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## Seminar über Fragen der Mechanik

im Rahmen des EFI Projekts



**EMERGING  
FIELDS  
INITIATIVE**

**Novel Biopolymer Hydrogels  
for Understanding  
Complex Tissue Biomechanics**

Zu folgendem Vortrag wird herzlich eingeladen

Mittwoch, **03.07.2019, 16:00 Uhr**, Immerwahrstr. 1, Raum H17

## Soft Matters - Mechanosensing of neural cells in the CNS

Prof. Jochen Guck

Max-Planck-Institut für die Physik des Lichts, Erlangen

It is now commonly accepted that cells sense and respond to mechanical signals. We are especially interested in the influence of mechanical signaling during CNS development and pathologies. We have shown that neurons, astrocytes, microglia and oligodendrocyte precursors are all mechanosensitive in vitro. In vivo, such signals arise from the mechanical properties of the surrounding tissue and its constituents. It is thus of fundamental importance to be able to quantitatively map out, and understand the origin of, the mechanical properties of CNS tissues. Towards this end, we have been employing atomic force microscopy-enabled nano-indentation to show that grey matter is stiffer than white matter in the rat cerebellum, that myelination influences mouse brain mechanics and that zebrafish spinal cord transiently stiffens during regeneration. Recently, we have also used Brillouin microscopy to quantify mechanical changes inside living animals. I will discuss our findings and their implications for treating previously incurable neuropathologies such as spinal cord injuries and neurodegenerative disorders.

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