



MAX-PLANCK-INSTITUT
für die Physik des Lichts



**Das Max-Planck-Institut für die Physik des Lichts
und
die Physikalisch-Medizinische Sozietät Erlangen**

laden Sie zu folgendem Vortrag ein:

Prof. Dr. Jochen Guck

Technische Universität Dresden - Biotechnology Center

Soft Matters – Mechanics in Biology and Medicine

While most current biological research focuses on molecular, biochemical aspects of cell function, we are interested in the mechanical properties of cells and tissue and their importance for biological function. The mechanical strength of cells is largely determined by the cytoskeleton, an internal polymer hybrid network intricately regulated by many signaling pathways. This cytoskeleton evolves during physiological changes, such as differentiation, is involved in many cellular functions, such as migration, and is characteristically altered in pathologies, including cancer or inflammation. We can exploit the deformability of the cytoskeleton as a link between molecular structure and biological function to sensitively monitor these functional changes using an optical stretcher and novel high-throughput microfluidic techniques. Our findings suggest the use of cell compliance as an integral, inherent cell marker obviating the need for external markers or special preparation. Further, also the mechanical properties of biological tissues are increasingly being recognized as important as cells measure and respond to the mechanics of their environment. We are investigating this mechanosensitivity of neurons and glial cells in the context of development and pathologies of the central nervous system. This research could lead to novel therapeutic approaches in traumatic injuries to the CNS and neurodegenerative disorders.

Mittwoch, 18. Juni 2014

16.00 Uhr (s.t.)

Veranstaltungsort:

Großer Seminarraum des Max-Planck-Instituts für die Physik des Lichts
Günther-Scharowsky-Str. 1/Bau 24, Raum 429/435

Für Rückfragen wenden Sie sich bitte an: Prof. Vahid Sandoghdar
Telefon: 09131/6877-200 · Fax: 09131/6877-209 · E-Mail: vahid.sandoghdar@mpl.mpg.de