MPI-NAT SEMINAR SERIES

Stefan Hecht

Humboldt-Universität zu Berlin

Molecular Photoswitches to Remote-Control Systems, Properties, and Processes

The ability to use light to control and power advanced materials and devices in a dynamic fashion with high spatial and temporal resolution offers tremendous opportunities. For this purpose, molecular photoswitches that undergo reversible changes upon illumination have taken center stage and become key ingredients. To develop them into high-performing materials and practical applications, the switching processes must be highly efficient and reliable and therefore necessitate continuing optimization of key parameters. These involve spectral separation and selective addressability in attractive wavelength regions that enable sufficient light penetration, high quantum yields for switching in both directions, enhanced (photo)chemical resistance enabling highly repetitive switching without fatigue, among others. Most importantly, the photoswitchable system has to undergo significant changes of a desired physicochemical property to maximize its overall achievable modulation. This presentation will highlight two examples from our laboratory that illustrate the design and use of molecular photoswitches to control biological processes, i.e. photoswitchable kinase inhibitors, and to manufacture biologically relevant objects using xolography, i.e. a new volumetric 3D printing method based on photoswitchable photoinitiators recently developed and commercialized by us.

Friday, 01.12.2023, 10:00 am

Host: Dusan Kolarski

Ernst-Abbe Seminar Room Tower 2

MAX-PLANCK-INSTITUT FÜR MULTIDISZIPLINÄRE NATURWISSENSCHAFTEN