



Im Rahmen des Physikerkolloquiums spricht

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über

Molecular level insights into lipid membrane hydration, asymmetry and surface potentials in lipid droplets, liposomes and planar membranes

Abstract:

The composition of and variations between the inner and outer leaflets of cell membranes are crucial for cell functioning and signaling, drug-membrane interactions, and the formation of lipid domains. Transmembrane asymmetry can in principle be comprised of an asymmetric charge distribution, differences in hydration, specific head group/H-bonding interactions or a difference in the number of lipids per leaflet. Local variations in surface potentials form the foundation for signaling in neuronal networks. All these properties - hydration, transmembrane asymmetry and surface potentials – are critically linked to the molecular details of the local environment of the cell so that most probes (that employ, for example, substrates or fluorophores) are likely to influence the properties of interest.

Here, we employ non-invasive and interface specific techniques of sum frequency and second harmonic light scattering / microscopy to characterize the interfacial structure, and hydration of different membranes, present in lipid droplets, liposomes and black lipid membranes. We use the response of interfacial water to extract transmembrane asymmetry, as well as surface potential information. In the presentation I will first introduce our approach, discuss the methods and then their application.

Datum: Do, 3.11.2016

Zeit: 17:15 Uhr

Ort: HS 8