

SFB
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Protonation Dynamics
in Protein Function

Mon, June 26,
2017

15:15 – 17:30

Freie Universität Berlin
Physics Department
Lecture Hall B

(Arnimallee 14, 14195 Berlin-Dahlem)

► Colloquium

► **Prof. Matthias Rögner** – Ruhr-Universität Bochum, Germany

Engineering cyanobacterial photosynthesis for biotechnological applications: Design cells and model systems

In future, photosynthesis will be used as power supply for the generation of new products - simply due to the fact, that free energy is provided by the sun and some phototrophic organisms can grow just with sunlight and (sea) water. Prerequisite is a molecular understanding of photosynthesis and the manipulation of its metabolism for product optimization. We have chosen H₂ production as model system because this product can be directly linked to the water-oxidizing photosynthetic electron transport and is easily released by the cells.

For this purpose cyanobacterial photosynthesis has to be engineered ... -more-

► **Dr. Chen Song** – Universität Leipzig, Germany

MAS NMR on GAF-domain photoreceptors with bilin chromophores

GAF-domain photoreceptors with bilin chromophores switch photochromically between two states of different actions. They are divided into three families based on the domain architecture of sensory modules. By using solid-state NMR spectroscopy, we studied four examples from all three families in their dark and photoproduct states, including the canonical red/far-red light-absorbing plant and cyanobacterial phytochromes, a GAF-domain-only fragment from a red/orange Cph2 sensor and a red/green-type cyanobacteriochrome AnPixJg2-GAF2".

Holoproteins of these photoreceptors were generated by in vitro assembly with uniformly ¹³C- and ¹⁵N-labeled phycocyanobilin (PCB) chromophore, thus selective observation of the chromophore and its binding pocket has been achieved. In this talk, an overview on recent solid-state NMR work on structure and function of these biliproteins will be presented.

Coffee and tea are ready at 15:00 and during the break from 16:15 – 16:30.

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