

Invitation

On behalf of the Hamburg Center of Neural and Cognitive Systems (HCNS), we would like to invite you

to the
23rd HCNS Lecture

November 5th 2025 | 5.00 pm

UKE, lecture hall W30

We are looking forward to meeting you there!



Funded by:



Prof. Heidi Johansen-Berg

University of Oxford

“Imaging and stimulating adaptive brain plasticity”

Animal studies show that the adult brain shows remarkable plasticity in response to learning or recovery from injury. Non-invasive brain imaging techniques can be used to detect systems-level structural and functional plasticity in the human brain. This talk will focus on how brain imaging has allowed us to monitor healthy brains learning new motor skills, to assess how brains recover after damage, such as stroke, and how they adapt to change, such as limb amputation. Although imaging is useful to detect such adaptations, many brain imaging measures are non-specific and do not allow us to pinpoint the underlying cellular changes that are driving observed effects. The talk will also discuss studies in animal models in which both imaging and histological approaches can be used to shed light on the underlying biological drivers for structural plasticity detected using MRI.

Finally, the talk will discuss how brain stimulation or neurofeedback can be used to manipulate brain remodelling. For example, transcranial direct current stimulation (tDCS) to the motor cortex can speed learning of a new task, alter their brain chemistry, or improve function in stroke patients. fMRI identifies changes in cortical activity that may mediate these functional benefits. In future, imaging could be used to guide individually targeted interventions to enhance adaptive brain plasticity.

The HCNS Managing Board

*Prof. Ileana Hanganu-Opatz , Prof. Tim Magnus,
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