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Editors

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Introduction

The conference Optical Biopsy XI, part of the SPIE Photonics West BiOS symposium, was held on February 5-6, 2013 in San Francisco. The conference consisted of 10 oral sessions and hosted 24 papers with 9 of these from international contributions. In addition, the program included a special session entitled Special Hot Biomedical Optics Topics consisting of 4 invited presentations to give overview for new comers and seasoned scientist to biomedical spectroscopy and optical imaging. The new non planar twisted form of light with orbital angular momentum was reviewed. The new form may add new information on tissues.

As in previous years, the quality of the invited presentations was very high and well attended and included the presentation of novel approaches as well as the most recent developments in well established methods. The quality of the regular submissions was also very high and concentrated in three main thematic areas: 1. Tissue diagnosis with optical spectroscopy and spectral imaging; 2. Imaging at the cell level for pathological assessment; and 3. Novel instrumentation and techniques for in vivo diagnosis.

It was worth noting that for another year there was a contribution on the detection of disease using optical spectroscopy signatures of body fluids such as urine or blood plasma. As the field of metabolomics continues to grow, it is possible that "**optical metabolomics**" may be a future growth area in the field of Optical Biopsy. The systematic study of the unique chemical fingerprints associated with specific cellular processes modified by disease typically requires complex instrumentation such as mass spectroscopy. Discussions during the session raised questions how small tumor of mm3 size can produce a detectable spectral fingerprint when body is m3 size. Partial answers to this question referred to the medicine of previous centuries where for example, from Hippocrates to the Victorian era, the color, smell, and even taste of urine was used to both identify particular illnesses and provide patient prognoses. Interesting to address on the activity of cancer-related bio-molecules and cell activity. However, the use of optical techniques after validation by more specific methods used in the field of metabolomics can lead to inexpensive instrumentation and methods for early disease detection and continuous monitoring of the progression of disease. Motivated by this possibility, we plan to organize a specific session in this issue next year on Optical Metabolomics in body fluids.

The trend of increasing focus on translational research that was observed in previous years continued this year with nearly all speakers using part of their time to explain how the method and results presented can be implemented in a clinical setting. This trend is expected to continue as the field continues to mature and the medical community starts recognizing that "some of these techniques" will be a major part of medical practice in the near future.

We wish to thank Hamamatsu, Intuitive Surgical, Ocean Optics, Magnegas, Bay Spec, AIAE, Solaris, and Perkin Elmer for support, and the session chairs, program chairs and SPIE staff for their help in making this a successful conference.

Robert Alfano
Stavros Demos