



## Seminar/Talk

# Active cell mechanics: From fluctuations of red blood cells to cell migration in development and cancer.

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Host: Michael Sixt

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 cells. From a biophysical 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 on membranes as well as cellular granules and model these with an active Langevin approach. This allows extracting molecular parameters of the force generating processes. Besides these intracellular forces, we also quantify migration in the single cell and tissue level, by investigating migration patterns and traction forces in 3D of in vitro cancer spheroids embedded in collagen I matrices, as well as the initial collective cell migration in zebrafish development, called epiboly.

**Wednesday, October 23, 2019 01:00pm - 02:00pm**

Mondi Seminar Room 1, Central Building



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