



Karl Friedrich Bonhoeffer Lecture

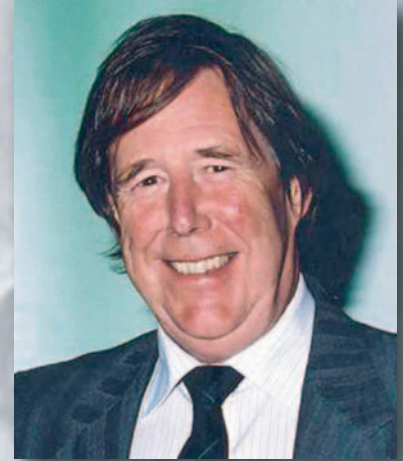
Donnerstag, den 15.06.2005 - 17:00 Uhr

Manfred-Eigen-Hörsaal

Max-Planck-Institut

für biophysikalische Chemie

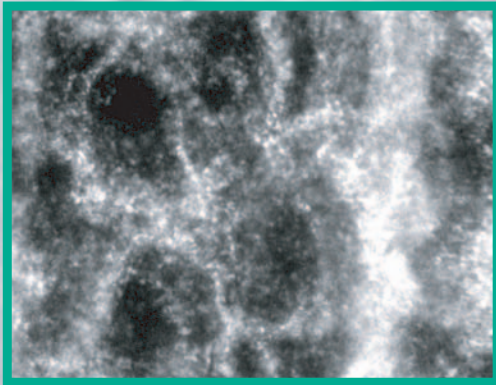
Am Fassberg 11, 37077 Göttingen



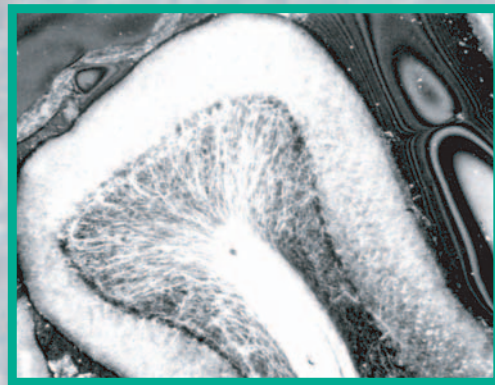
Prof. Dr. Colin Sheppard

Division of Bioengineering, National University of Singapore

"Three dimensional microscopy"



Purkinje Cell



Rat Brain

A variety of alternatives exist for three dimensional optical imaging of thick structures. These are usually based on the principle of optical sectioning: images are recorded of a series of sections, from which a three dimensional image can be generated. For example, views in different directions can be reconstructed. It may seem strange that in order to produce an image of a deep object we actually want the depth of field to be small. Interestingly the opposite strategy is taken in tomography or in the electron microscope, where we use a system with a large depth of field, and record projections in different directions. Sections can then be reconstructed from the projections. The approach based on optical sectioning has another advantage: light scattered from different depths within the object is rejected, thus allowing penetration into scattering tissue. The different approaches including confocal microscopy, two-photon microscopy, optical coherence tomography and others have various advantages and limitations.

Gastgeber: Prof. Dr. Stefan W. Hell