Einladung
zum
Physikalischen Kolloquium
Montag, 03.11.2014
16:15 Uhr in N24/H13

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Collective Cell Migration on Microstructured Surfaces
Epithelial cell migration is of prominent importance in wound healing, embryonic development, and cancer progression. The dynamics in epithelial sheets were found to be highly heterogeneous, exhibiting spontaneous formation of swirls, long-range correlations, and glass-like dynamic arrest as a function of cell density. Theoretical attempts to capture the complex cellular hydrodynamics as an actively driven soft matter are currently progressing. Using time-lapse microscopy we study the flow-like properties in confining geometries [1,2]. One of the hallmarks of active cellular matter is the spontaneous emergence of vortices. In recent experiments we examined the states of coherent angular motion in defined circular micropatterns with a fixed number of cells. The emergent behavior is found to be in good agreement with computer simulations. It will be shown that micropatterned surfaces in general allow the guidance of cells and hence open up novel approaches to study the dynamics of cell motion [3]. The talk intends to provide a perspective on how artificial micro-environments can be used for high content phenotypic screening at the single cell level. An intriguing finding in single cell studies is the fact that substantial cell-to-cell variability exists even among genetically identical cells [4]. We present various examples of stochastic behavior in gene delivery, apoptosis and stem cell decision making.


Ab 15.45 Kaffee, Tee und Kekse vor dem Hörsaal H13
Organisation: Prof. Jelezko, Tel. 23750
Host: Prof. Marti, Tel. 23011, off.: 23010