

Welcome to Optopub and celebrate **International Day of Light !**

Wednesday 16th May 17.30 – 20.30

**Room Knut, Elevator B, Floor 6, Entrance at RISE-Acreo
Kistagången 16 alt. Isafjordsgatan 22, Electrum, Kista**



United Nations
Educational, Scientific and
Cultural Organization



International
Day of Light
16 May

Fluorescence based optical nanoscopy: how to crumble the diffraction barrier

Ilaria Testa, Ph.D., Assitant Professor at Department of Applied Physics at KTH, SciLifeLab

Lens-based microscopy was unable to discern fluorescently labeled features closer than 200 nm for decades, until the recent breaking of the diffraction resolution barrier by sequentially switching the fluorescence capability of adjacent features on and off quickly made nanoscale imaging routine. Reported nanoscopy variants switch these features either in a target manner with intense laser beams, or molecule by molecule followed by computation in a stochastic fashion. Here, we show that emergent MoNaLISA fluorescence nanoscopy enables fast and continuous imaging of living cells and tissues in super resolved detail by producing raw data images using only ultralow levels of light. This advance has been facilitated by the generation of fluorescent proteins (rsFP) that can be reversibly photoswitched numerous times. Distributions of functional rsFP-fusion proteins in living bacteria and mammalian cells are imaged at < 40 nm resolution. Using a fast-switching rsFP variant, we increased the imaging speed over our first reported RESOLFT schemes, which in turn enabled us to record spontaneous and stimulated changes of dendritic actin filaments and spine morphology occurring on time scales from seconds to hours. Our next generation super resolution technique represents a new paradigm for non invasive induction and monitoring of ultrastructural dynamics of synaptic plasticity at the nanoscale.

Photon disinfection - Innovative and chemical-free solutions based on LED light

Oscar Hägglund, Market Manager, LED Tailor Sweden AB

The spread of microbes with resistance to common antibiotics is an increasing problem and, according to the WHO, will claim more lives than cancer does today – 30 years from now. New innovative disinfection solutions are being put forth as a priority research area in order to mitigate the situation. One of the most promising approaches is using aBL (antibacterial Blue Light) in order to inactivate microbes, both airborne and those found on surfaces. Blue light between 400–495 nm is a type of high-energy visible light that inactivates microbial cells by introducing ROS (Reactive Oxygen Species) through stimulation of the porphyrins and flavins present in the cell structure of bacteria. Unlike ionizing UV radiation, the aBL is not dangerous to human beings or materials – nor does bacteria have the ability to become resistant to it.

Followed by Optopub 19:00-20:30, ADOPT, Linné center i Modern Optik och Fotonik, invites everyone who pre-registered for food and beverages.

OBS: Preregistration for participation and food at:

<https://doodle.com/poll/e9zkdushq5am5e2d>

before kl.14:00 on Tuesday 15th May !!!

See more about IDL: www.lightday.org

Welcome!



Lennart BM Svensson

Jens A Tellefsen, Jr

Gunnar Björk

Optopubs are co-arranged by



Svenska OptikSällskapet
Swedish Optical Society
the Swedish Branch of the European Optical Society

