



Karl Friedrich Bonhoeffer Lecture

Thursday, 14th October 2010 - 5 pm

Manfred Eigen Lecture Hall,
Max Planck Institute
for Biophysical Chemistry

Am Fassberg 11, 37077 Göttingen

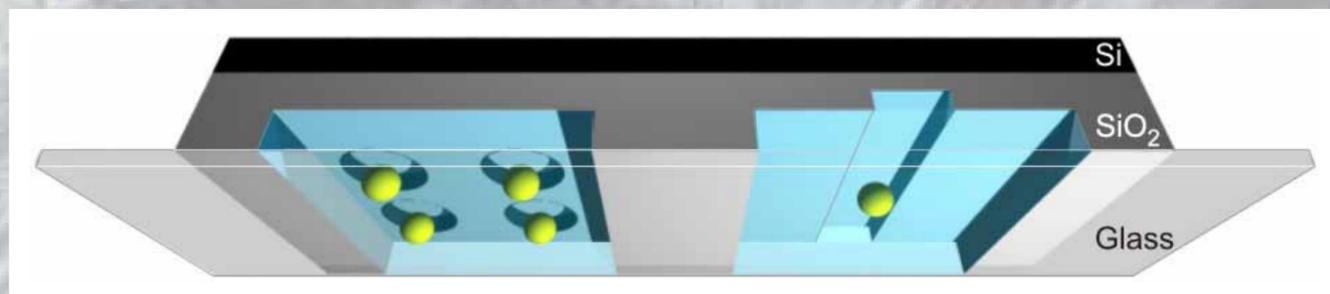
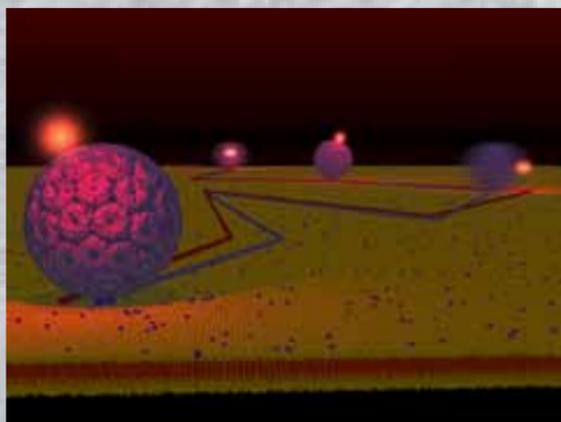
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New methods for detection, imaging, and manipulation of nano-objects: going beyond fluorescence labeling and optical tweezing

The advent of fluorescence microscopy and spectroscopy in the 1990s ushered in single molecule detection as a powerful tool for a wide range of studies, ranging from biophysics to quantum optics. However, this approach has been limited to chromophores with high quantum efficiency. Over the past few years, we have developed extinction detection and spectroscopy as an alternative to fluorescence for investigating single nano-objects such as metallic nanoparticles, viruses, quantum dots, and organic molecules. After a general introduction to the operation principle of this method, I will discuss a specific application of imaging single virus motion and its interaction with receptor lipids. Furthermore, I present a new nanofluidic technique for contact-free and stable trapping of nanoparticles such as gold and polymer beads or lipid vesicles. I will end with the prospects of fluorescence-free imaging and trapping of biological entities as small as single proteins.



Host: Stefan W. Hell