



Friday, April 17, 2026



12.00 o'clock



Inselspital, Kursraum
Neurologie
INO B118, Entrance 34
Rosenbühlgasse 25 3010 Bern



[Link here](#)

Sleep without borders: local aspects of sleep in sleep and wakefulness

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Sleep is traditionally divided into discrete stages, forming the backbone of sleep research and clinical practice. Yet the objective physiological basis for this categorical classification remains surprisingly limited. In this talk, I will argue that many entrenched assumptions about sleep arise from a standardisation framework that has favoured simplicity over biological realism.

I will first show that sleepers are not fully disconnected from the external world: under certain conditions, sensory information can still be processed during sleep. These residual capacities appear to depend on local modulations of sleep activity, suggesting that normal sleep may lie on a continuum with arousal disorders.

To capture this complexity while preserving the utility of sleep staging, I will present a graded, probabilistic approach to sleep scoring. This framework is now feasible with automated scoring algorithms, and I will illustrate its relevance through applications in insomnia and dream research.

Finally, I will extend this perspective to wakefulness. I will show that NREM-like slow waves can occur during wakefulness, not only after sleep deprivation (under both homeostatic and circadian influences) but also following a normal night of sleep. These local sleep intrusions are closely linked to attentional lapses and changes in subjective experience. In particular, they can predict episodes of mind wandering and mind blanking, with implications for understanding attentional dysfunction in ADHD. I will also discuss how other forms of sleep intrusions, potentially REM-like, may contribute to hallucinations in clinical populations such as Parkinson's disease and narcolepsy.

Overall, viewing sleep as a graded and locally regulated phenomenon may refine our understanding of normal sleep and provide new insights into sleep disorders, as well as psychiatric and neurological conditions in which sleep dysregulation is a key feature.

Chair: Prof. Athina Tzovara

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