Title of presentation: “New fluorescent probes and sensors”

Abstract:
In the first part of my presentation I will introduce a highly permeable and biocompatible near-infrared fluorophore that can be specifically coupled to intracellular proteins in live cells and tissues using different labeling techniques. The fluorogenic character of the probe and its high brightness permit live-cell imaging experiments without washing steps. The fluorophore is ideally suited for live-cell superresolution microscopy approaches using either stimulated emission depletion (STED) or stochastic single-molecule localization nanoscopy. Using STED nanoscopy and the new fluorophore, we characterize the precise localization of the centrosomal protein Cep41 in living cells, revealing that Cep41 forms a ring-like structure that covers the entire length of the centriole. The excellent spectroscopic properties of the probe combined with its ease of use in live-cell applications make it a powerful new tool for bioimaging.

In the second part of my talk, I will talk about our attempts to introduce a new class of fluorescent sensor proteins that permit to visualize drug and metabolite concentrations in living cells with high spatial and temporal resolution.