



## Prof. Dr. Anne Bernheim

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### The dynamics of buckling and contractility of active gels

Dynamic actomyosin networks in cells, such as the cell cortex, rely on the contractile forces generated by myosin II motor proteins and play an important role in various cellular processes, such as cytokinesis, cell migration, and morphogenesis. These networks undergo continuous remodeling due to the action of myosin II molecular motors that exert forces and generate relative movement between filaments at the molecular level as well as the results of the turnover of actin filaments. One of the unique properties of these systems is that they can spontaneously flow and contract in the absence of preexisting regulatory signal. Here we study the mechanism of actomyosin network contraction and the dependency of this process on motor activity and network material properties. We discuss the role of system structural properties on the dynamics of contraction and on the patterns that emerge with time. Using simple arguments we show that the forces that the motors apply govern not only the dynamics of contraction and flow, but also the material properties of the network and the properties of the structures at steady state.

**Mittwoch, 27. November 2013, 14.00 c.t.**

**Gebäude E2 6, Seminarraum E.04**

Der Gast wird betreut von Karsten Kruse (Tel. 2763)

**Alle Interessenten sind herzlich eingeladen.**

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Die Sprecher des Graduiertenkollegs  
Manfred Lücke und Ludger Santen

**Strukturbildung und Transport  
in komplexen Systemen**