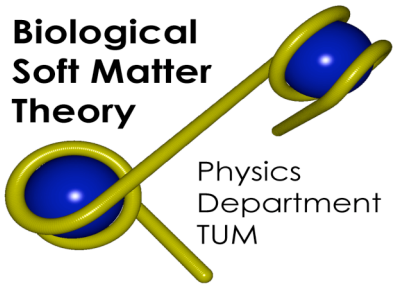

"Soft-Matter Seminar"

"Planar, oriented cell-surface models studied by specular and off-specular X-ray and neutron scattering"

Dr. Emanuel Schneck
Universität Heidelberg

Abstract:

The surfaces of cells and bacteria are rendered with layers of membrane-bound saccharides. To study the physics of these saccharides, well-defined experimental model systems are of particular importance. Here, three types of model systems were prepared from synthetic or bacterial glycolipids:
1.) solid-supported glycolipid membrane multilayers
2.) solid-supported glycolipid monolayers
3.) glycolipid monolayers at the air/water interface
These planar, oriented systems were studied by various specular and off-specular X-ray and neutron scattering techniques. The mechanical properties of interacting glycolipid membranes were determined by modelling the measured neutron scattering intensities on the basis of membrane-displacement correlation functions. High-energy X-ray reflectometry revealed the influence of divalent cations on the saccharide conformation at bacteria surfaces. Grazing-incidence X-ray fluorescence was utilized to determine the density profiles of ions near a monolayer of bacterial glycolipids. The results demonstrate that the study of planar, oriented model systems with X-ray and neutron scattering techniques can yield comprehensive insight into the structure and mechanics of complex biological surfaces.

Mittwoch, den 18.11.2009
16:00 Uhr
Raum PH 3344

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