



IEEE INTERNATIONAL SCHOOL OF IMAGING (ISI)

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IEEE Instrumentation and Measurement Society

TC-19 Technical Committee on Imaging Systems and Measurements

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The inauguration of the IEEE International School of Imaging (ISI) will take place in Beijing, China, on October 22, 2013. The objectives of the IEEE International School of Imaging (ISI) is to explore physical, molecular, biochemical and engineering imaging principles, aimed at the advancement and generation of new knowledge related to the design, development, and applications of imaging and spectroscopy technologies, medical diagnostics, bioanalytical instrumentation and techniques.

Engineers, scientists and medical professionals from Industry, Government, Academia, and Medical Institutions who want to bridge technology and clinical disciplines in the multidisciplinary areas of imaging and medical diagnostic device industry, will attend the School and interact with major worldwide experts, aimed at exploring multifaceted design principles and new applications of imaging and medical diagnostics; that would lead to devices and technologies with enhanced image quality, scalability, reconfigurability, and miniaturization capabilities.

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

Clinical Diagnostics and Theranostics

- Medical diagnostics and theranostics devices and techniques
- Miniaturization of diagnostic devices and mass spectrometry systems
- Electroluminescence, bioluminescence, and amplification fluorescence
- Biomarkers, proteomics, imaging genomics, sequencing, and microfluidic imaging chips
- Nanoscale materials, polymer nanostructures, nanophotonics, and nanomedicine
- Image processing and pattern recognition

Space Defense

- Defense and space surveillance imaging technologies
- Remote Sensing, Ladars, and Lidars
- Advanced space instruments and satellite imaging
- Multilayered imaging technologies
- Bioinspired Imaging, robotics, guidance and control
- Image processing and pattern recognition

Material Inspection in Manufacturing

- Semiconductor wafers, nanomaterials, composites, and corrosion
- 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

Imaging Modalities and Techniques

- Cameras, microscopy and displays
- Polarimetry, multispectral imaging
- Tomography
- Ultrasound and laser acoustics
- Multimodality Imaging
- Energy harvesting and imaging technologies
- Emerging imaging trends

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Sergio Saponara, University of Pisa (Italy)
Christo Christodoulou, University of New Mexico (USA)
Alamgir Karim, University of Akron (USA)

Lecture Series-Guest Speakers

Qionghai Dai, Tsinghua University, China
Ultra-fast Lens-less Computational Imaging

Edmund Lam, University of Hong Kong, Hong Kong, China
Computational Optical Sensing and Imaging Technology (COMPOSITE): Algorithms and Applications

Wugiang Yang, IEEE Fellow, University of Manchester, UK
Image Reconstruction Algorithms for ECT

George Zentai, IEEE Fellow, Varian Medical Systems, USA
The Multiple Uses of X-Rays – From Medical Imaging to Cancer Treatment and Homeland Security

Lijun Xu, Beihang University, Beijing, China
Tomographic Imaging Applied in Complex Flowing Processes

George Giakos, IEEE Fellow, Tannaz Farrahi, Aditi Deshpande, Chaya Narayan
The University of Akron, USA
Innovation through Imaging: From Digital Pathology to Genome Imaging

Michalis Zervakis and George Livanos,
Technical University of Crete, Chania, Greece
Automated analysis of Immunohistochemical Images as a Tool for Disease Treatment and Diagnosis

Zhao Huijie, School of Instrumentation Science and
Optoelectronics Engineering, Beihang University, China
In-situ 3D measurement system combined with CNC machine tools

Matteo Pastorino, IEEE Fellow, University of Genoa, Italy
Emerging Electromagnetic Imaging Techniques for Non-Destructive Testing and Industrial Application

Gang Li, Peking University School and Hospital of Stomatology, Beijing, China
Clinical Application of Cone-Beam Computed Tomography in Dentistry

Kexian Xie, DDS, Peking University 3rd Hospital, Beijing, China
The Use of Cone-Beam Computed Tomography in Diagnosis and Treatment of Endodontic Diseases
