

# Publikationsverzeichnis Prof. Dr. Max Happel (Stand März 2021)

## Erst-/Letztautorenschaften

- El-Tabbal M, Niekisch H, Henschke JU, Budinger E, Frischknecht R, Deliano M, Happel MFK (2020) Removal of the extracellular matrix biases auditory cortical layer dynamics towards supragranular corticocortical integration *Commun Biol* **4**, 322 (2021) doi.org/10.1038/s42003-021-01837-4
- Jeschke M<sup>#</sup>, Happel MFK<sup>#</sup>, Tziridis K, Krauss P, Schilling A, Schulze H, Ohl FW (2021) Acute and long-term circuit-level effects in the auditory cortex after sound trauma. *Front Neural Circ* doi.org/10.3389/fnins.2020.598406. <sup>#</sup>Geteilte Erstautorenschaft
- Zempeltzi MM, Kisse M, Brunk MGK, Glemser C, Aksit S, Deane KE, Maurya S, Schneider S, Ohl FW, Deliano M, Happel MFK (2020) Task rule and choice are reflected by layer-specific processing in rodent auditory cortical microcircuits. *Commun Biol* **3**(345) doi.org/10.1038/s42003-020-1073-3;
- Deane K, Brunk MGK, Curran AW, Zempeltzi MM, Ma J, Lin X, Abela F, Aksit S, Deliano M, Ohl FW, Happel MFK (2020) Ketamine anesthesia induces gain enhancement via recurrent excitation in granular input layers of the auditory cortex. *J Physiol* (13)598: 2741-2751 https://doi.org/10.1113/JP279705
- Brunk M, Deane KE, Kisse M, Vieweg S, Deliano M, Ohl FW, Lippert MT, Happel MFK (2019) The VTA modulates a frequency-specific gain of thalamocortical inputs in infragranular layers of the gerbil auditory cortex. *Sci Rep* **9**, 20385; doi:10.1038/s41598-019-56926-6
- Niekisch H, Steinhardt J, Berghäuser J, Bertazzoni S, Kaschinski E, Kasper J, Kisse M, Mitlöhner J, Singh JB, Weber J, Frischknecht R, Happel MFK (2019) Learning induces transient upregulation of brevican in the auditory cortex during consolidation of long-term memories. *J Neurosci*, 2499-18; https://doi.org/10.1523/JNEUROSCI.2499-18.2019
- Homma NY<sup>#</sup>, Happel MFK<sup>#</sup>, Nodal FR, Ohl FW, King AJ, Bajo VL (2017) A Role for Auditory Corticothalamic Feedback in the Perception of Complex Sounds. *J Neurosci*, **37**(25):0397-17 <sup>#</sup> Geteilte Erstautorenschaft
- Happel MFK, Ohl FW (2017). Compensating Level-Dependent Frequency Representation in Auditory Cortex by Synaptic Integration of Corticocortical Input. *PLoS ONE* **12**(1):e0169461
- Happel MFK, Frischknecht R (2016) Neuronal Plasticity in the Juvenile and Adult Brain Regulated by the Extracellular Matrix; published in „Composition and Function of the Extracellular Matrix in the Human body“ edited by Travascio, F.; Jun 15-2016; doi: 10.5772/62452
- Happel MFK (2016) Dopaminergic impact on local and global cortical circuit processing during learning. *Behav Brain Res*. doi:10.1016/j.bbr.2015.11.016
- Frischknecht R, Happel MFK (2016) Impact of the extracellular matrix on plasticity in juvenile and adult brains. *NeuroForum* **1**/2016
- Happel MFK, Deliano M, Ohl FW (2015) Combined Shuttle-box Training with Electrophysiological Cortex Recording and Stimulation as a Tool to Study Perception and Learning. *J Vis Exp*, e53002, doi:10.3791/53002
- Happel MFK, Deliano M, Handschuh J, Ohl FW (2014a) Dopamine-modulated recurrent corticoefferent feedback in primary sensory cortex promotes detection of behaviorally relevant stimuli. *J Neurosci*, **34**(4):1234-47

Happel MFK, Niekisch H, Castiblanco Rivera LL, Ohl FW, Deliano M, Frischknecht R (2014b) Enhanced cognitive flexibility in reversal learning induced by removal of the extracellular matrix in auditory cortex. *Proc Natl Acad Sci U S A*, 111(7):2800-5

Happel MFK, Jeschke M, Ohl FW\* (2010). Spectral integration in primary auditory cortex attributable to temporally precise convergence of thalamocortical and intracortical input. *J Neurosci*, 30(33): 11.114-11.127

Happel MFK, Müller S, Anemüller J, Ohl FW (2008) Predictability of STRFs in auditory cortex neurons depends on stimulus class. *Proc Conf Int Speech Comm Ass Interspeech*, p.670

## Ko-Autorenschaften

Mitlöhner J, Kaushik R, Niekisch H, Blondiaux A, Gee CE, Happel MFK, Gundelfinger E, Dityatev A, Frischknecht R, Seidenbecher C. (2020) Dopamine modulates the integrity of the perisynaptic extracellular matrix at excitatory synapses. *Cells* 9(2), 260; doi.org/10.3390/cells9020260

Deliano M, Brunk MG, El-Tabbal M, Zempeltzi MM, Happel MFK, Ohl FW (2018) Dopaminergic neuromodulation of high-gamma stimulus phase-locking in gerbil primary auditory cortex mediated by D1/D5-receptors. *Eur J Neurosci*. doi:10.1111/ejn.13898

Homma NY, Bajo VM, Happel MFK, Nodal FR, King AJ (2016) Mistuning detection performance of ferrets in a go/no-go task. *J Acoust Soc Am* 139(6):EL246

Mylius J, Happel MFK, Gorkin AG, Huang Y, Scheich H, Brosch M (2015) Fast transformation from the dopaminergic ventral midbrain to the sensory cortex of awake primates; *Brain Struct Funct*, doi: 10.1007/s00429-014-0855-0

Tziridis K, Ahlf S, Jeschke M, Happel MFK, Ohl FW, Schulze H (2015) Noise trauma induced neural plasticity throughout the auditory system of Mongolian gerbils: differences between tinnitus developing and non-developing animals. *Front Neurol* 6:22. doi: 10.3389/fneur.2015.00022

Saldeitis K, Happel MFK, Ohl FW, Scheich H, Budinger E (2014) Anatomy of the auditory thalamocortical system in the Mongolian gerbil: Nuclear origins and cortical field-, layer-, and frequency-specificities. *J Comp Neurol*, doi: 10.1002/cne.23540

Meyer A, Diepenbrock J, Happel MFK, Ohl FW, Anemüller J (2014) Discriminative Learning of Receptive Fields from Responses to non-Gaussian Stimulus Ensembles. *PLoS one*, doi: 10.1371/journal.pone.0093062

Lison H, Happel MFK, Schneider F, Baldauf K, Kerbstat S, Seelbinder B, Schneeberg J, Zappe M, Goldschmidt J, Budinger E, Schröder UH, Ohl FW, Schilling S, Demuth HU, Scheich H, Reymann KG, Röncke R (2013) Disrupted cross-laminar cortical processing in  $\beta$  amyloid pathology precedes cell death. *Neurobiol Dis*, 63:62-73

Goldschmidt J, Wanger T, Engelhorn A, Friedrich H, Happel MFK, Ilango A, Engelmann M, Stürmer IW, Ohl FW, Scheich H (2010) High-resolution mapping of neuronal activity using the lipophilic thallium chelate complex TIDDC: Protocol and validation of the method. *NeuroImage*, 49(1):303-315

Moeller CK, Kurt S, Happel MFK, Schulze H (2010). Long-range effects of GABAergic inhibition in gerbil primary auditory cortex. *Eur J Neurosci* 31(1): 49-59

Meyer A, Happel MFK, Ohl FW, Anemüller J. (2009) Estimation of spectro-temporal receptive fields based on linear support vector machine classification. *BMC Neurosci*, doi:10.1186/1471-2202-10-S1-P147

## Ausgewählte Liste eingeladener Fachvorträge

- Okt 2021 DFG-Conference „Cortico-Subcortical Interactions“ 2021, Berlin
- Sept 2021 Turn- und Sportkongress Hessen 2021, *„Sitzen ist für'n Arsch – Wie Sport dein Gehirn ein Leben lang beeinflusst“*, Darmstadt
- April 2021 Innovation Talk im ZEISS Colloquium, Oberkochen *„Ein Leben lang Verbindungen schaffen – das Lernen in der Zukunft“*
- Feb 2021 Association for Research In Otolaryngology (ARO) 44<sup>th</sup> Annual MidWinter Meeting – Virtual Forum
- Dez 2020 Schüler-Kongress zum Thema *„Selbstorganisiertes Lernen in der Oberstufe“*; Carl-von-Weinberg Schule Frankfurt
- Okt 2020 Audi BKK Neustadt, Online-Mitarbeiter-Fortbildung *„Selbstwirksamkeit fördern“*
- Aug 2020 Online-Seminar *„#EmbraceNeurodiversity – how to discover and promote individual potentials“*, Boston Consulting Group Digital Ventures
- Dez 2019 Lehrerfortbildung *„Beteiligung und Selbstwirksamkeit in der Schule“*, Carl-von-Weinberg Schule Frankfurt
- Nov 2019 Audi BKK Mitarbeiterversammlung, Bad Kissingen, *„Love it or change it – Fehlerkultur aus Sicht des Gehirns“*
- Mai 2019 Bundesarbeitsgemeinschaft der Ärzte und Psychologen in der Straffälligenhilfe (BAGÄP) e.V., Frankfurt/Main, *„Neurobiologie der Abhängigkeit und Implikationen für Suchtprävention im Strafvollzug“*
- April 2018 *2018 International Conference on Learning & Memory*, Huntington Beach, USA
- Dez 2017 Jahrestreffen des Staatlichen Schulamtes Lahn-Dill Kreis Hessen, *„Über das Behalten und Vergessen aus Sicht des Gehirns“*
- Sept 2017 *1<sup>st</sup> International Conference on Brain Plasticity linking Molecules, Cells, and Behavior*, Magdeburg, Germany
- März 2016 *„Move your brain – aktiv das Lernen fördern“*, Jahrestreffen Deutscher Bundesverband Tanz e.V., Remscheid
- März 2015 12. Kasseler Gesundheitstage, *„Lernst Du noch oder weißt Du schon – Lebenslanges Lernen und Vergessen aus Sicht des Gehirns“*
- Feb 2015 *13<sup>th</sup> International Neurobiological Symposium “Learning & Memory – Cellular and Systemic Views“*, Magdeburg
- Feb 2013 *Tucker-Davis Technology Symposium on Advances and Perspectives in Auditory Neurophysiology*; San Diego, USA; Satellite-Symposium der SfN-Tagung
- Sept 2011 *Deutscher Sucht Kongress 2011*, Frankfurt/Main; Science Slam für Schüler, *„Pimp my Brain – eine kurze Reise in die Neurobiologie der Sucht“*
- Okt 2010 *BIOTECHNICA*, Hannover, *„Der erweiterte Mensch/moderne Neuroprothesen“*
- Nov 2008 32<sup>nd</sup> Annual Meeting of the Society for Neuroscience, Washington, USA (710.6)

## **Ausgewählte Pressebeiträge**

Informationsdienst Wissenschaft

<https://idw-online.de/de/news764680>

<https://idw-online.de/de/news760421>

<https://idw-online.de/de/news747203>

<https://idw-online.de/de/news750549>

Vortrag im Zeiss Colloquium "Innovation Talks" März 2021

<https://www.zeiss.de/corporate/innovation-und-technologie/zeiss-colloquium.html?vaURL=www.zeiss.de/colloquium>

YouTube 'Why not ask a neuroscientist'

[https://www.youtube.com/watch?v=BR81Sb2hYSE&feature=emb\\_logo](https://www.youtube.com/watch?v=BR81Sb2hYSE&feature=emb_logo)

Spektrum der Wissenschaft

<http://www.spektrum.de/news/enzymatische-verjuengungskur-fuer-das-gehirn/1222353>

L.A. Times

<http://articles.latimes.com/2014/feb/03/science/la-sci-sn-learning-matrix-20140203>