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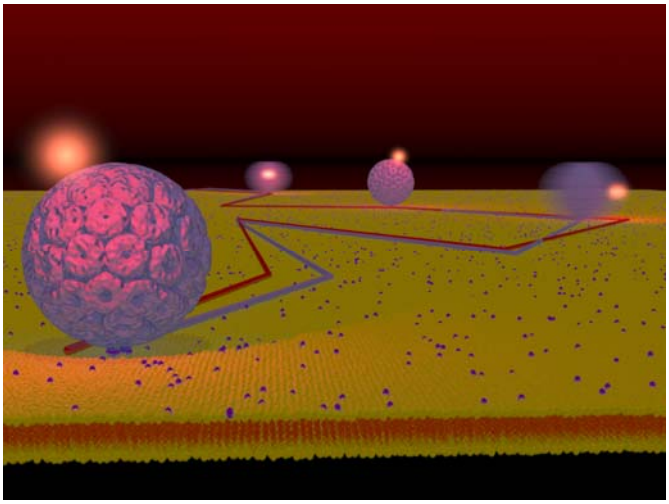
Einladung zum Physikalischen Kolloquium

Montag, 14.11.2011
16:15 Uhr in N24/H13

Dr. Philipp Kukura
University of Oxford,
Physical and Theoretical Chemistry Laboratory

Light at the limit: Peeking into the nanoworld with ultrafast and single molecule optics

I will present recent developments in the application of laser-based techniques to directly visualise and thereby study dynamic processes taking place on vastly different time and size scales in chemistry and biology. In the first part of the talk, I will introduce a novel microscopic imaging technique based on interferometric scattering (iSCAT) and illustrate it's use for high-speed and three-dimensional nanometric tracking of nanometer-sized objects (1). Particular attention will be geared towards recent results on the nanoscopic motion of individual virions diffusing on artificial membranes as well as the extension of iSCAT towards label-free sensing and the first detection and imaging of single molecules in absorption (2). In the second part, I will focus on combined experimental and theoretical efforts based on ultrafast spectroscopy aimed at revealing, understanding and controlling atomic motion on its intrinsic, femtosecond, time scale. Specifically, I will discuss the structural changes occurring during the primary step in vision, the 11-cis to trans isomerisation of the retinal chromophore in the visual pigment rhodopsin (3), and its implications for rhodopsin reactivity and efficient photochemistry in general.



Ab 15.45 Uhr Kaffee, Tee und Kekse vor dem Hörsaal H13

Organisation: **Prof. Marti, Tel.: 23011**
Dr. Retzker, Tel.: 22902
Host: **Prof.Michaelis, Tel.: 23050**