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Research at a Glance

Project:
Optical Detectors of Ultrasound for Endoscopy Applications

Supervisors:
Prof Dr. Vasilis Ntziachristos
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Mentor:
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Start of doctoral project at GSB:
October 2018
**Project Description:**
Bladder cancer is among the most expensive diseases in oncology in terms of treatment costs; each procedure requires days of hospitalization and recurrence rates are high. The main motivation of the MIB (Multi-modal, Endoscopic Biophotonic Imaging of Bladder Cancer for Point-of-Care Diagnosis) project is to meet clinical need of assessing the advancement of bladder tumor, which requires high resolution anatomical and functional imaging with high depth penetration capabilities. The concept relies on combining four optical methods namely optical coherence tomography, optoacoustic imaging, shifted excitation Raman difference spectroscopy, and multiphoton microscopy which will provide structural, biochemical and functional information. In this framework, an optical resolution based optoacoustic imaging detector with imaging capabilities of high lateral resolution for about 1.5 mm depth of penetration is being developed, which will have an important role in determining both stage and aggressiveness of bladder tumors during minimally invasive procedures.