



Dr. François Nedelec

EMBL, Heidelberg

**Theoretische
Physik**

**“Predictive Theory of
Cytoskeletal Dynamics“**

The cytoskeleton drives many essential processes *in vivo*, but for this the system of filaments will arrange itself into different overall spatial organizations, e.g., random, branched networks, parallel bundles, antiparallel arrays, etc. A general objective of our research is to understand what makes these architectures adapted to their tasks. In this talk, I will first focus on 2D disorganized actin networks in which the filaments are oriented randomly in all directions, and are connected both by active molecular motors and passive crosslinkers. Systems with these properties have been reconstituted *in vitro*, and serve as a model of the cortical actomyosin networks that drive morphogenesis in animal tissues. Although the network components and their properties are known, the requirements for contractility are still poorly understood. I will describe a theory that predicts whether an isotropic network will contract, expand, or conserve its dimensions, depending on the properties of the filaments and the elements that connect them. The theory is simple and encompasses mechanisms of contractions previously proposed.

**Mittwoch, den 03.05.2017
um 10 Uhr**

Gebäude E 2 6, Seminarraum E. 04

Interessenten sind herzlich eingeladen

Der Gast wird betreut von Herrn Prof. Santen