

# NATURALISTIC NEUROSCIENCE:

FROM PERCEPTION TO ACTION AND BACK



SYMPOSIUM AT THE UNIVERSITY OF BONN

28-29 MAY 2026

#NN2026

# HOST INSTITUTION AND SPONSORS

## Our Host

This symposium is hosted by caian, University of Bonn's Centre for Artificial Intelligence and Neuroscience within the Transdisciplinary Research Area "Life and Health".



## Our Sponsors

We would like to thank our sponsors for their generous support: iBehave (NRW), NeuroTech EU, and FieldLine Medical (USA).



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Questions? Concerns? Contact us via e-mail at: [nn2026@uni-bonn.de](mailto:nn2026@uni-bonn.de)

# PROGRAMME

## **Thursday, 28 May 2025**

9:30 Check-in Desk Opens  
*Complementary tea & coffee reception*

**10:00 Opening & Introduction**  
*Dominik Bach (University of Bonn)*

**10:30 Session 1: Spatial Navigation**  
*Chair: Dominik Bach (University of Bonn)*

Keynote

10:35 **Neil Burgess (University College London):** Using VR in Mice and Humans to Examine the Neural Integration of Environmental and Self-Motion Information

Talks

11:20 **Lukas Kunz (University Hospital Bonn):** Theta-Phase Locking of Human Neurons During the Encoding and Retrieval of Spatial Memories

11:50 **Dyutika Banerjee (University Hospital Bonn):** Probing How the Temporal Structure of Odour Plumes Informs Mouse Navigation Behaviour

**12:05- Lunch Break with Poster Session 1**

**13:25** *On Display: Posters #1 – #15*

**13:30 Session 2: Neurotechnology & Modelling**  
*Chair: Tobias Rose (University Hospital Bonn)*

Keynotes

13:35 **Gareth Barnes (University College London):** Wearable Magnetic Field Sensors for Neuroimaging

14:20 **Jason Kerr (Max Planck Institute for Neurobiology of Behavior – caesar):** What the Brain Sees During Predator-Prey Interactions of Sky and Ground-Based Animals

Talk

14:50 **Jens Tillmann (German Center for Neurodegenerative Diseases – DZNE):** Modeling Neuro–Behavioral State Dynamics from Longitudinal Multimodal Recordings

15:05-  
15:25 **Coffee Break**

15:30 **Session 3: Sensorimotor Processing**

*Chair: Sabine Krabbe (German Center for Neurodegenerative Diseases – DZNE)*

Keynote

15:35 **Katja Reinhard (Scuola Internazionale Superiore di Studi Avanzati – SISSA):** Light and Time Shape Innate Behaviours

16:20 **Wrap-Up**

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16:30 *Transfer to Off-Site Locations*

17:00 **Facility Visits**

Locations & Participating Labs

- **caian (Endenich):** VR Lab
- **DZNE (Hardtberg):** Movement Lab
- **IEECR (Venusberg):** Mouse Lab
- **University Hospital Bonn (Venusberg):** VR Psychotherapy Lab
- **VCI (Endenich):** Light- and VR Capture Stage

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19:00 **Social Dinner at Restaurant “Nees”**

*Invitation or ticket required*

## **Friday, 29 May 2025**

### **9:00 Session 4: Perception**

*Chair: Floris de Lange (Radboud University Nijmegen & University of Bonn)*

#### Keynote

9:05 **Georg Keller (Friedrich Miescher Institute for Biomedical Research – FMI Basel )**: A Cortical Circuit Approach to Psychosis

#### Talks

9:50 **Tobias Rose (University Hospital Bonn)**: Stability and Stabilization of the Neural Code in Sensation and Action

10:20 **Cem Uram (University Hospital Bonn & Radboud University Nijmegen)**: Dissecting the Thalamocortical Dynamics of Predictive Processing: Signatures of Behavior and Learning Revealed by Multi-Region Neuropixels Recordings and Self-Supervised Predictive Architectures

**10:35-  
10:55 Coffee Break**

### **11:00 Session 5: Human Neural Recordings**

*Chair: Lukas Kunz (University Hospital Bonn)*

#### Keynote

11:05 **Matthias Stangl (Boston University)**: The Social Brain in Action: Cognitive Maps of Self and Others in the Real World

#### Talks

11:50 **Alana Darcher (University Hospital Bonn)**: Decoding Movie Content From Neuronal Population Activity in the Human Medial Temporal Lobe

12:05 **Philip Sulewski (University of Osnabrück):** Fixation Duration on Natural Scenes Is Explained by Memory Encoding Not Processing Demand

12:20 **Pierangelo Nicolas D'Onofrio Pacheco (University of Düsseldorf):** Distinct Neural Signatures of Tactile Bias and Sensory Uncertainty During Movement

**12:35- Lunch Break with Poster Session 2**

**13:55** *On Display: Posters #16 – #30*

**14:00 Session 6: Stress-Related Behaviour**

*Chair: Ilona Grunwald-Kadow (University of Bonn)*

14:05 Keynote

**Karin Roelofs (Radboud University Nijmegen):** Fear Behaviour from Lab to Clinic

Talks

14:50 **Dominik Bach (University of Bonn):** The Computational Grammar of Human Behaviour in a Biological Environment

15:05 **Jan Gründemann (German Center for Neurodegenerative Diseases – DZNE):** Distributed neuronal circuits for aversive learning

**15:35- Coffee Break**

**15:55**

**16:00 Session 7: Clinical Neuroscience**

*Chair: France Rose (University of Bonn)*

16:05 Keynote  
**Jennifer Faber (University Hospital Bonn & German Center for Neurodegenerative Diseases – DZNE):** Leveraging AI-Informed Motion Capturing for Digital Video-Based Movement Analysis in Neurodegeneration

Talk  
16:30 **Melissa Steininger (University of Bonn & University Hospital Bonn):** Toward Interpretable Cognitive Screening in Epilepsy: Eye Tracking in a VR Trail Making Test

**16:45 Closing Remarks and Farewell**

17:00 End of Event

### **Note on Location:**

If not otherwise specified, all events of NN2026 take place on Campus Poppelsdorf at the “Rotation Building” (Käthe-Kümmel-Str. 1, 53115 Bonn).

Ground Floor/ Level 0:

- Registration and Catering: Foyer and Entrance
- Keynotes and Talks: Lecture Hall, Room No. 0.056
- Accessible, gender-neutral WC

Basement/Level U1:

- Poster and Industry Exhibits: Twin Rooms No. U1.059 and U1.059
- Space for Gathering & Outdoor Seating/Access to Courtyard
- WCs

### **Directions and pictures of the location:**

<https://www.nn2026.uni-bonn.de/en/directions>

### **Note on Abstracts:**

Complete PDF compilation: <https://www.nn2026.uni-bonn.de/en/programme>