



**SFB 1315**

Mechanisms and Disturbances in Memory Consolidation:  
From synapses to systems

Tuesday

**MAR 17, 2026**  
**4:00 pm CET**

**ZOOM ID: 7754910236**

**SFB1315.ifb@hu-berlin.de**

**SFB 1315 LECTURE SERIES 2025-2026**

# **THETA–GAMMA SPIKE COORDINATION OF NEURONAL REPRESENTATIONS DURING HUMAN SEQUENCE MEMORY**

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**Memory formation and maintenance are thought to rely on coordinated interactions between spiking activity and network oscillations, yet their precise mechanistic interplay in the human medial temporal lobe remains unclear.**

Using simultaneous single-neuron and local field potential recordings in epilepsy patients performing sequential working-memory tasks, we examine how oscillatory dynamics structure neuronal representations over time. We show that distinct gamma-band rhythms coordinate stimulus-specific spiking locally, while theta–gamma interactions organize recurrent epochs of activity and inter-regional communication.

**These findings suggest that sequential memories are supported by multiplexed spike–oscillation codes that flexibly coordinate local representations and network-level interactions in the human medial temporal lobe..**

## About the Speaker

**Dr. Stefanie Liebe** is a Clinician Scientist interested working at the intersection of clinical and systems neuroscience and AI-based data analysis to understand neural mechanisms of physiological and pathological brain activity and advance diagnostic tools in clinical neuroscience.

(Source, uni-tuebingen.de)

Join us for Brain Awareness Week Berlin. Brain Awareness Week is held each year mid-March, with the aim of increasing public awareness of research and progress in neuroscience with a focus on brain research. For more information go to the website of the Dana Foundation:

## Brain Awareness Week homepage

<https://dana.org/brain-awareness-week/>

## This invited talk is hosted by

SFB1315 project A09 (Livia de Hoz). SFB1315 Speaker Matthew Larkum (A04, A10, Z), will moderate Q&A.

## Certificate of attendance:

Contact the Coordination Office [sfb1315.ifb\(at\)hu-berlin.de](mailto:sfb1315.ifb(at)hu-berlin.de)



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