SFB 960-/BZR – Kolloquium

01. Juni 2017, 14.00 Uhr
Neubau Biologie, H 53

Prof. Dr. Petra Schwille

Max-Planck-Institute of Biochemistry
Dept. Cellular and Molecular Biophysics
Martinsried

„Towards reconstituting bacterial cell division“

In recent years, biophysics has accumulated an impressive selection of novel techniques to analyze biological systems with ultimate sensitivity and precision. Single molecule imaging, tracking and manipulation have enabled us to unravel biological phenomena with unprecedented analytical power. The power of physics has always been the reductionist approach, i.e. the possibility to define an appropriate subsystem simple enough to be quantitatively modeled and described, but complex enough to retain the essential features of its real counterpart. Transferring this approach into biology has so far been extremely challenging, due to the complexity and interconnectivity of living systems. Nevertheless, the strive for identifying minimal biological systems, particularly of subcellular structures or modules, has in the past years been very successful, and crucial *in vitro* experiments with reduced complexity can nowadays be performed, e.g., on reconstituted cytoskeleton and membrane systems. As a particularly exciting example for the power of minimal systems, self-organization of essential proteins of the bacterial cell division machinery could be shown in a simple assay, consisting of only two protein species, an energy source, and a membrane. In my talk, I will discuss some recent results of our work on membrane-based systems, using single molecule optics and biological reconstitution assays. I will further discuss the perspective of bottom-up assembling a minimal system to reconstitute cell division, being one of the most fundamental features of life.

Host: Prof. Dr. Dina Grohmann
Lehrstuhl für Mikrobiologie
dina.grohmann@ur.de