

**PHYSICAL COLLOQUIUM
INVITATION**

Monday, 04.06.2018, 4.15 p.m., W2-1-148

speaks

Prof. Dr. Stefan Lochbrunner,

**Institut für Physik,
AG Dynamik molekularer Systeme,
University of Rostock, Germany**

about

**“Electron and Exciton Dynamics in
Molecular Systems for Solar Applications”.**

The behavior and mobility of Frenkel excitons and charge carriers are crucial for the performance of light harvesting systems and photonic devices based on organic materials. We investigate the exciton dynamics in organic systems by ultrafast absorption spectroscopy and characterize the mobility via the analysis of annihilation processes. The influence of energetic disorder on exciton diffusion is studied using a guest-host system based on dye molecules incorporated with a high concentration in a polymer matrix while the impact of the dimensionality is investigated by means of molecular aggregates. Electron transfer processes are the key steps in photocatalysis. To characterize the electron transfer pathway in a homogeneous photocatalytic system for solar hydrogen generation we apply time-resolved spectroscopic techniques covering all timescales from femto- to microseconds. In the case of a copper and an iron complex used as photosensitizer and catalyst, respectively, an oxidative pathway and a transfer yield of about 30% was found in this way.

All interested persons are cordially invited.

Sgd. Prof. Dr. Martin Holthaus