



Chavdar SLAVOV

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KEY WORDS

Academic: biophysics, physical chemistry, spectroscopy, kinetics

Research: ultrafast dynamics, photochemistry, photoresponsive systems, light energy conversion

EDUCATION

2009 PhD, NATURAL SCIENCES (Dr. rer. nat.)

- Faculty of Natural and Mathematical Sciences, **Heinrich Heine University**, Düsseldorf, Germany
- Thesis:** *“On the ultrafast kinetics of the energy and electron transfer reactions in Photosystem I”*, ([view](#)), **Supervisor** – Alfred R. Holzwarth

2005 M. Sc., BIOPHYSICS

- Department of Biophysics and Radiobiology, **Sofia University** “St. Kliment Ohridski”, Bulgaria
- Thesis:** *“Temperature effect on the primary photosynthetic processes”*, **Supervisor** – Vasilij Goltsev

2003 B. Sc., MOLECULAR BIOLOGY

- Biological Faculty, **Sofia University** “St. Kliment Ohridski”, Bulgaria

APPOINTMENTS

- 2005 – 2010** **Max Planck Institute for Chemical Energy Conversion** (former Bioinorganic Chemistry), Mülheim a.d. Ruhr, Germany, Group of Prof. Alfred. R Holzwarth
- 2010 – present** **Institute of Physical and Theoretical Chemistry, Goethe University**, Frankfurt am Main, Germany, Group of Prof. Josef Wachtveitl

SCIENTIFIC PROJECTS ([summary link](#))

PHOTOSWITCHES AND PHOTOSWITCHABLE CONSTRUCTS

- Molecular mechanisms** of operation of photoswitches
- Coherent phenomena** in photoactive systems
- Application** of photoswitches for **optical control** of bio(chemical) reactions and nanostructures
- Dynamics** of larger **photoresponsive nanostructures** and molecular assemblies

PHOTORECEPTORS

- Photoconversion dynamics of **photoreceptors** from the phytochrome and rhodopsin families

DEVELOPMENT OF ANALYSIS TOOLS FOR TIME-RESOLVED DATA ([OPTIMUS](#))

OTHER: Artificial and natural **light-harvesting** systems, Excitation energy and electron transfer, Mechanisms of **photoprotection**

EXPERIENCE

Experimental techniques

- femtosecond pump (UV/VIS) – probe (UV/VIS/IR) transient absorption
- sub-picosecond time-resolved fluorescence
- nanosecond laser flash photolysis
- Stationary IR and VIS spectroscopy

Installation and development of set-ups

- Set-up for coherent control and multidimensional spectroscopy experiments (under construction)
- femtosecond transient absorption set-up
- synchroscan streak camera set-up for sub-ps fluorescence measurements
- multichannel single photon counting set-up for picosecond fluorescence measurements

Analysis of time-resolved data

- Global analysis, kinetic modeling, model-independent analysis
- Development of [OPTIMUS](#) – an analysis environment for time-resolved data
- Development of software for analysis of FROG traces and recovery of laser pulse shapes

SCIENTIFIC PROJECTS PREPARATION

- “Photochromism of molecular switches with potential for application in biological systems”, DFG* Grant WA 1850/4-1 (funding for postdoc position and equipment)
- “Coherent phenomena in photoresponsive compounds”, DFG* Grant WA 1850/4-2 (funding for postdoc position and equipment)
- “Optical control on the nanoscale via photoresponsive compounds”, DFG* Grant WA 1850/4-3 (funding for postdoc position and equipment)
- Contribution to preparation of other DFG* (Sonderforschungsbereich and Schwerpunktprogramme) and LOEWE* projects.

TEACHING AND MENTORING ACTIVITIES

- **Physical chemistry lectures** – substitute lecturer
- **Physical chemistry exercises and exams** – organization and conduction
- **Mentoring** – apprentices, bachelor, master, and PhD students

COMMUNITY INVOLVEMENT

Peer-review: Analytical Chemistry, BBA Bioenergetics, ChemPhotoChem, Computational and Structural Biotechnology Journal, Dutch Research Council (NWO), Methods and Applications in Fluorescence, Photosynthesis Research, etc.

Conference organization: 16th Photosynthesis Workshop ‘Nord-West’, 2007, Mülheim/Ruhr, Germany

PUBLICATIONS

<https://optimusfit.org/index.php/publications>

INVITED AND CONFERENCE TALKS, POSTER AWARDS

<https://optimusfit.org/index.php/talks>

* DFG – Deutsche Forschungsgemeinschaft (German Science Foundation), Landesprogramm LOEWE – Hessian Ministry research funding