

SFB
1078



Protonation Dynamics
in Protein Function

Mon, May 29,
2017

15:15 – 17:30

Freie Universität Berlin
Physics Department
Lecture Hall B

(Arnimallee 14, 14195 Berlin-Dahlem)

➤ Colloquium

➤ **Prof. Georg Nagel** – Julius-Maximilians-Universität Würzburg, Germany

Channelrhodopsin et al.: Microbial optogenetic actuators

The research of Prof. Nagel, as one of the discoverers of the channelrhodopsins, covers various projects like Microbial Rhodopsins: Channel Rhodopsins and Pump Rhodopsins, Light-activated Cyclases: PAC & Cyclop, Improved optogenetic tools: Characterization of new rhodopsins and engineering of novel features into existing photoreceptors, and the Circadian Clock in Drosophila.

➤ **Dr. Roger Jan Kutta** – Universität Regensburg, Germany

Key difference between type I and type II cryptochromes and implication for their role in magnetoreception

All cryptochromes are currently classified as flavoproteins. In animals their best-described role is as components of the circadian clock. This circadian function is variable, and can be either light-dependent or -independent; the molecular origin of this difference is unknown. Type I (invertebrate) animal cryptochromes are photoreceptors that entrain an organism's clock to its environment, whereas Type II (mainly vertebrate, including mammals) regulate circadian timing in a light-independent manner. Here, we reveal that, in contrast to Type I, Type II animal cryptochromes lack the structural features to securely bind the photoactive flavin cofactor. We provide a molecular basis for the distinct circadian roles of different animal cryptochromes, which also has significant implications for the putative role of Type II cryptochromes in animal photomagneto-reception.

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

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