



Neural Resources of Cognition - Mobilization and Enhancing the Cognitive Potential of the Brain

Wednesday 01.11.2023 – Otto-von-Guericke-University Magdeburg – Lecture Hall 6

(Building 44, Zschokkestraße 32, 39104 Magdeburg)

6:00 PM

Welcome Emrah Düzel & Michael Kreutz*

Director of the Institute of Cognitive Neurology and Dementia Research and head of the Memory Clinic at the OVG University, Magdeburg and Speaker of the DZNE Magdeburg

**Head of the Neuroplasticity research group at Leibniz Institute for Neurobiology Magdeburg and head of the Leibniz Group “Dendritic Organelles and Synaptic Functions” at the Center for Molecular Neurobiology Hamburg*

6:10 PM

Welcome by Peter Hinrichs

Ministry of Science, Energy, Climate Protection and Environment of the Federal State of Saxony-Anhalt

6:20 PM

Public lecture by Monique Breteler: Gehirngesundheit im Fokus: Können wir Demenz vorbeugen?

Director of Population Health Science at DZNE and Professor at the University of Bonn

7:30 PM

Fingerfood and drinks

Thursday 02.11.2023

Chair Anne Maaß

9:00 AM Welcome at Dorint Herrenkrug Parkhotel Magdeburg

9:10 AM **Rodrigo Quian Quiroga: A unique coding of memories in the human brain**
Director of the Centre for Systems Neuroscience at the University of Leicester, UK

9:50 AM **David Norris: Applications of Laminar fMRI**
Professor at Radboud University, Donders Institute for brain cognition and behavior, Nijmegen, The Netherlands

10:30 AM Coffee break

11:00 AM **Maria Andres-Alonso: Molecular mechanisms underlying the anti-ageing effects of Klotho in the brain**
Neuroplasticity at Leibniz Institute for Neurobiology Magdeburg and Leibniz Group "Dendritic Organelles and Synaptic Function" at Center for Molecular Neurobiology Hamburg

11:20 AM **Thomas Oertner: Neural FOS tracks the frequency of synchronized events**
Professor of the Institute for Synaptic Physiology at the Center for Molecular Neurobiology Hamburg

12:00 PM **Nikolaus Weiskopf: Characterizing Brain Microstructure Using Magnetic Resonance Imaging: Towards In-Vivo Histology**
Director of Department of Neurophysics, Director of Max Planck institute for Human Cognitive and Brain Science, Leipzig

12:40 PM Lunch

Chair Michael Kreutz

2:00 PM **Jana Tegelbeckers: Mechanisms of Cognitive Control to Mobilize Neural Resources Perturbed by Sleep Deprivation**
Department of Neuropsychology at the Otto-von-Guericke University, Magdeburg

2:20 PM **Monique Breteler: Epidemiological approaches in brain ageing research**
Director of Population Health Science at DZNE and Professor at the University of Bonn

3:00 PM **Dorothea Hämmerer: The role of noradrenergic decline in ageing**
Professor of the Department of Developmental Psychology at Universität Innsbruck, Austria and Group Leader of the Group Developmental cognitive neuroscience across the lifespan and neuroimaging in dementia at the Institute of Cognitive Neurology and Dementia Research at OvG University, Magdeburg

3:20 PM Coffee break

3:50 PM **Ileana Hanganu-Opatz: Developmental rhythms and their long shadow on adult cognition**
Professor of the Institute of Developmental Neurophysiology at the Center for Molecular Neurobiology Hamburg

4:30 PM Poster presentation

6:30 PM

Dinner

Chair

Emrah Düzel

8:00 PM

Late lecture by Hannah Monyer: GABAergic neurons in the context of spatial coding and memory

Professor of the Division Clinical Neurobiology at Deutsches Krebsforschungszentrum Heidelberg and Medical Director of Clinical Neurology, Heidelberg University Hospital

Friday 03.11.2023

Chair **Emrah Düzel**

9:00 AM **Alvaro Pascual-Leone: Characterizing and Promoting Brain Health**
Professor in Neurology at Harvard Medical School and Medical Director at Deanna and Sidney Wolk Center for Memory Health, MA, USA

9:40 AM **Janelle Pakan: Task-associated representations in sensory cortical circuits across learning**
Group Leader of the Group Neural Circuits and Network Dynamics at the Institute of Cognitive Neurology and Dementia Research at OvG University, Magdeburg

10:00 AM **Elsa Fouragnan: Inducing short to medium neuroplastic effects with Transcranial Ultrasound Stimulation**
Associate Professor of Neuroscience and Head of the Brain Stimulation Department at the Brain Research and Imaging Centre, University of Plymouth, UK

10:40 AM **Coffee break**

11:10 AM **Anne Maaß: Establishment of a deeply phenotyped aging cohort to determine factors of successful cognitive aging**
Group Leader of the Group Multimodal Neuroimaging at DZNE, Magdeburg

11:30 AM **Wim Vanduffel: The mesoscale functional organization of primate cortex**
Professor at the Department of Neuroscience at the KU Leuven, Belgium and Assistant Professor of Radiology at Harvard Medical School and Investigator at Athinoula A. Martinos Center for Biomedical Imaging, Mass General Research Institute, Boston, MA, USA

12:10 PM **Elena Azañón: Evidence against replay-mediated offline learning during the first minutes of motor skill acquisition**
Head of Working Group Behavioral Neurology at Leibniz Institute for Neurobiology Magdeburg


12:30 PM **Lunch**

Chair **Janelle Pakan**

2:00 PM **Jorge J. Palop: Network abnormalities and interneuron dysfunction in Alzheimer's disease**
Investigator at the Gladstone Institutes and Associate Professor of Neurology at UC San Francisco, CA, USA

2:40 PM **Christian Merkel: Visual object permanence for multiple moving objects – a tale of two representational accounts**
Department Behavioral Neurobiology at Leibniz Institute for Neurobiology, Magdeburg

3:00 PM **Katarzyna Grochowska: Restoring excitation-transcription coupling prevents synaptic dysfunction and cognitive decline in AD mouse models**
Neuroplasticity at Leibniz Institute for Neurobiology Magdeburg and Leibniz Group "Dendritic Organelles and Synaptic Function" at Center for Molecular Neurobiology Hamburg

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- 3:20 PM** **Gabriel Ziegler: Modelling and Neuroprognosis of Cognitive Performance in Neurodegeneration**
Group Leader of the Group Modelling and Neuroprognosis in Ageing and Dementia at the Institute of Cognitive Neurology and Dementia Research at OvG University, Magdeburg
- 3:40 PM** **Coffee break**
- 4:10 PM** **Emily Rogalski: The Super Aging Research Initiative: Identifying protective factors to promote healthspan**
Director of the Healthy Aging and Alzheimer`s Research Care (HAARC) Center at the University of Chicago, IL, USA
- 4:50 PM** **David Berron: Evolving Brain and Cognitive Dysfunction in Early Alzheimer`s Disease: From Neuroimaging to Digital Cognitive Markers**
Group Leader of the Group Clinical Cognitive Neuroscience at DZNE, Magdeburg
- 5:10 PM** **Poster presentation**
- 7:00 PM** **Dinner**
- 8:00 PM** **Live in Concert: Rossini Quartett, Magdeburg**

Postersession I

Jury: Anne Albrecht, Magdalena Sauvage, Marco Taubert & Markus Ullsperger

1. **Samia Afzal**
Orexinergic modulation on chronic jetlag-induced deficits in mouse cognitive flexibility
2. **Adrian Wendlandt**
Neural resources of sensory-driven temporal expectation
3. **Julia Büscher**
Enhancing Object-in-Place memory performance Through Optogenetic Priming of the HIP-mPFC network
4. **Gürsel Caliskan**
Lateralization of pattern completion function in the hippocampal mossy fibre synapses
5. **Sara Enrile Lacalle**
Amygdalar modulation of engrams formation in the hippocampus: spotlight on sex differences
6. **Miguel del Ángel**
Ndr2 deficiency prevents spatial memory decline and proteostasis alterations in the ageing hippocampus
7. **Philip Bahrd**
Indications of SuperAgers being SuperNavigators
8. **Tuğçe Belge**
Grid Cell Activity: A Potential Key Player in Episodic Memory in Superior Aging?
9. **Mandy Bartsch**
Mechanisms of adjusting the resolution of color selectivity in human visual cortex
10. **Margarita Darna**
Extracellular matrix integrity as neural resource for cognitive flexibility
11. **Anna Felßberg**
Structural and functional determinants of attentional resources in multiple object tracking (MOT)
12. **Nadine Schönemann**
Feature binding speed as neural resource of visual selective attention
13. **Björn Schott**
Inhibitory temporo-parietal effective connectivity predicts memory performance in older adults
14. **Niklas Vockert**
Relationship between hippocampal vessel distances and cognition and brain structure in young adults
15. **Eóin Molloy & Svenja Schwarck**
Establishment of a deeply phenotyped aging cohort to determine factors of successful cognitive aging

Postersession II

Jury: Maria Andres-Alonso, Stefanie Schreiber, Constanze Seidenbecher & Oliver Stork

1. **Lara Chirich Barreira**
Orexinergic inputs in the prefrontal-to-hippocampal circuit: expression of orexin receptors and orexinergic fear memory modulation
2. **Hannah Gapp**
Orexinergic modulation of the prefrontal-hippocampal circuit: Contextual fear memory and cFos-Immunohistochemistry after an acute phase shift
3. **Parthiban Saravanakumar**
Frontal cortex impacts on Exploratory Attentional Resource Allocation in Mongolian gerbils: Insights from a Probabilistic Foraging Paradigm
4. **Anjali Singh**
In silico discovery of novel metalloproteinase ADAMTS-5 inhibitors
5. **Harini Srinivasan**
Acute circadian rhythm disturbance impairs contextual-memory engrams in the dentate gyrus
6. **Anwasha Das**
Learning during short breaks? - Probing the source of micro-offline gains during early motor skill learning
7. **Max Stenner**
Attentional modulation of early sensory processing in the human spinal cord
8. **Marzieh Fereidouni**
Modulation by movement speed as a predictor of grid-code integrity?
9. **Lasse Güldner**
Behavioral bias for exploration is associated with enhanced signaling in the lateral and medial frontopolar cortex
10. **Panagiotis Iliopoulos**
Functional connectivity underlying mnemonic discrimination in medial temporal lobe-cortical networks and cognitive training effects
11. **Marina Leiman**
Can Atomoxetine improve brain health? An ongoing clinical study.
12. **Jonas Marquardt**
Assessing Alzheimer's Disease Risk using Real-World Smartphone Data in an Everyday Wayfinding Task
13. **Martin Matke**
Exploring Microstructural Plasticity Dynamics during Balance-Training
14. **Nisha Maria Prabhu**
Effect of response-optimized training on skill learning and transfer

15.

Marie-Christin Schulz

16.

Sophia Engler