MPIDS Colloquium

MAX-PLANCK-GESELLSCHAFT

Super-resolution microscopy coming of age: from concepts to biomedical applications

Prof. Markus Sauer

Department of Biotechnology & Biophysics,
Julius Maximilian University Würzburg,
Germany

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. 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 *d*STORM for quantitative imaging of synaptic proteins, the study of plasma membrane organization, and the molecular architecture of multiprotein complexes. Finally, we outline how *d*STORM can be used advantageously to improve next generation medical therapies.

Wednesday, May 17th, 2017 at 2:15 pm

MPIDS, Prandtl lecture hall, building AI, Am Faßberg 11, Göttingen

Max Planck Institute for Dynamics and Self-Organization
Nonlinear Dynamics
Prof. Theo Geisel
Email: geisel@nld.ds.mpg.de, Phone: +49-(0)551/5176-400
Am Faßberg 17, 37077 Göttingen, Germany