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PERSONAL DATA

Born in Osnabrück (Germany) on September 10, 1975

Married, two children

ACADEMIC POSITIONS

- Since 2019 Co-Director of the Center for Intracranial EEG Research, State Key Laboratory of Cognitive Neuroscience and Learning and IDG/McGovern Institute for Brain Research, Beijing Normal University
- Since 2014 Full Professor (W3) for Neuropsychology at the Ruhr University Bochum
- 2014 Chair, Department of Psychology, University of Birmingham (declined)
- 2014 Research group leader, German Center for Neurodegenerative Diseases (DZNE), Bonn (permanent position; declined)
- 2011 – 2014 Emmy Noether group Leader, Department of Epileptology, University of Bonn
- 2011 – 2014 Junior Research group Leader (tenure track), German Center for Neurodegenerative Diseases (DZNE), Bonn
- 2004 – 2011 Clinician-Scientist (Postdoc and Clinical Intern), Department of Epileptology, University of Bonn

UNIVERSITY EDUCATION

- 2009 Habilitation and *venia legendi* in „Cognitive Neuroscience“; topic *Memory processes in the medial temporal lobe*
- 2005 M.D. (“Dr. med.”) dissertation at the Institute of Physiology and the Institute of Theoretical Biology, Humboldt University of Berlin, topic *Theoretical and experimental findings on presynaptic modulation of GABAergic transmission* (summa cum laude, highest grade in Germany)
- 2004 Qualified as a Medical doctor, Charité Humboldt University of Berlin
- 1996 Pre-Diploma (corresponds to Bachelor) in Philosophy, Free University of Berlin

EDITORIAL BOARD MEMBERSHIPS AND REVIEWING FUNCTIONS

- 2016 BRAIN Initiative (NIH), panel member
- 2014-2016 Research Council of Norway, panel member
- Since 2014 Associate Editor, *Cognitive Neuroscience*
- 2013 Special Topic Guest Editor, *Frontiers in Human Neuroscience*
- Since 2011 Associate Editor, *Frontiers in Psychoanalysis and Neuropsychoanalysis*
- Since 2004 Reviewer for >50 journals (including *Science*, *Nat Neurosci*, *Neuron*, *Nat Commun*, *PNAS*, *PLOS Biol*, *Curr Biol*, *Trends Cogn Sci* etc.)
- Since 2008 Grant proposal reviewer for >10 international scientific organizations (e.g., ERC, NIH, NSF, MRC, ANR, BBSRC, DFG)

INSTITUTIONAL RESPONSIBILITIES AND COMMISSIONS OF TRUST

- Since 2017 Member, Board of trustees, Leibniz Research Centre for working environment and human factors

Since 2016 Co-opted Member, Ethics committee of the German Psychological Society
Since 2015 Member, Thesis board of the International Graduate School of Neuroscience, Ruhr University Bochum
Since 2016 Appeal commissioner, Ruhr University Bochum
2012 – 2014 Member, Examination Board, Master program in Neuroscience, University of Bonn

TEACHING

Lecture series “*Foundations of neural and sensory physiology*” (Bachelor level)
Lecture series “*Cognitive Neuroscience of Memory*” (Master level)
Seminars on Grid cells, EEG oscillations, and multivariate pattern classification analyses in fMRI and EEG data
Lecture “*Cognitive Neuroscience*” (International Graduate School of Neuroscience)

SUPERVISION

Current group members: 5 Postdocs (4 female), 5 Ph.D. students (3 female)
Previous group members: 3 Postdoc (current status: 1 Assistant Professor, 2 Senior Postdocs); 3 Ph.D. students (current status: all working as Postdocs); 7 M.D. students

FUNDING

Since 2008 Peer-reviewed funding by DFG, Helmholtz Foundation, GIF etc., **total amount > 7.3M€**; as a PI: **total amount > 6.1M€**

AWARDS AND ELECTED MEMBERSHIPS

2019 Visiting researcher, High-end Foreign Experts Recruitment Program, China
2017 - 2018 Director, Institute of Cognitive Neuroscience, Ruhr University Bochum
Since 2015 Board Member, Research Department of Neuroscience, Ruhr University Bochum
Since 2014 Elected Member, Memory Disorders Research Society (MDRS)
2014 Royal Society Wolfson Research Merit Award (related to position offer in Birmingham – declined)
2011 Award of Emmy Noether group by the DFG
2000 Best Presentation Award (Annual Meeting of the International Computer Science Society)

INVITED PRESENTATIONS (SELECTION)

Every year I present my work at 15-20 national and international meetings and in invited talks. Here is a selection of recent presentations:

2019 Westend Lecture, Max Planck Institute for Empirical Aesthetics, Frankfurt, Germany
2018 Keynote lecture, Meeting of the International Pharmacology EEG Society, Zurich, Switzerland
2018 Invited for Keynote lecture at the “Replay@Cubric” conference, Cardiff, UK
2018 Invited talk, Chinese Academy of Sciences, Beijing, China
2018 Invited talk, University of Basel, Switzerland
2018 Invited lecture, “Hippocampal network across the lifespan” symposium, Budapest, Hungary
2018 Invited lecture, International conference on learning and memory, Irvine, CA, USA
2017 Invited lecture, Sino-German Symposium on Alzheimer’s disease, Chengdu, China
2017 Invited lecture, European workshop on human intracranial electrophysiology, Paris, France

SELECTED PUBLICATIONS

- Kunz L, Wang L, Lachner-Piza D, Zhang H, Brandt A, Dümpelmann M, Reinacher PC, Coenen VA, Chen D, Wang WX, Zhou W, Liang S, Grewe P, Bien CG, Bierbrauer A, Navarro-Schröder T, Schulze-Bonhage T, [Axmacher N](#) (2019) Hippocampal theta phases organize the reactivation of large-scale electrophysiological representations during goal-directed navigation. *Sci. Adv* 5: eaav8192.
- Fellner MC, Gollwitzer S, Rampp S, Kreiselmeyr G, Bush D, Diehl B, Axmacher N, Hamer H, Hanslmayr S (2019) Spectral fingerprints or spectral tilt? Evidence for distinct oscillatory signatures of memory formation. *PLoS Biol* 17: e3000403.
- Hanslmayr S, [Axmacher N](#), Inman CS (2019) Modulating Human Memory via Entrainment of Brain Oscillations. *Trends Neurosci* 42: 485-499.
- Kunz L, Maidenbaum S, Chen D, Wang L, Jacobs J, [Axmacher N](#) (2019) Mesoscopic Neural Representations in Spatial Navigation. *Trends Cogn Sci* 23: 615-630.
- Pacheco Estefan D, Sánchez-Fibla M, Duff A, Principe A, Rocamora R, Zhang H, [Axmacher N](#), Verschure PFMJ (2019) Coordinated representational reinstatement in the human hippocampus and lateral temporal cortex during episodic memory retrieval. *Nat Commun* 10: 2255.
- Zhang H, Fell J, [Axmacher N](#) (2018) Electrophysiological mechanisms of human memory consolidation. *Nat Commun* 9: 4103.
- Chen D, Kunz L, Wang W, Zhang H, Wang WX, Schulze-Bonhage A, Reinacher PC, Zhou W, Liang S, [Axmacher N](#), Wang L (2018) Hexadirectional Modulation of Theta Power in Human Entorhinal Cortex during Spatial Navigation. *Curr Biol* 28: 3310-5
- Oehrn CR, Fell J, Baumann C, Rosburg T, Ludowig E, Kessler H, Hanslmayr S, [Axmacher N](#) (2018) Direct Electrophysiological Evidence for Prefrontal Control of Hippocampal Processing during Voluntary Forgetting. *Curr Biol* 28: 3016-22.
- [Axmacher N](#) (2016) A useful code for sequences. *Nat Neurosci* 19: 1276-7.
- Staresina BP, Michelmann S, Bonnefond M, Jensen O, [Axmacher N](#), Fell J (2016) Hippocampal pattern completion is linked to gamma power increases and alpha power decreases during recollection. *Elife* 10;5.
- Kunz L, Navarro Schröder T, Lee H, Montag C, Lachmann B, Sariyska R, Reuter M, Stirnberg R, Stöcker T, Messing-Floeter PC, Fell J, Doeller CF, [Axmacher N](#) (2015) Reduced Grid-cell-like Representations in Adults at Genetic Risk for Alzheimer's Disease. *Science* 350: 430-3.
- Staresina BP, Bergmann TO, Bonnefond M, van der Meij R, Jensen O, Deuker L, Elger CE, [Axmacher N](#), Fell J (2015) Hierarchical nesting of slow oscillations, spindles and ripples in the human hippocampus during NREM sleep. *Nat Neurosci* 18: 1679-86.
- Oehrn CR, Baumann C, Fell J, Lee H, Kessler H, Habel U, Hanslmayr S, [Axmacher N](#) (2015) Human hippocampal dynamics during response conflict. *Curr Biol* 25: 2307-2313.
- Zhang H, Fell J, Staresina BP, Weber B, Elger CE, [Axmacher N](#) (2015) Gamma power reductions accompany stimulus-specific representations of dynamic events. *Curr Biol* 25, 635-40.
- Leszczyński M, Fell J, [Axmacher N](#) (2015) Rhythmic Working Memory Activation in the Human Hippocampus. *Cell Rep* 13: 1272-1282.
- Watrous AJ, Deuker L, Fell J, [Axmacher N](#) (2015) Phase-amplitude coupling supports phase coding in human ECoG. *Elife* 26;4.
- Lee H, Fell J, [Axmacher N](#) (2013) Electrical engram: how deep brain stimulation affects memory. *Trends Cogn Sci* 17: 574-84.

- Staresina BP, Fell J, Dunn JC, Axmacher N, Henson RN (2013) Using state-trace analysis to dissociate the functions of the human hippocampus and perirhinal cortex in recognition memory. *Proc Natl Acad Sci U S A* 110: 3119-24.
- Staresina BP, Fell J, Do Lam AT, Axmacher N, Henson RN (2012) Memory signals are temporally dissociated in and across human hippocampus and perirhinal cortex. *Nat Neurosci* 15: 1167-73.
- Lachaux JP, Axmacher N, Mormann F, Halgren E, Crone NE (2012) High-frequency neural activity and human cognition: past, present and possible future of intracranial EEG research. *Prog Neurobiol* 98: 279-301.
- Fell J, Axmacher N (2011) The role of phase synchronization in memory processes. *Nat Rev Neurosci* 12, 105-18.
- Axmacher N, Cohen MX, Fell J, Haupt S, Dümpelmann M, Elger CE, Schlaepfer TE, Lenartz D, Sturm V, Ranganath C. (2010) Intracranial EEG correlates of expectancy and memory formation in the human hippocampus and nucleus accumbens. *Neuron* 65, 541-9.
- Axmacher N, Henseler MM, Jensen O, Weinreich I, Elger CE, Fell J (2010) Cross-frequency coupling supports multi-item working memory in the human hippocampus. *Proc Natl Acad Sci U S A* 107, 3228-33.
- Axmacher N, Elger CE, Fell J (2008) Ripples in the medial temporal lobe are relevant for human memory consolidation. *Brain* 131: 1806-17.

Bochum, September 19, 2019