
Dynamics and Fluctuations in Biomedical Photonics XVI

This conference has an open **call for papers**:

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Important Dates

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Abstract Due:
25 July 2018

Author Notification:
1 October 2018

Manuscript Due Date:
11 January 2019

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Call for Papers

The conference will be devoted to applications of recent developments in dynamics and control, coherence and synchronicity in networks, and statistical physics to biomedical photonics with a particular emphasis on functional monitoring and imaging. The goal of the conference is to gather essentially five groups of leading researchers:

- biophysicists
- physicians
- biologists and neuroscientists
- mathematicians and computer scientists
- optical and laser engineers

along with graduate and undergraduate students to facilitate future progress in the development of optical and laser technologies based on a dynamics approach to biomedical science and clinical applications. This approach will be useful for diagnosis and therapy of diseases such as those of the heart and vasculature, cancer, psoriasis, mental illness, and many others that manifest as a breakdown of the living organism's auto-regulation systems at the level of molecule, cell, organ, or organism as a whole. This methodology is also intended to promote a deeper understanding of the role of complex dynamics in biological development across all length scales from embryos to tissues, to organs and systemic functions. This conference contributes to the development of interdisciplinary fields of science and applications such as dynamics and structures of living systems, biomedical optics, and laser medicine, and we hope that it will continue to be helpful for scientists, physicians, engineers and students.

Keynote and invited presentations on urgent topics of dynamics and fluctuations in biophotonics will be organized. Panel Discussion on Biophotonics of Embryo Dynamics: Detection, Monitoring and Imaging is planned.

Papers are solicited on photonics technologies, including diffusion, fluorescence and polarization spectroscopies, OCT, Doppler, speckle, photoacoustics, and nanophotonics, applied for estimation, monitoring, imaging and/or controlling of:

- dynamics of stochastic systems in biology and medicine
- circulation in the blood and lymph microvessels
- deep tissue imaging
- brain and eye function
- optogenetics
- dynamics of heartbeat, breath, fibrillary tremor, bowel, lungs, eyeball tremor, etc.
- bio-vibrations, tremor and breath measuring technologies and instruments
- contractile activity of blood and lymph vessels, flow measurement and imaging
- microcirculation imaging and angiography
- dynamic oximetry
- red blood cell and other bio-particle sedimentation and aggregation processes
- cell proliferation
- cell drug and dye uptake
- intracellular flows and contractile activity of cells
- molecular agents, intelligent particles and collective behavior
- molecular motor driving
- stochastic cluster dynamics of macromolecules
- nonlinear diffusion of metabolic and exogenous agents and nanoparticles in tissues
- glucose sensing
- fractal point processes and cell structure analysis
- fluctuations and chaos in living systems and organisms
- stochastic resonance and synchronization in neural science and cardiology
- adaptive coherent optical systems for medicine
- engineered tissues and organs
- noise, SNR, sensitivity.

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