

Understanding information processing, thinking, remembering or consciousness are some of the toughest riddles for humankind. Solving them will help us to understand ourselves – as well as dysfunctions in brain and mind occurring from birth or during aging.

We will bring together neuroscientists with experimental and computational expertise. We aim to bridge the gap from synaptic transmission to cognition. Thus, we will cross borders among neuroscientific disciplines to inspire discussions on state-of-the-art findings about information perception, processing, consolidation and transfer for storage.

We invite you for vivid discussions to advance the insight of brain dynamics and information processing.

Organisation and contact

Kristina Lippmann (Leipzig University, alumna of the *Junge Akademie / Mainz*), **Jürgen Jost** (Max-Planck-Institute for Mathematics in the Sciences), **Wulfram Gerstner** (Laboratory of Computational Neuroscience LCN at the EPFL), **Markus Diesmann** (Forschungszentrum Jülich), **Hermann Wagner** (RWTH Aachen)

The Junge Akademie / Mainz aims to promote outstanding young researchers. The aim is to promote dialogue between excellent scientists across disciplines and generations, leading to fruitful exchange and scientific excellence.

Registration is open and required for participation

Applicants are encouraged to submit an abstract for poster presentation during the meeting to veranstaltungen@adwmainz.de. Due to the limited availability of space a selection process based on the abstracts might be necessary.

Deadline for application is **19th of October 2022**. Applicants will be informed by 26th of October 2022 on their participation. The participation of the symposium is free of charge.

The symposium is funded by the Walter und Sybille Kalkhof-Rose-Stiftung and the Bernstein Network Computational Neuroscience.



Front page: graphic designed by Kristina Lippmann

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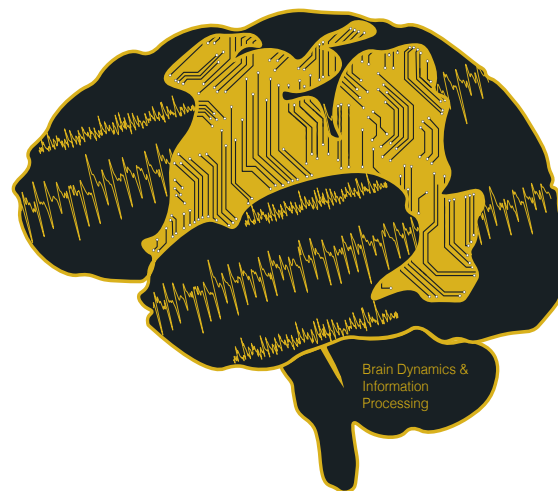


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MINDS IN MAINZ

INTERNATIONAL NEUROSCIENCE

SYMPOSIUM



Brain Dynamics and Information Processing

A symposium by the Akademie der Wissenschaften und der Literatur | Mainz and the Bernstein Network Computational Neuroscience

9th–10th of November 2022

Akademie der Wissenschaften und der Literatur | Mainz
Geschwister-Scholl-Straße 2
55131 Mainz

PROGRAMME

Wednesday, 9th of November 2022

- 1.30 pm **Opening Remarks**
Kristina Lippmann & Jürgen Jost
- 1.40 pm **Brain dynamics underlying perception of external inputs**
Chair: Wulfram Gerstner
Pieter Roelfsema (Amsterdam, NL): The brain processes for conscious visual perception and the technology that could restore it in blindness
Zhaoping Li (Tübingen): Looking and seeing from the perspective of the primary visual cortex: feedforward, feedback, and intracortical neural processing
Viola Priesemann (Göttingen): Shaping network dynamics and information flow via external input
- 4.10 pm Coffee break
- 4.50 pm **Spatial information processing and experience**
Chair: Hermann Wagner
Marlene Bartos (Freiburg): Spatial information processing in the hippocampal dentate gyrus of mice
Christian Doeller (Leipzig): Structuring experience in cognitive spaces
- 6.30 pm Coffee break
- 7.00 pm **Bernstein Lecture** (English with German Questions and Answers)
Evening opening remarks
Jürgen Jost & Alexandra Stein
Chair: Jürgen Jost
Matthew Larkum (Berlin): Why do anaesthetics selectively remove consciousness? (Warum schalten Narkosen selektiv das Bewusstsein aus?)
- 8.30 pm Reception (Wine and Pretzels)

Thursday, 10th of November 2022

- 9.00 am **Development and modulation of cortical rhythms**
Chair: Wulfram Gerstner
Ileana Hanganu-Opatz (Hamburg): Non-linear development of cortical rhythms in health and mental disorders
Kristina Lippmann (Leipzig): Hippocampal network oscillations are shaped by K_{ATP} channels of fast-spiking interneurons
- 10.40 am Coffee break
- 11.10 am **Information processing and transfer in cortical regions**
Chair: Kristina Lippmann
Pascal Fries (Frankfurt): Rhythms for cognition
Ilka Diester (Freiburg): Representation and transfer of movement related signals within and across motor cortical regions in the rat
- 12.50 pm Lunch break & Poster session
- 2.20 pm *Anton Sirota (München): Breathing modulates cortico-hippocampal dialogue during the offline state in mice*
- 3.10 pm **Closing lecture**
Chair: Markus Diesmann
Andreas Draguhn (Heidelberg): Cellular mechanisms underlying selective activation of neurons during hippocampal network oscillations
- 4.10 pm **Closing remarks**
Wulfram Gerstner & Kristina Lippmann

