



UNIVERSITÄT
BAYREUTH

Elite Study Programme in Macromolecular Science

Module

Light Harvesting Processes

March 6 and 9, 2009
University of Bayreuth, Germany

March 10-14, 2009
Banz Monastery, Germany

Prof. Richard Cogdell (Glasgow)
Prof. Laurie Peter (Bath, UK)
Prof. Jürgen Köhler (UBT)
Prof. Mukundan Thelakkat (UBT)

Winter term 2008/2009

The teaching module in the winter term 2008/2009 within the Elite Study Program "Macromolecular Science" is on "**Light Harvesting Processes**". The courses cover aspects in biology, chemistry and physics of photosynthesis, natural and synthetic light harvesting materials, and solar cells. The module consists of three parts.

I. Series of lectures on basic principles of photosynthesis, light harvesting and their application in solar energy conversion and water splitting reaction (March 6 and 9, 2009, Lecture hall: S84, NW II, UBT)

Prof. Jürgen Köhler (Bayreuth): Optical spectroscopy of single molecules

investigates the optical spectroscopy of single light harvesting complexes and of single synthetic organic molecules. He will give an introduction to single molecule spectroscopy.

Prof. Mukundan Thelakkat (Bayreuth): Organic and hybrid solar cells

will give an overview about the fundamental principles of light harvesting, charge generation and separation in various organic and hybrid solar cells.

Prof. Richard Cogdell (Glasgow): Bacterial Photosynthesis

will give an introduction in bacterial photosynthesis. Since the early 1970's he has been involved on Protein crystallography and bacterial photosynthesis. In 1995 he was the leading scientist to determine the three dimensional structure of a light-harvesting complex from the purple bacterium, *Rhodospseudomonas acidophila*.

Prof. Laurie Peter (Bath, UK): Kinetics of photoelectrochemical charge transfer and charge transport processes

gives a tutorial on time-resolved photocurrent as well as photovoltage and frequency-resolved modulated photocurrent and photovoltage methods and various methods of fabrication and characterization of novel types of electrolyte as well as solid state hybrid solar cells.

II. Participation of the conference on „Light Harvesting Processes”

March 10- 14, 2009, Banz Monastery

The students will attend the **conference „Light Harvesting Processes”**.

This conference gives insight into the complex processes in the photochemical and dark reactions involved in photosynthesis. Additionally this meeting will give ideas and inspirations to understand and mimic synthetically some of the steps involved in the above process. Closely related technological phenomena are synthetic light harvesting and photovoltaics.

Aim of the conference is to bring together scientists from different areas such as biology, chemistry, physics and technology, working in the field of light-harvesting processes and related subjects. The meeting will provide a platform for interdisciplinary communication and the exchange of concepts.

The confirmed invited speakers include Huub de Groot (Leiden, The Netherlands), Richard Cogdell (Glasgow, U.K.), Robert J. Silbey (Cambridge, USA), Klaus Müllen (Mainz, Germany), Aida Takuzo (Tokyo, Japan), Klaus Schulten (Urbana, USA), Laurie Peter (Bath, UK).

The homepage of the conference is: <http://www.LHP-bayreuth.de>

III. Seminar on the scientific topics covered in the conference or poster presentation at conference

The participating students will be divided into interdisciplinary groups consisting of 2 students per group. Each group will select one main topic of the conference and will prepare a presentation including the basics, different stages of the scientific development as well as highlights. A seminar with a duration of 30 minutes will be given by each group.

As alternative, those who are doing research in the related fields of the conference can also present their own results as posters if applicable.

Time Schedule

March 6th, 2009: Lecture hall: S84, NW II
10 a.m. to 12 a.m. Prof. Mukundan Thelakkat

March 9th, 2009: Lecture hall: S84, NW II
9 a.m. to 11 a.m. Prof. Richard Cogdell
13 p.m. to 15 p.m. Prof. Jürgen Köhler
15.30 p.m. to 17.30 p.m. Prof. Laurie Peter

Seminar: to be announced.

Participating Students