



Sonderkolloquium des SFB 450 (FU) und des MBI

am Dienstag, den 11.11.2003, 16.30 Uhr

Max-Born-Saal

es spricht

Dr. Stefan Haacke, Institut de Physique, Universität Lausanne

über

**„ Ultrafast chromophore - protein interactions and
the physics of biological photosensors ”**

Abstract

In most biological light sensors, the light-absorbing chromophore undergoes an ultrafast structural change, the so-called isomerization. The visual photoreceptor rhodopsin with its retinal chromophore is the most prominent example. In recent years, the physical processes leading to isomerization in the protein environment have been revisited. In particular, the mechanisms by which the protein controls the bond selectivity and the speed of isomerization are not understood.

I shall report on femtosecond fluorescence and transient absorption experiments performed on retinal in proteins and in protic solvents, which allow one to observe and understand vibrational relaxation and environment-dependent energetics driving isomerization. I shall show how ultrafast changes in the UV part of the absorption spectrum of retinal proteins mirror the photo-induced dynamics of the electric field in the retinal binding pocket. The latter is a crucial factor controlling the isomerization process.

The importance of these results for other photosensors (PYP, phytochromes, etc.) will be discussed.

Interessenten sind herzlich eingeladen

Prof. W. Radloff