Multiphoton Microscopy in the Biomedical Sciences XII

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Modern biology research on molecular, cellular, and organism levels requires the precise measurement of cellular or sub-cellular activity in two or three dimensions. Many available fluorescence microscope techniques are yielding limited in vivo information about the organizations and dynamics of complex cellular and tissue structures. The multiphoton (one- or two- or three- or- more photons) excitation fluorescence imaging microscopy process will provide a unique, state-of-the-art, minimally invasive imaging system for thick tissue (deeper) and cellular imaging, and can effectively utilize UV absorption fluorophores. This multidisciplinary conference will be a forum for scientists from various fields of research, including both commercial and academic sectors, to discuss the system development and advantages of multiphoton microscopy in the various fields of biomedical sciences and clinical imaging.

Topics include:

- multiphoton (one- or two- or three- or more photons) microscopy theory and system development
- multiphoton (MP) in wide-field and laser scanning confocal microscopy
- infrared lasers for MP system (femtosecond vs. picosecond vs. CW)
- tissue engineering and spectral imaging
- fluorescence resonance energy transfer imaging (FRET)
- fluorescence lifetime imaging (frequency and time domain) (FLIM)
- fluorescence correlation spectroscopy and image cross correlation spectroscopy (FCS, ICCS)
- harmonic generation microscopy (SHG, THG)
- Raman spectroscopy and Coherent Ati-Stokes Raman Spectroscopy (CARS)
- fluorescence recovery after photobleaching (FRAP) and Photoactivation
- deep tissue and cellular imaging
- calcium and pH imaging
- developmental, neurobiology, plant biology and other biological applications
- photodynamic therapy (PDT) and clinical imaging
- inducing localized chemical reactions such as probe uncaging
- photo-thermal, -chemical and -mechanical effects of IR radiation
- laser safety and other related applications.

Student Poster Session Competition

Graduate Students and postdoctoral fellows are welcome to participate in the poster session competition of the conference on Multiphoton Microscopy in the Biomedical Sciences. There is a cash award for the winner(s). The participants should mention that their submission is for the "Students Poster Session

Competition (SPSC-MP). The participants should follow the rules and regulations of the SPIE organization for submission of their abstract and manuscript.

Jen Lab Young Investigator Award

We encourage the graduate students or postdocs or scientists who are not more than 32 years old to apply for the Jen Lab Young Investigator Award. To receive this $2000 cash award participant must be both the primary author and presenter of an accepted abstract and the proceedings paper also has to be submitted at least 2 weeks before the meeting start dates for review purposes by the selection committee. The participants enter a keyword in their abstract to indicate their interest in the Jen Lab young investigator award. Prize donated by Jen Lab GmbH, Germany.