13th

Multimodal in vivo imaging strategies for early cancer diagnostics

Tomasz S Tkaczyk
Rice University, USA

Monitoring and diagnostics of many cancers like oral, cervical or esophageal adenocarcinoma o en require multimodal approach to perform successful diagnostics. Both morphological imaging and spectral assessment are important tools use in these applications. When, used separately, either method cannot easily achieve both high sensitivity and speci city in vivo On the other hand, if combined and working in tandem, they can signi cantly improve the diagnostic performance. erefore, this presentation focuses on analysis of multimodal approaches/instrumentation for early cancer in vivo detection. Two groups of devices will be discussed: Miniature-integrated imaging microscopes (endomicroscopes) to provide morphological content and multi and hyperspectral high speed systems to obtain bio-chemical signatures of the tissue. Practical aspects multi-modal system integration, performance and parameters (eld of view and resolution of individual sub-systems) will be discussed together with the design considerations to optimize its e ectiveness. Number of imaging methods will be presented including (for morphological assessment): Contact imaging, confocal, structure illumination, and multi-photon imaging and (in area of spectral detection) narrow band imaging (NBI), image mapping spectrometry IMS, array snapshot systems in number of cancer applications (including for example oral, cervical, and esophageal adenocarcinoma).

Biography

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