Tuesday
17.04.2018
11:00 s.t.

Prof. Stephan W. Grill
BIOTEC, TU Dresden

Control of mechanochemical self-organization during cell polarization

Biological pattern formation often relies on self-organization, integrating chemical with mechanical patterning processes. Guiding cues ensure that the correct pattern forms at the right time and place in development, but how they control processes of self-organization to steer pattern formation remains unknown. We have investigated cell polarity establishment in *Caenorhabditis elegans* zygotes by combining measurements of the spatial distribution of protein numbers and fluxes with physical theory. We have characterized the handover from a pre-pattern to mechanochemical self-organization, and discovered that guiding cues from the centrosome steer a patterning system comprised of cell polarity proteins and the actomyosin cortex to a transition point beyond which the patterned state becomes self-organized. The mechanism of controlled pattern formation I will describe integrates mechanical and molecular aspects of biological pattern formation with guiding cues.

Host: Henrik Bringmann

Large Seminar Room, Administration Building
Max Planck Institute for Biophysical Chemistry, Am Fassberg 11, 37079 Göttingen