SFB 1078

Protonation Dynamics in Protein Function

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Freie Universität Berlin

via WebEx

Colloquium

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Ultrafast and Multiphoton Spectroscopy for Molecules, Biology and Artifical Light-Harvesting

Over millions of years nature has achieved remarkable abilities in many different fascinating facets, such as the capture of sunlight or complex information processing. We are still at the beginning to understand these processes, and often crucial (bio) molecules play a central role that are difficult to decipher. Often times, nonlinear spectroscopy is of great help as it sometimes enables completely new insights that are not possible with any other type of spectroscopy. For example, when harvesting, funneling and converting sunlight, different electronic states of important regulatory molecules are only accessible via multi-photon excitation. These molecules and states are very closely related to the cofactors in rhodopsins. Nonlinear spectroscopy also plays an important role in various advanced microscopy techniques to better understand the mechanism of neural signal transmission. In my talk I will give an overview of how we apply nonlinear spectroscopy and microscopy to better understand these mechanisms and how we have started to develop innovative artificial solutions based on these findings.

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