



Seminarankündigung

Dienstag, 29. Mai 2018

14:15 Uhr

WSI, Seminarraum S 101

“Cellular deformation by means of optical and hydrodynamic forces – with applications to cancer and red blood cells”

Mechanical properties, like deformability or elasticity, of cells can in some cases be indicative of the health of the organism they originate from. The mechanical properties of single cells may be found by measurements of the response of the cell to an externally applied force. In the presentation, I will first focus on application of optical forces, with discussions of technical solutions to the experimental assay, followed by presentation of ongoing work in which microfluidics is used to induce a force. In assays with optical stretchers (a two-beam laser trap), it proved beneficial to introduce acoustic actuation in addition to the optically induced actuation, and with such a setup, cancer cell lines have been investigated. Another goal is to explore the potential of deformability and other mechanical parameters of individual red blood cells (RBCs) from humans as a marker for the state of health of the human source, patient or donor. In particular, we have investigated the use of different experimental strategies implemented in injection molded plastic microfluidic devices.

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