

SFB  
1078



Protonation Dynamics  
in Protein Function

Collaborative Research Center – SFB 1078  
**International Phytochrome Workshop 2018**  
*Protonation Dynamics in Redox Proteins*

October 09 - 10, 2018

Freie Universität Berlin, Physics Department

***Program***

## Tuesday, Oct. 09, 2018

9:00 Welcome, Joachim Heberle

9:30 – 11:00 Chair: Maria Andrea Mroginski

9:30 **Clark Lagarias**, *College of Biological Science, University of California Davis* (30 min)  
Heterogeneity in the Phytochrome Superfamily

10:00 **Katrina Forest**, *Department of Bacteriology, University of Wisconsin Madison* (30 min)  
Structure-based Investigations of Phytochrome Function

10:30 **Ernest Burgie**, *Department of Biology, Washington University in St. Louis* (30 min)  
Structural, photochemical and thermal properties of plant and bacterial Phytochromes

11:00 Coffee break

11:30 – 12:50 Chair: Peter Hildebrandt

11:30 **Tilman Lamparter**, *Institut für Botanik, Karlsruher Institut für Technologie* (30 min)  
How *Agrobacterium fabrum* responds to light

12:00 **Norbert Krauß**, *Institut für Botanik, Karlsruher Institut für Technologie* (30 min)  
In Pr the photosensory core modules of phytochromes adopt highly flexible structures

12:30 **Patrick Scheerer**, *Institute of Medical Physics and Biophysics, Charité Berlin* (20 min)  
Structural snapshot of a bacterial phytochrome in its functional intermediate state

12:50 Lunch break

14:30 – 16:00 Chair: Patrick Scheerer

14:30 **Andreas Winkler**, *Institut für Biochemie, TU Graz* (30 min)  
Molecular mechanisms involved in asymmetric activation of bacteriophytochromes

15:00 **Emina Stojkovic**, *Northeastern Illinois University* (30 min)  
Light control of cell development revealed by crystal structures of myxobacterial phytochromes

15:30 **Allen M. Orville**, *XFEL Hub at Diamond, Diamond Light Source, Oxfordshire* (30 min)  
*Dynamic Structures of Phytochromes Probed by Time-Resolved and Acoustic Injector Methods at XFELs*

16:00 – 16:30 Coffee break

16:30 – 17:20 Chair: Franz Bartl

16:30 **John Kennis**, *Vrije Universiteit Amsterdam* (30 min)  
*On phytochrome fluorescence*

17:00 **Ulrike Alexiev**, *Freie Universität Berlin* (20 min)  
Phytochrome protonation and conformational dynamics

18:00 Dinner buffet

## Wednesday, Oct. 10, 2018

9:30 – 11:00

Chair: Ulrike Alexiev

- 9:30 **Janne Ihalainen**, *University of Jyväskylä* (30 min)  
Some secrets of Pr-state of a bacteriophytochrome
- 10:00 **Karsten Heyne**, *Freie Universität Berlin* (20 min)  
Impact of the ultrafast photoreaction on hydrogen bond networks in phytochrome
- 10:20 **Franz Bartl**, *Humboldt Universität Berlin* (20 min)  
Towards the molecular mechanism of phytochrome activation: A vibrational spectroscopic approach
- 10:40 **Peter Hildebrandt**, *Technische Universität Berlin* (20 min)  
Towards the molecular mechanism of phytochrome activation: A vibrational spectroscopic approach
- 11:00 Coffee break

11:30 – 13:00

Chair: Karsten Heyne

- 11:30 **Maria Andrea Mroginski**, *Technische Universität Berlin* (20 min)  
Computational studies on bacterial phytochrome
- 11:50 **Igor Schapiro**, *Hebrew University of Jerusalem* (20 min)  
Resolving the Red-Green Spectral Tuning Mechanism in Cyanobacteriochrome Slr1393g3 by QM/MM Simulations
- 12:10 **Tatiana Domratheva**, *Max Planck Institute for Medical Research* (20 min)  
Color tuning and charge transfer mechanisms of phytochromes characterized by quantum-chemical calculations
- 12:30 **Jörg Matysik**, *Institut für Analytische Chemie, Universität Leipzig* (30 min)  
*Solid-state NMR studies in Tetrapyrrole photoreceptors*
- 13:00 Lunch break

14:30 – 15:10

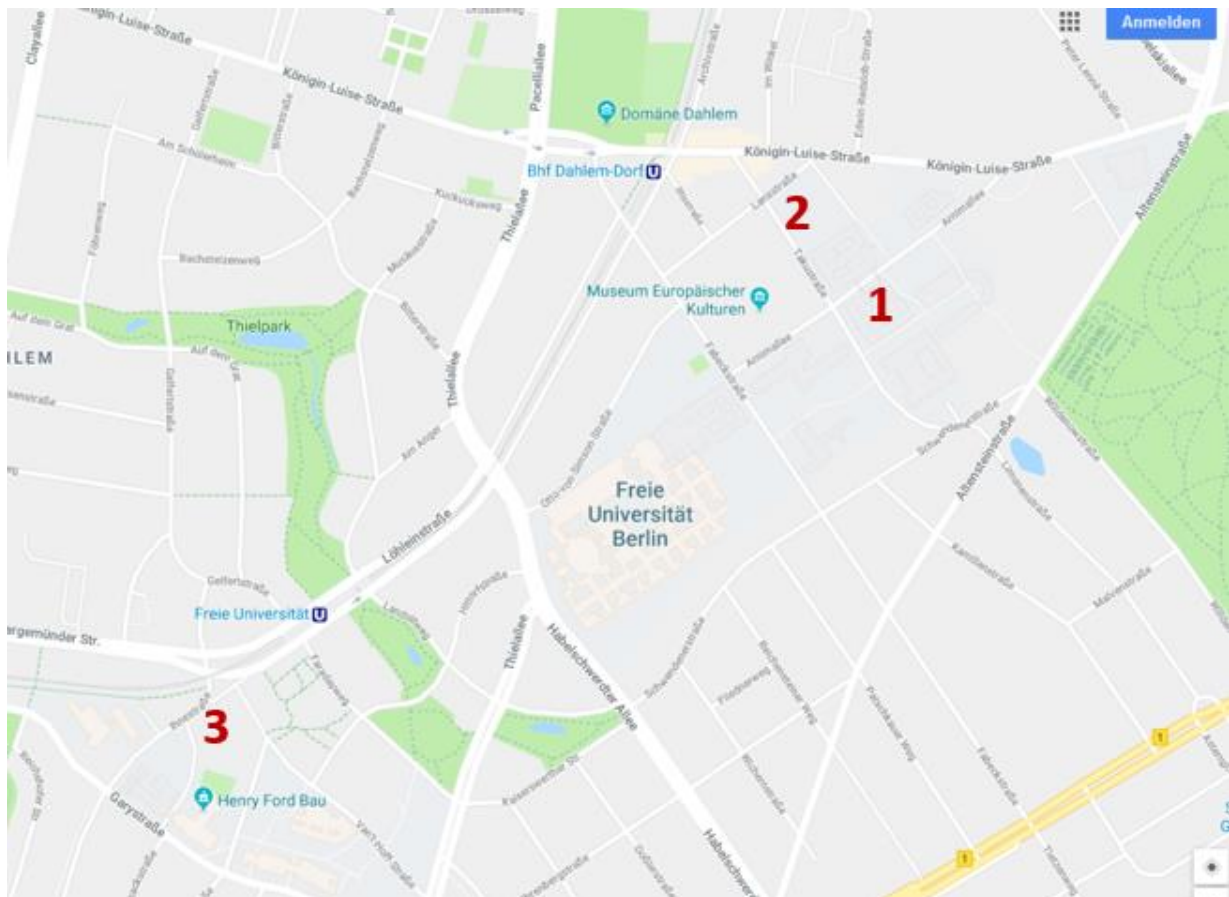
Chair: Jon Hughes

- 14:30 **Hartmut Oschkinat**, *FMP Berlin* (20 min)  
NMR investigations of phytochromes
- 14:50 **Jon Hughes**, *Pflanzenphysiologie, Justus Liebig Universität* (20 min)  
New stuff about Cph1 and plant phytochromes

15:10 – 16:00 Coffee / tea time

**16:00 – 18:30 Discussion Round**

*Introduction and Moderation:* Maria Andrea Mroginski and Patrick Scheerer



- 1 Physics Department, Arnimallee 14, 14195 Berlin-Dahlem
- 2 Seminars Campus Hotel, Takustr. 39, 14195 Berlin-Dahlem
- 3 Harnack-Haus, Ihnestr. 16-20, 14195 Berlin-Dahlem

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