Seminar des Graduiertenkollegs 1276

UNIVERSITÄT DES SAARLANDES

Dr. Hervé Mohrbach

Laboratoire LPMC
Université Paul Verlaine, Metz

“Theory of microtubule deformations by molecular motors”

We develop a general theory of microtubule (MT) deformations by molecular motors generating internal force doublets within the MT lattice. We describe two basic internal excitations, the S and V shape, and compare them with experimental observations from literature. We explain the special role of tubulin vacancies and the dramatic deformation amplifying effect observed for katanin acting at positions of defects. Experimentally observed shapes are used to determine the ratio of MT stretch and shear moduli and to estimate the forces induced in the MT lattice by katanin. We conclude that molecular motors if acting cooperatively can “animate” MTs from within the lattice and induce slack even without cross bridging to other structures, a scenario very much reminiscent of the motor driven axoneme.

Dienstag, 02. Dezember 2008, 14 Uhr c.t.

Gebäude E2 6, Seminarraum E.04

Alle Interessenten sind herzlich eingeladen.

Die Sprecher des Graduiertenkollegs
Manfred Lücke und Ludger Santen

Strukturbildung und Transport in komplexen Systemen