Curriculum vitae - Benedikt Grothe

Prof. Dr. Benedikt Grothe, Chair of Neurobiology
Ludwig-Maximilians-Universität München (LMU)
Department Biology II
Großhaderner Str. 2
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and

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Member of the *Bavarian Academy of Science*
Member of the German *National Academy of Sciences, Leopoldina*
Fellow of the *Max Planck Society*

Date of Birth April 08, 1960

Scientific Career

2017 – present	Vice-Dean, Faculty of Biology, LMU
2014 – 2024	Fellow of the Max Planck Society
2010 – 2021	Coordinator/Spokesman, DFG Collaborative Research Center CRC870 "*Assembly and Function of Neuronal Circuits"*
2010 – 2012	Dean, Faculty of Biology, LMU
2009 – present	Director, Graduate School of Systemic Neurosciences (GSN^{LMU})
2006 – present	Founder and Spokesman, Munich Center for Neurosciences (MCN^{LMU})
2005 – 2010	Acting Director (Chair), Department Biology II, LMU
2003 – present	Professor of Neurobiology, Department Biology II, LMU
1999 – 2003	Research Group Leader, Max Planck Institute of Neurobiology, Martinsried
1994 – 1998	Assistent/Oberassistent (equivalent to Ass. Prof.), Zoologisches Institut, LMU
1992 – 1993	Postdoc, New York University, Center for Neural Sciences (Dan. H. Sanes)
1991	Postdoc, University of Texas at Austin (George D. Pollak)
1990-1991	Curator (tenured), Natural History Museum Munich

Academic Education

1996	Habilitation (Zoology), Privatdozent (indep. lecturer) for Zoology, LMU Munich
1988 – 1991	PhD Dissertation (Dr.rer.nat.), Faculty of Biology, LMU, Munich
1983 –1988	Dipl. Biol., LMU, Munich

Academic Job Offers (declined) and Short Lists	
2017	Director and Professor, *UCL Ear Institute, University College London*, UK
2015	Full Professor, *University of Queensland*, UQ Medical Center & Queensland Brain Institute (QBI), Brisbane, Australia
2011	Co-Director and Head of Department, *Leibniz Institute on Aging*, Jena, Germany
2007	Director, *Parmenides Foundation*, Pullach, Germany
2003	Professor (Chair) of Physiology, *Medical School, Johan-Wolfgang-Goethe-Universität Frankfurt* a.M., Germany
2002	Reader, *University College London*, Department of Cell and Developmental Biology, London, UK
2002	Secundo loco, Professor (Chair), *Université de Fribourg*, Medical Center, Switzerland
2002	Secundo loco, Professor (Chair), Animal Physiology, *University of Regensburg*
2002	Full Professor, *Lund University*, Biology, Sweden
1999	Assist. Prof (Tenure-Track), *University of Washington*, Department of Biological Structure, Seattle, USA

Major Research Interests

>>100 publications in the area of systemic and comparative neuroscience.

Structure, physiology, and function of neuronal circuits processing spatio-temporal information, their evolution and development.

Research topics span from ion-channels and biophysics (*in vitro* physiology) via circuit structure and function (synaptic function, myelination patterns etc.) to *in vivo* single cell and populations responses, population coding (modelling), psychoacoustics and perception.

Methods in the lab include: electrophysiology *in vitro* and *in vivo*, pharmacology, laser- uncaging, optogenetics, comparative anatomy and immunohistochemistry, *in vivo* ca-imaging, animal and human psychophysics

Selected publications

Bednárová V, **Grothe B**, Myoga MH (2018) Complex and spatially segregated auditory inputs of the mouse superior colliculus. *J Physiol* 596(21): 5281–5298

Lingner A, Pecka M, Leibold C, **Grothe B** (2018) A novel concept for dynamic adjustment of auditory space. *Scientific Reports* 8:8335 DOI:10.1038/s41598-018-26690-0

Petrik D, Myoga MH, Grade S, Gerkau NJ, Pusch M, Rose CR*, **Grothe B*[1],** Götz M* (2018) Epithelial sodium Channel Regulates Adult Neural Stem Cell Proliferation in a Flow-Dependent Manner. *Cell Stem Cell* 22(6):865-878.e8. doi: 10.1016/j.stem.2018.04.016

Beiderbeck B, Müller N, Myoga MH, Friauf F*, **Grothe B***, Pecka M* (2018) Precise inhibition in the auditory brainstem fine-tunes and facilitates action potential firing. *Nature Commun* 9:1771

Stange-Marten A, Sinclair JL, Fischl MJ, Kopp-Scheinpflug C, Pecka M, **Grothe B** (2017) Structural and functional adaptations for fast and precise inhibition: constant synaptic delays and accelerated action potential conductance velocity related to sound localization of low frequency sounds. *Proc Nat Acad Sci USA*, 114(24): E4851–E4858

Ford, MC, Alexandrova O, Cossell L, Stange-Marten A, Sinclair J, Kopp-Scheinpflug C, Pecka M, Attwell D, **Grothe B** (2015) Tuning of Ranvier node and internode properties in myelinated axons to adjust action potential timing. *Nature Communic* 25;6:8073

Danek AH, Öllinger M, Fraps T, **Grothe B**, Flanagin VL (2015) An fMRI investigation of expectation violation in magic tricks. *Front Psychology* 4;6:84

Danek AH, Fraps T, von Müller A, **Grothe B**, Öllinger M (2014) It's a kind of magic – what self-reports can reveal about the phenomenology of insight problem solving. *Front Psychol* 8;5:1408

Myoga MH, Lehnert S, Leibold C, Felmy F, **Grothe B** (2014) Precise Timing of Glycinergic Inhibition Controls Coincidence Detection in the Auditory Brainstem. *Nature Communic* 7;5:3790

Stange A, Myoga MH, Lingner A, Ford MC, Alexandrowa O, Felmy F, Pecka M, Siveke I, **Grothe B** (2013) Adaptation in sound localization: from GABAB receptor-mediated synaptic modulation to perception. *Nature Neurosci* 16:1840-1847

* shared senior/corresponding authorship

Grothe B, Pecka M, McAlpine D (2010) Mechanisms of sound localization in mammals. *Physiol Rev* 90:983-1012

Magnusson AK, Park TJ, Pecka M, **Grothe B***, Koch U* (2008) Retrograde GABA signaling adjusts sound localization by balancing excitation and inhibition in the brainstem. *Neuron* 59:125–137

Grothe B (2003) New roles for synaptic inhibition in sound localization. *Nature Rev Neurosci* 4: 540-550

Brand A, Behrend O, Marquardt T, McAlpine D, **Grothe B** (2002) Precise inhibition is essential for microsecond interaural time difference coding. *Nature* 417: 543-547

Kapfer C, Seidl AH, Schweizer H, **Grothe B** (2002) Experience-dependent refinement of inhibitory inputs to auditory coincidence-detector neurons. *Nature Neurosci* 5: 247-253

Grothe B, Sanes DH (1994) Synaptic inhibition influences the temporal coding properties of medial superior olivary neurons: an *in vitro* study. *J Neurosci* 14(3):1701-1709

Grothe B (1994) Interaction of excitation and inhibition in processing of pure tone and amplitude-modulated stimuli in the medial superior olive of the mustached bat. *J Neurophysiol* 71(2):706-721

Grothe B, Vater M, Casseday JH, Covey E (1992) Monaural interaction of excitation and inhibition in the medial superior olive of the mustached bat: an adaptation for biosonar. *Proc Nat Acad Sci USA* 89: 5108-5112

Honours and other pieces of evidence of qualification

- 1990 Junior research award of the *German Zoological Society (DZG)*
- 1992 DFG-Research-Fellowship
- 2000 Research Award of the *German Audiological Society (DGA)*
- 2003 – 08 Editor, Journal of Comparative Physiology A
- 2005 – Board Member, *Munich Center for Computational Neurosciences BCCN*
- 2005 – Board Member, *Munich Competence Center for Ethics (MKE)*
- 2007 Heller Lecture (Guest of honour and keynote speaker) Center for Brain Sciences, Hebrew University, Jerusalem)
- 2007 – Elected member of the *Bavarian Academy of Science*
- 2007-10 Editor, *PLoSONE*
- 2006 – Faculty Director, *AMGEN* Scholars Programme (LMU)
- 2011-15 Board of Trustees, *Körber-Stiftung* (Foundation), Hamburg, Germany
- 2007-14 Director at the *Parmenides Foundation*, Pullach, Germany
- 2007-09 LMU strategic council
- 2008-11 Scientific Advisory Board (Chair), *Max Planck Institute of Neurological Research, Cologne*
- 2013 Host, 106th Annual Meeting of the German Zoological Society/*Deutsche Zoologische Gesellschaft (DZG)* 13.–16. September 2013, LMU München
- 2009-14 Board of Trustees, *Max Planck Institutes of Neurobiology & of Biochemistry*, Martinsried
- 2009 – Editorial Board, *Hearing Research*
- 2010 Order of Merit of the Federal Republic of Germany
- 2013-17 Advisory board „Zukunft der Lehre“, *Goethe University Frankfurt* a.M., Germany;
- 2014 – Fellow of the *Max Planck Society,* Germany
- 2015 – Editorial Board Member, *Neuroforum*
- 2016 Host and Co-Organizer, *8. European Conference of Comparative Neurobiology* (LMU und Bayerischen Akademie der Wissenschaften) 07.-09. April 2016
- 2016 – Elected Member of the *National Academy of Sciences, Leopoldina*
- 2017 – Chair, International Advisory Board (Chair), *BIOTOPIA – Naturkundemuseum Bayern* (Bavarian Museum of Natural History), Munich, Germany
- 2017 – Scientific Advisory Board Member, *Leibniz Institute for Neurobiology* (LIN), Magdeburg, Germany
- 2018 Editorial Board, *Physiological Reviews*
- 2019 – Associate Editor, *Physiological Reviews*
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Most important research and teaching collaborations

- 2004 – present BMBF- Bernstein Center for Computational Neurosciences Munich, *BCCN* (PI; vice-coordinator 2004 –present)
- 2006 – present Founder and Speaker of Munich Center for Neuroscience - Brain and Mind, *MCN*^{LMU}

- 2004 – 2014 DFG-GRK 1091 (graduate program) “Orientation and Motion in Space” (PI and vice-coordinator)
- 2005 – 2015 DFG-GRK 1373 (int. graduate program) “Brain signalling: from neurons to circuits” (PI)
- 2010 – present Founder and Speaker of DFG-SFB 870 (Collaborative Research Center) “Assembly and Function of Neuronal Circuits in Sensory Processing” (speaker and PI)
- 2006 – present Initiator and Head of “M.Sc. Neuroscience”, Master program funded by Elite Network of Bavaria
- 2006 – preset Founder and Director of Graduate School of Systemic Neurosciences, *GNS*^{LMU} funded by German Excellence Initiative (2006-2019)
- 2009 – 2019 “Integrated research and treatment center IFB^{LMU}: Center for vestibular and ocular motor disorders” (PI and board member)
- 2012 – 2019 PI at ExcellenceCluster “Systems Neurology” SyNergy (PI); spokesman Christian Haass;
- 2016 – 2021 Collaboration with David McAlpine, Macquarie University, Sydney. Funded by Australia’s Laureate Program:
- 2018 – ongoing collaboration with Joshua Sanes, Harvard Center for Brain Science, and Lisa Goodrich, Harvard Medical School, on Cell ID in the lower auditory brainstem.