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# MPI-NAT SEMINAR SERIES

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College of Future

### Gentle dyes for 4D fluorescence imaging in live cells

Phototoxicity has become a prevailing issue in the super-resolution era when boosted illumination is applied, compromising the physiological relevance of the recorded data. We advocate leveraging chemical approaches to tackle phototoxicity. By exploiting chemical motifs such as triplet state quenchers and biocompatible auxiliaries, we systematically upgrade the commonly used fluorescent markers toward alleviated phototoxicity. These gentle dyes can be directed to various cellular targets spanning mitochondria, DNA, cytoskeleton, insulin granule, and specific proteins, enabling time-lapse super-resolution imaging with minimal photodamage. For example, PK Mito Orange probe is a mitochondrial inner membrane stain that enables 30 frames of STED recording and multi-color imaging of mitochondrial components. These biocompatible probes, with high specificity and gentle behavior under excitation light, promise to offer reliable spatial-temporal information in the era of 4D multiplexed nanoscopy.

Thursday, 28.09.2023, 11:00 am

Host: Prof. Dr. Stefan Jakobs



**Large Seminar Room**  
Fassberg Campus

**MAX-PLANCK-INSTITUT**  
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