

# Eugene Wigner Colloquium

*joint event of GRK 1558 and SFB 910*



## Prof. Andreas Bausch

TU München

### “Cytoskeletal pattern formation: Self organization of topology”

Living cells rely on the self organization mechanisms of the cytoskeleton to adapt to their requirements. Especially in processes such as cell division, intracellular transport or cellular motility the controlled self assembly to well defined structures, which still allow a dynamic reorganization on different time scales are of outstanding importance. Thereby, the intricate interplay of cytoskeletal filaments, crosslinking proteins, molecular motors and topology play a central role. One important and promising strategy to identify the underlying governing principles is to quantify the physical process in model systems mimicking the functional units of living cells. Here I will present first an *in vitro* minimal model systems consisting of actin filaments and myosin II exhibiting collective long range order and dynamics and second a model system consisting of microtubules and kinesin, which is encapsulated into lipid vesicles and shows a rich shape fluctuations. I will discuss how a balance of local force exertion, crosslinking, hydrodynamics and topology affect the evolving dynamic structures.

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**Thursday, 17.07.14 · 16:15h · EW 202**

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