Seminar Biophotonik SS2007

Themen:

1. Optical coherence tomography (OCT)
   Literatur:
   - In vivo endoscopic optical biopsy with optical coherence tomography, Science 276 (5321): 2037-2039 (1997)
   - In vivo ultrahigh-resolution optical coherence tomography, Optics Letters 24 (17): 1221-1223 (1999)

2. Stimulated emission depletion (STED) microscopy and applications
   Literatur:
   - Fluorescence microscopy with diffraction resolution barrier broken by stimulated emission, PNAS USA 97 (15): 8206-8210 (2000)

3. Modern photon detector technology
   Literatur:
   - http://www.emccd.com/

4. Optically switchable ion channels and applications
   Literatur:

5. Optical Tweezer
   Literatur:
6. CARS Microscopy
Literatur:

7. Fluorescence correlation spectroscopy
Literatur:

8. Molecular beacons and applications
Literatur:
- http://www.molecularbeacons.com/

9. Realtime PCR
Literatur:
- http://pathmicro.med.sc.edu/pcr/realtime-home.htm
10. Photosynthesis
Literatur:

11. Resolution enhancement in wide-field microscopy with structured illumination
Literatur:
- Surpassing the lateral resolution limit by a factor of two using structured illumination microscopy, J. Microsc. 198: 82-87 (2000)

12. Colloidal semiconductor nanocrystals (quantum dots) and applications
Literatur:

13. FRET and applications
Literatur:
- Probing the interaction between two single molecules: Fluorescence resonance energy transfer between a single donor and a single acceptor PNAS U.S.A. 93 (13): 6264-6268 (1996)
14. FRAP and applications
Literatur:
- Mobility measurement by analysis of fluorescence photobleaching recovery kinetics, Biophysical Journal 16 (9): 1055-1069 (1976)
- Lateral diffusion in phospholipid multilayers measured by fluorescence recovery after photobleaching, Biochemistry 16 (17): 3936-3941 (1977)

15. Confocal microscopy: one-photon, two-photon, multi-photon …
Literatur:
- http://microscopy.fsu.edu/primer/techniques/confocal/index.html

16. Photothermal microscopy
Literatur:
- Single nanoparticle photothermal tracking (SNaPT) of 5-nm gold beads in live cells, Biophys. J. 91 (12): 4598-4604 (2006)

17. Single-molecule detection: Stochiometry, colocalization, position accuracy
Literatur:

18. Optical Biosensors
Literatur: