



IEEE INTERNATIONAL SCHOOL OF IMAGING (I2SI)

El Greco Resort, Island of Santorini, Greece

Preliminary Program

October 14-16, 2014

In conjunction with IEEE International Conference on Imaging Systems and Techniques (IST)

Sponsored by the TC-19 Technical Committee on Imaging Systems

Website: <http://ist2014.ieee-ims.org/>

IEEE is the world's largest professional association, with nearly 500,000 members, dedicated to advancing technological innovation and excellence for the benefits of humanity. IEEE creates and promotes advancement of knowledge and world-changing technologies from computing and aerospace, to medical devices, healthcare, telemedicine, communications, sustainable energy systems, nanotechnology, robotics, and more.

The IEEE International School of Imaging (I2SI) will take place the beautiful island of Santorini, Greece, in October 14, 2014. The objectives of the IEEE International School of Imaging (I2SI) is to explore physical, engineering, molecular, biochemical and imaging principles, aimed to the advancement and generation of new knowledge related to the design, development, and applications of imaging and spectroscopy technologies, medical diagnostics, pharmaco-imaging, molecular and omics technologies, remote sensing, robotics, space instrumentation, and material characterization.

Engineers, scientists and medical professionals from Industry, Government, Academia, and Healthcare who want to bridge technology and clinical disciplines in the multidisciplinary areas of imaging, spectroscopy and medical diagnostic device industry, are invited to attend the School and interact with major worldwide experts, aimed at advancing the science of imaging, the development of novel visualization technologies, to increase the understanding of pathophysiology and metabolism and measure therapeutic efficacy of drugs; remote sensing, ladars, lidars, space instrumentation, semiconductor inspection, material characterization; exploring multifaceted design principles and new applications of imaging that would lead ultimately to novel devices and technologies, standards and metrology with unsurpassable image quality, scalability, reconfigurability, high throughout, and miniaturization capabilities.

At this stage, the IEEE International School of Imaging focuses on the following four areas:

Medical Diagnostics, Theranostics, Pharmaco-Imaging in Drugs and Medicine

- Medical diagnostics
- Translational theranostics
- Pharmaco-imaging in drugs and medicine
- Bioinformatics
- Neuroimaging
- Robotics, and surgical guidance imaging
- Molecular imaging and biology
- Nanooncology and nanoscale flow-mediated medicine tumors strategies
- Biomarkers, metabolites, omics and translational imaging and spectroscopy
- Image processing and pattern recognition
- Miniaturization of diagnostic and analytical devices

Imaging Modalities and Techniques

- Cameras, microscopy and displays
- Polarimetry, multispectral imaging
- Immunohistochemical Digital Imaging
- MRI, PET, SPECT, CT, ECT Tomography
- Photoacoustic Molecular Imaging
- Omics imaging
- Translational Clinical Imaging Research
- Microwave imaging and inverse scattering
- Ultrasound and laser acoustics
- Multimodality Imaging
- Energy harvesting and imaging technologies
- Emerging imaging trends

Remote Sensing, Space Defense and Commercialization of Space

- Defense and space surveillance imaging technologies
- Automatic Target Recognition (ATR)
- Advanced space instruments and satellite imaging
- Remote Sensing, ladars, and lidars
- Sensors and sensor systems for aerospace applications
- Image processing and pattern recognition

Visualization, Inspection and Manufacturing

- Semiconductor wafers, nanomaterials and composites
- Biomaterial, bionanocomposite characterization
- Sensors and image acquisition
- Illumination architectures
- In-line inspection rapid, whole wafer defect detection
- Off-line inspection for defect review and failure analysis,
- Techniques for critical dimension (CD) and overlay metrology
- Automatic defect classification
- Pharmaceutical and food processing vision Inspection Systems
- Image processing and pattern recognition

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Lecturers

Lecture 1: Defining the Cutting Edge: The use of molecular imaging to aid in tumor resections

James P. Babilion, PhD; Professor of Radiology, Biomedical Engineering, and Pathology; Case Western Reserve University; Case Center for Imaging Research

Lecture 2: Dynamic and parametric whole-body Positron Emission Tomography (PET): A pathway to quantitative molecular imaging enabling theranostic applications and personalized treatment

Nicolas A. Karakatsanis, PhD; PET Instrumentation and Neuroimaging Laboratory Division of Nuclear Medicine; Hospital Faculty of Medicine, University of Geneva, Genève, Switzerland

Lecture 3: Instrumentation Design and Techniques in Drug Discovery Imaging and Characterization of the Pharmaceutical Effects of Drugs

George Giakos, Professor and Chairman, Ph.D, Electrical and Computer Engineering, Manhattan College, NY, USA; Tannaz Farrahi, Department Of Electrical and Computer Engineering, University of Virginia, USA; Aditi Deshpande, University of Akron, USA

Lecture 4: New look at Image Quality Assessment and Standardization Methods

Sos Agaian, Ph.D., Professor, The University of Texas Health Science Center, USA

Lecture 5: Electrical Capacitance Processes for Imaging Industrial Processes

Wuqiang Yang, Ph.D., Professor, University of Manchester UK, Lihui Peng, Ph.D., Professor Tsinghua University, China; Haigang Wang, Ph.D., Professor Chinese Academy of Sciences

Lecture 6: Dynamic Contrast Enhanced Imaging

Costas Balas, Ph.D., Professor, TUC/Electronic and Computer Engineering, Greece

Lecture 7: Image construction by using electromagnetic diffracted wavefields: Basic concepts, theory and applications

Matteo Pastorino, Ph.D., Professor, University of Genoa, Italy

Lecture 8: Analytic reconstructions for PET, SPECT, MEG, and EEG

Athanasios Fokas, University of Cambridge, UK; George Katsis, Academy of Athens, Greece

Technical Committees

Image Processing

Nikos Paragios, Ecole Centrale de Paris & Ecole des Ponts-Paris Tech (France)
Sos Agaian, The University of Texas Health Science Center (USA)
Michalis Zervakis, Technical University of Crete (Greece)
Jacob Scharcanski, Federal University of Rio (Brazil)

Pattern Recognition

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Cancer Research

James Basilion, Case Western Reserve University (USA)

Imaging Devices and Systems

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Lijun Xu Beihang University (China)
Costas Balas, Technical University of Crete (Greece)

Proteonomics, Bionanocomposites

Jin Montclare, NYU Polytechnic School of Engineering (USA)

Omics Imaging/Pharmaceutical Imaging/Drug Characterization

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Xiaolan Deng, China Medical University, (China)
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Sos Agaian, The University of Texas Health Science Center (USA)
Jin Montclare, NYU Polytechnic School of Engineering (USA)

ECT

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Electromagnetics

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Abbas Omar, University of Akron (USA)

Polymer Nanocomposites

Alamgir Karim, Polymer Science, University of Akron (USA)

Medical Imaging

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Medical Signals/Neuroimaging

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Apostolos Georgopoulos, University of Minnesota (USA)
Dimitris Metaxas, Rutgers University (USA)

Medical Imaging Sensors

George Zentai, Varian Medical systems (USA)

Robotics/Computer Vision

Mel Siegel, Carnegie Mellon (USA)

Lasers and Optics

Cesare Svelto, Polytechnic of Milan (Italy)

Signal Processing

Kostas Berberidis, University of Patras (Greece)

Location:

The Greek island of Santorini located in the Aegean sea is one of the most beautiful islands and best travel destinations in the world. It has beaches with sapphire blue water and vibrant and splendid destinations such as the capital Fira and others like Oia, Kamari, etc. This picturesque island has all several exciting things to offer travelers and has been named one of the best travel destinations by *Travel & Living magazine* and *BBC*.





Venue:

The El Greco resort is one of the most prestigious hotel-resorts in Santorini and has become one of the prime choices for luxury accommodation. It is situated right beside the capital town of Fira and is minutes away from magnificent beaches and villages of Monolithos, Kamari and Perissa. El Greco provides various kinds of facilities such as swimming pools, conference center, fitness center, a restaurant with a beautiful ambience, TV lounge, garden, Wi-fi etc. This resort offers one of the best locations in Santorini and various facilities, making it the optimum choice for travelers.

