LMU LUDWIG-MAXIMILIANS-UNIVERSITÄT MÜNCHEN

ARNOLD SOMMERFELD CENTER FOR THEORETICAL PHYSICS

Sommerfeld Theory Colloquium

Dr. Jonas Denk

UC Berkeley, USA

Self-organization in bacterial systems

Self-organization of proteins is vital for many cellular processes such as cell division. In this talk, I will focus on two prime examples for pattern forming protein systems, namely the Min and the FtsZ systems, that are important for midcell localization and the initiation of cell wall synthesis during bacterial cell division. While the mechanisms of spatial protein redistribution and interactions in these systems differ, the self-organization processes in both systems heavily rely on the underlying protein densities. In this regard, we found that a fast conformational switch in the Min reaction-diffusion network is key to robust patterning in physiological regimes of protein concentrations. Furthermore, I will explain how protein densities shape spatiotemporal patterns in the presence of active propulsion such as experienced by FtsZ polymers.

Wednesday, 18 December 2019, 16:15h, Room A348, Theresienstr. 37/III

Prof. E. Frey