



- › Allgemeines Physikalisches Kolloquium
- › Donnerstag, 05.07.2018 um 16 Uhr c.t.

Prof. Dr. Timo Betz

Westfälische Wilhelms-Universität



“The physics of active motion in biological systems”

Living biological systems are continuously reorganizing their structure to perform their function. The mechanical activity plays here an important role, as the constant generation of forces drives fluctuations as well as controlled motion of intracellular particles, membranes and even whole cells. From a physical point of view, this active motion drives the system far away from thermodynamic equilibrium, which can be measured as a violation of equilibrium quantities such as the fluctuation dissipation theorem.

Quantifying the out-of-equilibrium components provides the possibility to model the active molecular processes. We measure the energy and the forces actively applied and model these with an active Langevin approach. On the scale of multicellular systems and tissue we are interested in collective motion which is still poorly understood. Here we use 3D tracking and hydrodynamic models to quantify and understand morphological changes ranging from tumor invasion up to embryonal development.