

# Curriculum vitae

## PERSONAL INFORMATION

Family name, First name: Gross, Joachim

Researcher unique identifier(s): [orcid.org/0000-0002-3994-1006](https://orcid.org/0000-0002-3994-1006)

[scholar.google.de/citations?user=00NYt6oAAAAJ&hl=en](https://scholar.google.de/citations?user=00NYt6oAAAAJ&hl=en)

Web site: [www.medizin.uni-muenster.de/en/biomag/ibb/](http://www.medizin.uni-muenster.de/en/biomag/ibb/)

## • EDUCATION

- 1998 PhD  
MPI for Cognitive Neuroscience, Leipzig and Research Centre, Juelich, Germany
- 1995 Diploma  
Physics, University of Hannover, Germany
- 1993 BA (summa cum laude)  
Physics and Mathematics at the Angelo State University in San Angelo, Texas, USA

## • CURRENT POSITIONS

- 2017 – Director of the Institute for Biomagnetism and Biosignalanalysis,  
University of Muenster, Germany
- 2006 – Professor for Systems Neuroscience, Centre for Cognitive Neuroimaging  
University of Glasgow, UK

## • PREVIOUS POSITIONS

- 2010 – 2017 Director of Centre for Cognitive Neuroimaging, University of Glasgow, UK
- 2004 – 2006 Senior researcher in the MEG Laboratory, Department of Neurology, Heinrich-Heine  
University Duesseldorf
- 1998 – 2004 PostDoc in the MEG Laboratory, Department of Neurology, Heinrich-Heine University  
Duesseldorf

## • FELLOWSHIPS AND AWARDS

- 2012 Wellcome Trust Joint Senior Investigator Award (€1.2M), UK
- 2012 Senior Fellowship Award, Zukunftscolleg, University of Konstanz, Germany
- 2010 Samuel Williamson Prize at the International conference for Biomagnetism, Dubrovnik,  
Croatia
- 2010 Senior Fellowship Award, Zukunftscolleg, University of Konstanz, Germany
- 2003 2<sup>nd</sup> Science Prize of Nordrhein-Westfalen for the work: “Tomographic mapping of  
functional connectivity in the human brain using magnetoencephalography.”

## • SUPERVISION OF GRADUATE STUDENTS AND POSTDOCTORAL FELLOWS

- 2006 – 17 PostDocs, 9 PhD, (8 have moved to permanent academic positions)

## • TEACHING ACTIVITIES (selected)

- 2017 – Weekly Institute Seminar
- 2006 – 2017 Brain Imaging Methods (Masters) in Brain Imaging Programme  
Basics of MEG, in PhD Programme

## • ORGANISATION OF SCIENTIFIC MEETINGS

- 2019 Chair of the Scientific Committee of International conference on Biomagnetism 2020
- 2017 Member of organising committee, The interdisciplinary conference Coupling and Causality  
in Complex Systems, Cologne, Germany
- 2014 – Member of the Programme Committee of Biomag Conference (about 900 attendees)

- 2016 Chair of ESRC seminar series on multisensory integration, Birmingham
- 2010, 2012 Co-Chair of Human Brain Mapping educational sessions on MEG/EEG
- 2011 Chair, MEG UK conference Glasgow (about 150 attendees)
- 2009 Chair of international panel for development of MEG guidelines

• **INSTITUTIONAL RESPONSIBILITIES**

- 2017 – Director of the Institute for Biomagnetism and Biosignalanalysis, University of Muenster, Germany
- 2009 – 2017 Director of the Centre for Cognitive Neuroimaging (CCNi), University of Glasgow, UK
- 2007 – 2017 Member of Management group of Institute of Neuroscience and Psychology, University of Glasgow, UK
- 2007 – 2017 Head of MEG Lab, University of Glasgow, UK
- 2007 – 2017 Chair of Scientific project presentations, CCNi, University of Glasgow, UK
- 2010 – Chief Editor and administrator of the international mailing list for Magnetoencephalography (MEG) with 900 international subscribers.

• **REVIEWING ACTIVITIES**

- 2019 – Member of Scientific Advisory Board, University of Marseille, France
- 2018 – Chair of Scientific Advisory Board, University of Jyväskylä, Finland
- 2014 – 2017 Scientific Advisory Board, University of Cardiff, UK
- 2019 – Member of Advisory board, Fieldtrip software
- 2018 Evaluation committee member, Neurospin, France
- 2016 – 2019 Member of Neuroscience Panel, Norway Research Council, Norway
- 2016 – 2018 Member of expert pool and committee member for Biotechnology and Biological Sciences Research Council (BBSRC)
- 2013 – Associate Editor, Human Brain Mapping
- 2012 – 2016 Editorial Board Member, Neuroimage
- Since 2004 Grant reviewer for many funding agencies including: Agence Nationale de La Recherche (ANR) France; Biotechnology and Biological Sciences Research Council (BBSRC); Deutsche Forschungsgemeinschaft (DFG); Economic & Social Research Council (ESRC); European Union: ERC; Human Frontiers Science Program (HFSP); Medical Research Council (MRC); Research Foundation Flanders (FWO); Schweizerischer Nationalfonds (SNF); Wellcome Trust (UK)
- Since 2000 Reviewer for many journals including: Science, Nature Neuroscience, Neuron, PLoS Biology, PNAS, Cerebral Cortex, Current Biology, eLife, eNeuro, Human Brain Mapping, Neuroimage, Journal of Neurophysiology, Journal of Neuroscience, Nature Communications, Trends in Neurosciences, Trends in Cognitive Sciences

• **MAJOR COLLABORATIONS**

International collaborations include: Pascal Belin (Aix-Marseille University, Marseille, France), Daniel Baldauf (University of Trento, Trento, Italy), Riitta Salmelin (Aalto University, Helsinki, Finland), Stefano Panzeri (IIT, Rovereto, Italy), Philippe Schyns (University of Glasgow, Glasgow, UK), Gregor Thut (University of Glasgow, Glasgow, UK), Sonja Kotz (Maastricht University, Maastricht, Holland); Hyojin Park (University of Birmingham, Birmingham, UK), Jan-Mathijs Schoffelen (Donders Centre, Nijmegen, Holland)

National collaborations include: Christoph Kayser (University of Bielefeld), Markus Ploner (Technical University Munich), Peter Uhlhaas (Charite, Berlin), Udo Dannlowski (University of Muenster)

## *All ongoing and submitted grants and funding*

### **On-going Grants:**

<i>Project Title</i>	<i>Funding source</i>	<i>Amount (Euros)</i>	<i>Period</i>	<i>Role of the PI</i>
Brain rhythms during speech production	DFG	295.000	2019-2022	PI
An integrated approach for studying body-brain interactions	IZKF, Muenster	330.000	2019-2021	PI

### **Submitted Grant applications:**

<i>Project Title</i>	<i>Funding source</i>	<i>Amount (Euros)</i>	<i>Period</i>	<i>Role of the PI</i>
A new taxonomy for brain rhythms in cognition	DFG	1.000.000	2020-2023	PI
Multichannel transcranial alternating current stimulation (mc-tACS): a novel approach to modulate visual motion perception and smooth pursuit eye movement control in healthy individuals and patients with psychotic disorders	DFG	430.000	2020-2023	Co-I

### **Previous Grant:**

<i>Project Title</i>	<i>Funding source</i>	<i>Amount (Euros)</i>	<i>Period</i>	<i>Role of the PI</i>
Natural and modulated neural communication	Wellcome Trust	1.200.000	2013-2019	PI
The neural representation of vocal emotion	BBSRC	900.000	2015-2019	PI
Pathways and mechanisms underlying the visual enhancement of hearing in challenging environments.	BBSRC	480.000	2015-2018	co-I
The Youth Mental Health Risk and Resilience Study	MRC	960.000	2014-2018	co-I
Investigating the neural basis for checking, selective attention and working memory in obsessive compulsive disorder	MRC	480.000	2013-2015	co-I
Partnership Grant of all UK MEG centres	MRC/ EPSRC	1.560.000	2015-2018	co-I
Audiovisual integration of identify information from the face and the voice	BBSRC	296.000	2012-2014	co-I
Cerebral processing of nonverbal affective vocalization	BBSRC	552.000	2011-2013	co-I
Modifying Brain Oscillations to drive perception	BBSRC	552.000	2011-2014	co-I
Neural Mechanisms of sensory awareness	Wellcome Trust	324.000	2011-2014	PI
Non-cryogenic integrated optical magnetometers for Magnetocardiography (MCG) and Magnetoencephalography (MEG)	Wellcome Trust	324.000	2009-2012	co-I
Investigating neural communication	Wellcome	216.000	2008-2011	PI

with multivariate autoregressive models	Trust			
Social interaction: A cognitive-neurosciences approach	ESRC	5.100.000	2007-2011	PI
A methodological framework for spatio-temporal characterization of large scale oscillatory neural interactions in the human brain	VW-Stiftung	300.000	2001-2004	PI

## Ten years track-record

In the last 10 years, I have further developed a track record of **significant original research breakthroughs in the field of brain oscillations**. My work has achieved **international recognition**, evidenced through **high-ranking journal publications** (including *Neuron*, *PNAS*, *TICS*, *PloS Biology*, *Current Biology*), **prolific and increasing citations** (currently about 1600 per year), **publication of well-cited review papers** (e.g. in *Neuron*, *TICS*, *Current Biology*), **successful mentoring of young scientists** (17 PostDocs and 9 PhD students) and **sustained acquisition of significant research funding (total of €16Mio. with €4.6Mio. as my own contribution)**. I developed the method DICS (*PNAS*, 2001, >1200 citations) that allowed for the first time the frequency-specific mapping of brain activity and brain connectivity and thereby changed the way neuronal oscillations and synchrony can be non-invasively studied using electroencephalography (EEG) and magnetoencephalography (MEG). This tool has become a standard tool in the neuroscientific community and has been implemented in leading open source and commercial software packages for the analysis of EEG and MEG data. In the last 10 years I have applied these tools successfully to the study of sensory and motor systems. We could, for example, demonstrate that abnormalities of neuronal oscillations are a key feature of the pathology of movement disorders such as Morbus Parkinson, Essential Tremor and Hepatic Encephalopathy. Furthermore, my work has shown how neuronal oscillations at different frequencies shape visual perception, speech perception and the perception of pain. These fundamental insights have paved the way for the current proposal where the traditional Brain-Behaviour approach will be expanded into the first comprehensive, integrated ‘Body-Brain-Behaviour’ framework.

My scientific reputation is demonstrated among others by a recent **invited review for *Neuron*** (IF 14.3, in press), **several Awards, keynote lectures and roles on advisory boards and grant committees** (see below and CV), **chairing an international panel of experts** for developing MEG guidelines (*Neuroimage* 2013) and contributing to recent IFCN-endorsed guidelines for clinical MEG (*Clinical Neurophysiology*, 2018).

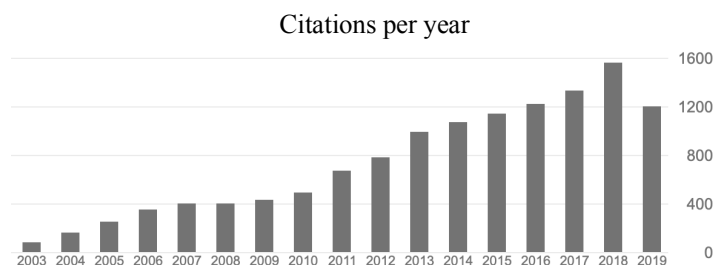
## 10 Selected Publications

(101 total publications with 31 as main (first or last) author in last 10 years)

1. Daube, C., Ince, R. A., & Gross, J. (2019). Simple acoustic features can explain phoneme-based predictions of cortical responses to speech. *Current Biology*, 29(12), 1924-1937. (IF 9.3)
2. Gross, J. (2019). Magnetoencephalography in Cognitive Neuroscience: A primer. *Neuron*. In press. (invited review, IF 14.3); preprint <https://uni-muenster.sciebo.de/s/Fv7yLdVk6Q85a5O>
3. Uhlhaas, P. J., Grent-’t-Jong, T., & Gross, J. (2018). Magnetoencephalography and translational neuroscience in psychiatry. *JAMA Psychiatry*, 75(9), 969–971. (IF 15.3)
4. Park, H., Ince, R. A. A., Schyns, P. G., Thut, G., & Gross, J. (2018). Representational interactions during audiovisual speech entrainment: Redundancy in left posterior superior temporal gyrus and synergy in left motor cortex. *PLoS Biology*, 16(8), e2006558. (IF 9.2)
5. Cao, L., Veniero, D., Thut, G., & Gross, J. (2017). Role of the cerebellum in adaptation to delayed action effects. *Current Biology*, 27(16), 2442–2451.e3. (IF 9.3)
6. Ploner, M., Sorg, C., & Gross, J. (2017). Brain rhythms of pain. *Trends in Cognitive Sciences*, 21(2), 100–110. (IF 15.6)
7. Park, H., Kayser, C., Thut, G., and Gross, J. (2016). Lip movements entrain the observers' low-frequency brain oscillations to facilitate speech intelligibility. *eLife* 5, e14521. (IF 7.6)
8. Park, H., Ince, R.A., Schyns, P.G., Thut, G., and Gross, J. (2015). Frontal top-down signals increase coupling of auditory low-frequency oscillations to continuous speech in human listeners. *Current Biology* 25, 1649-1653. (IF 9.3)

9. Thut, G., Veniero, D., Romei, V., Miniussi, C., Schyns, P., and Gross, J. (2011). Rhythmic TMS causes local entrainment of natural oscillatory signatures. *Current biology* 21, 1176-1185 (IF 9.3)
10. Schyns, P.G., Thut, G., and Gross, J. (2011). Cracking the code of oscillatory activity. *PLoS Biol* 9, e1001064. (IF 9.2)

Publications: >170  
 Citations: >12800  
 H-index: 54 (since 2014: 42)  
 (Google Scholar, August 2019)



### Ad hoc Referee (selected journals)

Science, Neuron, Nature Neuroscience, Trends in Cognitive Sciences, PLoS Biology, Elife, Current Biology, Nature Communication, PNAS, Journal of Neuroscience, Neuroimage, Human Brain Mapping

### Editorial Board Member

Human Brain Mapping (since 2013)  
 Neuroimage (2012-2016)

### Grant Funding

Over the last 10 years I was involved in **research grants with a total value of €16Mio. My own share is €4,6Mio.**

### Invited Presentations to international conferences

Keynotes: MEG NORD conference Jyväskylä 2019; BryCoCo meeting, Frankfurt 2016; MEG meeting, Aarhus 2014; MEG meeting Trento 2013; MEG UK meeting, Cardiff 2010;

Conference Talks: Biomag 2010, 2012, 2014, 2016, 2018; Human Brain Mapping 2010, 2011; MEG UK 2010-2017; Connectivity Symposium Hamburg 2011; British Association of Cognitive Neuroscience 2012; International Conference for Psychophysics, Pisa 2012; MEG Symposium Trento 2013; MEG Symposium Moscow 2013; Wellcome Trust Researcher Meeting London 2013, 2015; MEG inauguration Paris 2013; Awareness Conference Copenhagen 2014; Brain Oscillation workshop Birmingham 2014; Brain Oscillation workshop Delmenhorst 2015; The future of medicine conference London 2015; British Neuroscience Association Edinburgh 2015; Oscillations workshop Nijmegen 2016; International Neuropsychology Symposium Baiona 2016; Neural Oscillations in Speech and Language Processing conference Berlin 2017; Oscillations in speech workshop Delmenhorst 2018; 50 years of MEG conference Poros 2018; MEG inauguration Birmingham 2018; AESOP Leuven 2019; ... and more than 40 invited seminar talks since 2009

### Contributions to early careers of excellent researchers

In the last ten years, I have supervised 17 PostDocs and 9 PhD students and I enjoy mentoring young talent very much. I aim to provide my team-members with individual support to advance their careers and help them maximise their potential while appreciating the individual skills and needs of each person. Former colleagues comment very positively and gratefully on their time in my lab.

Over the last 10 years **eight of my team members have moved from my lab to permanent academic positions** at different international universities. **Several lab members have received prestigious awards** for their work performed under my supervision (Hyojin Park, Young Investigator Award Biomag 2016; HBM merit award 2015, 2016; Anne Keitel Young Investigator Award Biomag 2018).

It is worth noting that I have always striven to keep proportional the female-male ratio of doctoral and post-doctoral candidates under my supervision.