Technology (July 2007).
- Michael Neumann, *Klinische Anforderungen für ein Rehabilitationsgerät der oberen Extremität und Evaluierung der Benutzerschnittstelle*. Diploma Thesis, FH Linz, Medical Technology (July 2007).

- Michaela Podestat, *Medizintechnische Anforderungen an zeitgenössische Knieendoprothesen und die Rehabilitation nach der Implantation*. Diploma Thesis, FH Linz, Medical Technology (July 2007).
- Markus Waldhauser, *Offline and online processing of evoked potentials*. Diploma Thesis, FH Linz, Medical Technology (July 2007).
- Reinhard Wolkerstorfer, *Algorithmus für ein Sensorsystem zur Lagebestimmung von Beinprothesen*. Diploma Thesis, FH Linz, Medical Technology (July 2007).
- Wolfgang H. Zöchbauer, *Algorithms for spatial position reconstruction from hippocampal place cells*. Diploma Thesis, FH Linz, Medical Technology (July 2007).
- Christian Kitzmüller, *Improved Video-Based Eye Movement Recording for Medical Applications*. Diploma Thesis, FH Hagenberg, Software-Engineering for Medicine (Sept 2005).
- Max Scheubmayr, *Bildstabilisierung bei videobasierten Augenbewegungsmessungen*. Diploma Thesis, FH Hagenberg, Software-Engineering for Medicine (Sept 2005).
- Co-advisor for Physics, undergraduate diploma, Kai Schreiber. Thesis on *Theoretical basis of video-based analysis of 3-dimensional eye-movements.* Dept. of Physics, Univ. of Tübingen (22-Feb 98)

**Bachelor Thesis**

- Andrea Sonnleitner (2010) *The plasticity of smooth pursuit eye movements in healthy*
- Karin Eibenberger (2010) *Training of Smoothe Pursuit Eye Movements - A Qualitative Study*

## Talks

1. Oculomotor Meeting Zürich-Munich (27.01.2012, Zurich, Switzerland): *Rehabilitation Research*

2. Max Planck Institut for Biological Cybernetics (31.07.2009, Tübingen, Germany): *Video-based Eye Movement Recordings - Applications in Research & Medicine*

3. Kayser-Threde (30.06.2009,München, Germany) *Aktuelle und geplante VOG-Forschung*

4. FH Science Day (24. 10. 2007, Wels, Austria): *Augenbewegungsmessung: Verbesserte Diagnose durch verbesserte Technik.*

5. Vortragsreihe *Medizin + Technik*: „Grauer Star - vom Starstechen zur modernen Kataraktchirurgie." FH-OÖ, Campus Linz; 2 Oct 2007, (S. Priglinger & T. Haslwanter)

6. TU Wien, MSc Program "Engineering Management" (9.5.2007, Vienna, Austria): *Medical Technolog*

7. *T. Haslwanter, R. Hoerantner, M. Koch, S. Priglinger Imaging Technology has Revolutionized Medicine: So do we Still Need Biomechanical Models?* 17. Okulomotoriktreffen Zürich - München – Tübingen (26./27. Jän. 2007, Zürich)

8. "3. Linzer Formum Medizintechnik" (17. 5.2006, Linz, Austria): *Mit biomechanischer Simulation zum intelligenten Crash-Test Dummy*

9. Forschungsschwerpunktes Muskuloskelettale Krankheiten, Biomechanik und Sportmedizin, PARACELSUS PRIVATE MEDICAL UNIVERSITY, (28. Juni, 2006, Salzburg, Austria): *Biomechanische Simulation motorischer und sensorischer Funktionen im menschlichen Körper*

10. ARVO, Ft. Lauderdale, FL, USA; 3 May, 2005: *Model Based Improvements in the Treatment of Strabismus*

11. Special Interest Group session on Extraocular Mechanics (ARVO, Ft. Lauderdale, FL, USA; 29 April, 2004) *SEE++ - A Biomechanical Model of the Oculomotor Plant.*

12. Matlab Application Day (Basel, CH; 23 March, 2004) *MATLAB in Systems Physiology.*

13. Neurobiology of Eye Movements (Cleveland, OH, USA; 4-6 Oct 2001) *Mechanics of Eye Movements: Implications of the Orbital Revolution*

14. National Institute of Health (Bethesda, MD, USA; 25. 10. 2000) *Otolith function and its effects on the VOR.*

15. Workshop Augenmotilität (Linz, A; 10.-11.9.1999) *Ophthalmologie in 3D.*

16. Otoneurology '99, International Symposium (Florence, I; 3-4 July 1999) *Treatment of Meniere's Disease with Gentamicin: can some vestibular function be retained?*

17. European research conference on "Three-dimensional sensory and motor space" (Castelvecchio Pascoli, I; 9-14 April 1999) *Video-based eye movement recording systems.*

18. Neuro-ophthalmological seminar (Dept. of Ophthalmology, Tuebingen, D; Nov 1998) *Grundlagen und Anwendungen von 3d Augenmessmethoden bei ophthalmologischen Störungen.*

19. 32. Symposium über Strabologie und Neuroophthalmologie (Linz, A; Oct 1998) *Funktionelle Aspekte 3-dimensionaler Augenbewegungen bei kombinierten Auge-Kopf-Rotationen und bei Pathologien.*

20. Johns Hopkins University (Baltimore, USA; Feb 1998) *3D Eye Movement Research: Clinical Aspects and Everyday-Life Applications*

21. Neuro-ophthalmologic Colloquium, Dept. of Ophthalmology and Dept. of Neurology, University Hospital Tübingen (Tübingen, D; May 1996) *3D Eye movements: measurement techniques and applications.*

22. 5th International Conference, ICCHP '96 („Interdisciplinary Aspects on Computers helping People with Special Needs„) (Linz, A; July 1996) *Eye movement analysis with search coils and video systems.*

23. Dept. of Neurology, Neuro-center, Freiburg (Freiburg, D; September 1996) *Interaction between otoliths and semicircular canals.*

24. 5th Annual Clinical and Scientific Meeting of the Neuro-Otology Society of Australia (Melbourne, AUS; April 1995) *The role of eye movement characteristics in the measurement of vestibular function.*

25. Workshop on „Three-dimensional Kinematic Principles of Eye-, Head-, and Limb Movements in Health and Disease„ (Tübingen, D; August 1995) *3-dimensional response to very high angular accelerations in healthy human subjects.*

26. 14th Annual meeting of the Australian Neuroscience Society (Sydney, AUS; February 1994) *Can torsional components of eye-movements identify unilateral deafferentation?*

27. Annual MUCOM-Symposium (MUCOM = Multi-Sensory Control of Movement) (Paris, F; January 1992) *Local Listing's law during combined eye, head, and arm movements.*

28. Annual MUCOM-Symposium (Zürich, CH; March 1991) *Do smooth pursuit eye movements obey Listing's law?*

29. Annual MUCOM - Symposium (Nijmegen, NL; May 1990) *Effects of Static Tilt on Listing's Plane in the Monkey.*

30. Spring-meeting of the German Physical Society (Essen, D; March 1989*) One-photon resonant two-photon excitation of Rydberg-series.*

# Miscellaneous

## Memberships

- American Society for Neuroscience

## Others

1998 – 2002: Member of the "Science Team" of the DLR (*Deutschen Zentrums für Luft- und Raumfahrt)* for the development of a *3-D Eye Tracking Device* for the *Human Research Facility* of NASA.

# Posters

1. J. Ong and T. Haslwanter. Measuring torsion by tracking stable iris features. Anonymous. Anonymous. American Society for Neurscience. 2009. 10-21-2009.

2. CJ Bockisch, D Straumann, T Haslwanter (2003) *The human 3D aVOR with and without otolith stimulation.* "Physiology and Disorders of Oculomotor and Vestibular Control", Wildbad Kreuth, D (April 3-5, 2003)

3. Bockisch CJ, Straumann D, Hess K, Schade A, Haslwanter T (2002) *Smooth pursuit eye movements in patients with bilateral vestibular loss.* XXII Meeting of the Bárány Society. Seattle, Washington USA. Seattle, Washington USA. J Vest Res 11 (3-5): 295

4. Jaeger R, Haslwanter T (2002) *Modeling the relation between head orientation, head movement and otolith responses in humans.* XXII Meeting of the Bárány Society. Seattle, Washington USA. J Vest Res 11 (3-5): 209

5. Carey JP, Hirvonen TP, Peng GCY, Della Santina CC, Haslwanter T, Minor LB (2002) Changes in angular VOR after a single dose of intratympanic gentamicin for Ménière's Disease. XXII Meeting of the Bárány Society. Seattle, Washington USA. J Vest Res 11 (3-5): 221

6. Yakushin S, Palla A, Haslwanter T, Bockisch C, Straumann D (2002) *Dependence of the gain of the human vertical angular vestibulo-ocular reflex on gravity.* XXII Meeting of the Bárány Society. Seattle, Washington USA. J Vest Res 11 (3-5): 305

7. Jaeger R, Takagi A, Fetter M, Haslwanter T (2002) *Simulation of the effects of otolith curvature on 3D otoconia displacements by static linear accelerations.* ARO Midwinter Meeting, St. Petersburg Beach, Florida

8. Bockisch CJ, Straumann D, Haslwanter T (2001) *Eye movements during multi-axis whole body rotations.* 31th Annual Meeting of the Society of Neuroscience. Soc. Neurosci. Abstr., Vol. 27, 298.18

9. Haslwanter T, Jaeger R, Takagi A, Fetter M (2001) *Numerical simulation of otolith displacements*. Neural Control of Movement, Sevilla, Spain. 25-29 March 2001

10. Bockisch CJ, Straumann D, Haslwanter T (2001) *Oculomotor responses to multi-axis rotations*. Neural Control of Movement, Sevilla, Spain. 25-29 March 2001

11. Jaeger R, Takagi A, Fetter M, Haslwanter T (2001) *Numerical simulation of otolith displacements.* ARO Midwinter Meeting, St. Petersburg Beach, Florida

12. Carey JP, Haslwanter TP, Della Santina CC, Peng BDY, Minor LB (2000) *Maintaining Canal Function In Gentamicin Treatment Of Meniere's Patients* Soc. Neurosci. Abstr., Vol. 25, Part 2, p. 1492

13. Bockisch CJ, Jaeger R, Duersteler M, Haslwanter T (2000) *3d Eye Movement Responses To Static Roll And Pitch In Humans.* 30th Annual Meeting of the Society of Neuroscience. Soc. Neurosci. Abstr., Vol. 25, Part 2, p. 1994

14. Haslwanter T, Bockisch CJ, Jaeger R, Cabuncal J (2000) *3D Eye Movement Responses to Static Roll and Pitch in Humans.* Royal Academy of Arts and Sciences, Amsterdam & Faculty of Medicine and Health Sciences, Erasmus University Rotterdam, 27-29 Sept 2000 (Symposium on *Eye Movements and Vision in the Natural World.)*

15. Jaeger R, Haslwanter T, Fetter M (2000) *Numerical simulation of otolith movement*. Berlin, 21-23 Sept 2000 (Medizin und Mobilität an der Freien Universität Berlin & 38 Jahrestagung der Deutschen Gesellschaft für Luft- und Raumfahrtmedizin e.V.)

16. Jaeger R, Haslwanter T, Fetter M (2000) *Numerical simulation of otolith movement*. Neural Control of Movement, Key West, USA. 9-13 April 2000

17. Haslwanter T, Bockisch CJ, Jaeger R (2000) *3d Eye Movement Responses To Static Roll And Pitch In Humans*. Symposium "Eye movements and vision in the natural world". Amsterdam/Rotterdam, NL, 27-29 Sept 2000. Abstracts, p 36

18. Carey J, Haslwanter T, Della Santina C, Minor L (1999) *3D VOR shows preserved canal function after intratympanic gentamicin for Meniere's Disease*. The Association for Research in Otolaryngology MidWinter Meeting. Tracking Id: 4159, Abstract Number for Program: 500

19. Straumann D, Haslwanter T, Kori AA, Schmid-Priscoveanu A, Obzina H (1999) *Misalignment between primary eye direction and minimum gain direction of the VOR*. 29th Annual Meeting of the Society of Neuroscience. Soc. Neurosci. Abstr., Vol. 25, Part 1, p. 6

20. Haslwanter T, Hess BJM, Aw S (1999) *Dynamic shift of primary position in humans*. 29th Annual Meeting of the Society of Neuroscience. Soc. Neurosci. Abstr., Vol. 25, Part 1, p. 660

21. Jäger R, Haslwanter T (1999) *Development of a numerical otolith model.* European research conference on "Three-dimensional sensory and motor space" (Castelvecchio Pascoli, I; 9-14 April 1999)

22. Haslwanter T, Schreiber K (1999) *Limits in measuring torsional eye position using video-oculography devices.* European research conference on "Three-dimensional sensory and motor space" (Castelvecchio Pascoli, I; 9-14 April 1999)

23. Haslwanter T, Anastasopoulos D, Jäger R, Fetter M (1998) *3D Eye Movement Responses to OVAR in Patients with Cerebellar Atrophy*. The cerebellum in health and Disease. Tübingen, 25/26. Sept. 1998

24. Fetter M, Haslwanter T, Bork M, Dichgans J (1998) *New insights into positional alcohol nystagmus using 3-D eye movement analysis.* ENS (European Neurological Society), Nizza, June 1998

25. Haslwanter T, Minor L (1998) *Circular Head Shaking: A New Test for Vestibular Function?* Neural Control of Movement, Key West, USA, 14-19 April 1998

26. Fetter M, Haslwanter T, Bork M, Dichgans J (1998) *New insights into positional alcohol nystagmus using 3-D eye movement analysis.* European Neurological Society, Nizza, June 1998

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