SFB 1078

Protonation Dynamics in Protein Function

Mon, **April 24**, 2017

15:15 – 17:30

Freie Universität Berlin
Physics Department
Lecture Hall B

(Arnimallee 14, 14195 Berlin-Dahlem)

Colloquium

Prof. Horst Vogel – École Polytechnique Fédérale de Lausanne, Switzerland

Ligand-gated ion channels: From 3D structure to transmembrane signaling

Neurotransmitter-gated ion channels of the Cys-loop receptor family mediate fast neurotransmission throughout the nervous system. The molecular processes of neurotransmitter binding, subsequent opening of the ion channel and ion permeation remain poorly understood. Here we review the progress in the field and present our own recent results of high-resolution X-ray crystallography, single particle imaging, and molecular modeling studies of a mammalian Cys-loop receptor, the mouse serotonin 5-HT_3 receptor. We revealed … *--more--*

Dr. Stephan Block – Institute for Chemistry and Biochemistry,
Freie Universität Berlin, Germany

Quantification of proton pumping and weak, multivalent interactions using single-proteoliposome assays

Proteins supply a variety of different functionalities in biological systems such as specific molecular recognition, enzymatic activity, and molecular transport. The Block lab at the FU Berlin develops new biophysical approaches that allow such functionalities to be quantified on the nm-scale and/or at single-molecule resolution. The talk will introduce some recent examples, in which liposomes are used as readout element in a microscope, thereby yielding high data throughput (due to large parallelization of the measurement process). In particular, a proteoliposome assay will be introduced that quantifies the catalytic turnover of a quinol oxidase (cytochrome bo_3) at single-molecule level. A second example will demonstrate how the transient interaction of an enveloped virus (influenza A/X31) with its native receptor can be used to elucidate the action of virus (binding) inhibitors.

Coffee and tea are ready at 15:00 and during the break from 16:15 – 16:30.

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