

## Optical Elastography and Tissue Biomechanics VI

Saturday - Sunday 2 - 3 February 2019

This conference has an open **call for papers**:**SUBMIT AN ABSTRACT**

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[Submission guidelines for Authors and Presenters](#)

### Important Dates

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Abstract Due:  
25 July 2018Author Notification:  
1 October 2018Manuscript Due Date:  
11 January 2019

### Conference Cosponsors



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### Call for Papers

This conference is devoted to developments and applications of biomedical optics, biophotonics, ultrasound, MRI, and optical microscopy in the assessment of the biomechanics of cells and tissues. Optical elastography is the use of optics to characterize tissues and cells based on their elastic and viscoelastic mechanical properties. In deploying the high-resolution capability of optics, this rapidly emerging field builds on and complements related methods for biomechanics, such as atomic force microscopy, traction force microscopy and microrheology, and the fields of ultrasound and magnetic resonance elastography.

Mechanical forces play an important role in the behavior and development of biological systems and disease at all spatial scales, from cells and their constituents, to tissues and organs. Such forces have a profound influence on the health, structural integrity, and normal function of cells and organs. At the same time, accurate knowledge of tissue biomechanical properties is important for the same reasons. Optical elastography and biomechanics methods will aid in the understanding and clinical diagnosis of a wide variety of diseases.

The multidisciplinary nature of optical elastography and tissue and cell biomechanics will see this conference bring together technology and applications experts in bioengineering, biophysics, cell biology, clinical sciences, medical imaging, optical microscopy, optics and photonics, and tissue engineering. In so doing, we hope to contribute to the development of interdisciplinary connections between scientists, engineers, biologists and physicians interested in the broad field of tissue biomechanics.

Papers are solicited on biomedical optics, biophotonics, ultrasound elastography, MRI elastography, and biomechanical methods and technologies applied or related to estimation, monitoring, and functional assessment of the mechanical properties of normal and pathological biomaterials at all spatial scales, from cells and their constituents to tissues and organs. Relevant topics include (but are not limited to):

- optical elastography methods in general
- ultrasound elastography
- MRI elastography
- optical coherence tomography/elastography

- speckle and particle tracking, and holography
- signal processing methods for optical elastography
- quantitative methods, including combining modeling and measurement
- novel loading schemes, such as focused ultrasound, photothermal and magnetomotive
- methods for measuring viscoelastic properties in particular
- photoacoustics directed towards biomechanics
- Brillouin scattering for biomechanics
- optical tweezers applied to cellular and subcellular mechanical properties
- scanning probe and other nanoscale methods for biomechanics
- dynamic methods for characterizing tissue vibration, such as in the ear and vocal chords
- optical elastography applications in general
- in vivo elastography
- elastography applied to characterization of ex vivo and in vivo tissue pathology
- intraoperative elastography applications (such as in breast cancer, lung cancer and others)
- elastography in cardiology
- biomechanics of the eye
- ophthalmic applications of optical elastography
- hard tissue biomechanics in bones and dental applications
- biomechanics in animal models
- biomechanics in tissue engineering
- biomechanics in developmental biology
- microrheology measurements using optical techniques
- traction force microscopy and related methods
- cell mechanics methods (related to, e.g., motility, adhesion, and mechanotransduction).

Two Special Sessions are planned in collaboration with the conferences "Quantitative Phase Imaging" and "Dynamics and Fluctuations in Biomedical Photonics" to highlight recent advances in the development of microscopy-based methods and phase/amplitude variance techniques for biomechanical evaluation of tissues and cells. Authors are encouraged to submit abstracts that span these cross-conference topics to take advantage of this unique opportunity.

The Keynote Speaker for the 2019 program is C. Ross Ethier with the Georgia Institute of Technology, giving a keynote on 'How imaging is informing diagnosis and treatment of glaucoma.'

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