



gegründet 1808

## **Societas physico-medica Erlangensis**

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## **Die Physikalisch-Medizinische Sozietät Erlangen**

lädt Sie zu folgendem Vortrag ein:

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### **„Insertable, implantable and wearable micro-optical devices for the early detection of cancer”**

#### **Professor Christopher H. Contag, Ph.D.**

Stanford University School of Medicine, Stanford, California, USA  
E-Mail: [ccontag@stanford.edu](mailto:ccontag@stanford.edu)

Current technologies for the detection of cancer lack the sensitivity for early detection at times when therapy would be most effective, and cannot detect minimal residual disease that persists after conventional therapies. At the same time there is a paradigm shift occurring in medicine moving to disease characterization based on molecular etiologies--this shift is leading to molecularly targeted imaging, diagnosis, and therapy and will lead to advances in molecularly-targeted prevention. Determining the molecular etiologies of cancer requires new technologies and more integrated approaches, which will in turn lead to early detection and more effective treatment. In the area of biomedical imaging, it will be necessary to develop image-guided approaches for multiplexed molecular characterization of cancer and methods to visualize small numbers of cancer initiating cells. Imaging and sensing will need to move from detection limits of 1 cm masses to 1 mm, or even 100 µm diameter masses, and new technologies with this sensitivity need to be developed. Optical imaging has the sensitivity for this level of detection and there are a number of recent advances that will enable the use of optics in the clinic for cancer detection. Optical imaging tools image over a range of scales from macro- to nanoscopic resolution and can provide molecular sensitivity and cellular level resolution. Developments in the field of optical imaging will be useful in informing diagnosis, prognosis and therapy, and for guiding biopsies for multiparameter molecular analyses. To meet these needs, molecular probes are being developed that are activated at the target site and can be used to reveal biomarkers of disease in situ. New instruments based on micro-optical designs can be used to reach in the body to reveal microanatomic and molecular detail that are indicators of early cancers.

Dr. Contag is a Professor in the Departments of Pediatrics, Radiology and Microbiology & Immunology at Stanford University, and a member of BioX Faculty for interdisciplinary sciences, and Immunology Faculty. Dr. Contag received his B.S. in Biology from the University of Minnesota, St. Paul in 1982. He received his Ph.D. in Microbiology from the University of Minnesota, Minneapolis in 1988. He was a postdoctoral fellow at Stanford University from 1990-94 in the Department of Microbiology where he studied mother-to-infant transmission of HIV, and then joined the faculty in Pediatrics at Stanford in 1995 with a joint appointment in Microbiology and Immunology and a courtesy appointment in Radiology. Dr. Contag is the Associate Chief of Neonatal and Developmental Medicine, director of Stanford's Center for Innovation in In Vivo Imaging (SCI3) and co-director of the Molecular Imaging Program at Stanford (MIPS). Dr. Contag is a pioneer in the field of molecular imaging and is developing imaging approaches aimed at revealing molecular processes in living subjects, including humans, and advancing therapeutic strategies through imaging.

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**Mittwoch, 8. Juni 2016, 17.15 Uhr**

(45 Minuten Vortrag plus Diskussion,

**im Anschluß findet die Jahresmitgliederversammlung der PhysicoMedica statt)**

#### **Veranstaltungsort:**

Seminarraum (1.OG) des Instituts für Klinische Mikrobiologie, Immunologie und Hygiene, Wasserturmstraße 3/5  
(Zugang: rückwärtiger Hörsaalzugang gegenüber der Orangerie)

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Für Rückfragen wenden Sie sich bitte an:

Prof. Dr. med. Christian Bogdan

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