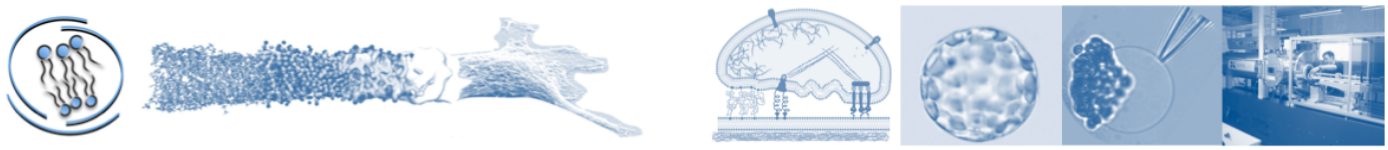

Research Training Group 1962

Dynamic Interactions at Biological Membranes from Single Molecules to Tissue

Speaker: Prof. Dr. Rainer Böckmann, Computational Biology

Invitation to
RTG 1962 – Guest Talk

Tuesday, 2nd of July 2019 at 17.00 (s.t.)

Prof. Dr. Markus Sauer

(University of Würzburg)

"Super-resolution microscopy by dSTORM: From concepts to biomedical applications"

Super-resolution microscopy by single-molecule photoactivation or photoswitching and position determination (localization microscopy) has the potential to fundamentally revolutionize our understanding of how cellular function is encoded at the molecular level [1]. Among all powerful high-resolution imaging techniques introduced in recent years, localization microscopy excels at it delivers single-molecule information about the distribution and, adequate controls presupposed, even absolute numbers of proteins present in subcellular compartments. This provides insights into biological systems at a level we are used to think about and model biological interactions. We briefly introduce basic requirements of localization microscopy, its potential use for quantitative molecular imaging, and discuss present obstacles and ways to bypass them. We demonstrate the advantageous use of single-molecule localization microscopy by dSTORM for quantitative imaging of synaptic proteins, the study of plasma membrane receptors, and the molecular architecture of multiprotein complexes. Finally, we outline how dSTORM can be used advantageously to improve next generation medical therapies.

[1] Sauer, M, Heilemann, M (2017) Single-molecule localization microscopy in eukaryotes. Chem Rev, 117:7478-7509.

Guests are welcome!

gez. Prof. Dr. R. Böckmann

→ *Venue: Department Biology, Seminar Room Cell Biology (00.581), Building B1, Floor 00, Staudtstraße 5, 91058 Erlangen*