



OPTO-CH POLITEIA 2015 workshop

May 4 - 10, 2015

Laser technologies for Cultural Heritage analysis, diagnostics and conservation

IESL-FORTH Heraklion, Crete, Greece

Join us for an exciting journey to Crete to become acquainted with the latest developments on non-invasive optical technologies and explore their field applications in Cultural Heritage conservation

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Applications deadline
February 15, 2015

Notice of acceptance
March 15, 2015

Contact

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What Does it Cover?

OPTO-CH 2015 POLITEIA thematic workshop series combine lectures from experts on modern laser diagnostic and analytical techniques, as well as, laser conservation methodologies, with practical demonstrations and laboratory hands-on sessions. Two days of field tests and experiments on-site at selected monuments in Crete are also foreseen. The topics covered include:

- Materials analysis with Laser Spectroscopy (LIBS, Raman)
- Optical Coherence Metrology for Structural Diagnosis
- Imaging and Mapping; multispectral, multiphoton and THz
- Laser Cleaning

What Will You Learn?

- The general concepts & principles of operation of each technique with emphasis on their analytical & diagnostic potential
- How optical and laser technologies can be used in CH conservation on the basis of discussion on selected examples & case studies
- How these techniques have been introduced to the conservation practice at world heritage sites & monuments in Greece
- You will experience the capacities of the technologies presented in the lab (identification & characterization of pigments, salts, rocks, metals, mortars, wall paintings, adhesion cases, etc) through field tests and experiments on-site.

Who Should Attend?

- Graduate students (or Undergraduate Seniors)
- Young Researchers in Cultural Heritage and Conservation Science

This workshop is organised in the framework of the 'POLITEIA' (POLItimos-TEchnologia, New Technologies in the Research, Study, Documentation and Access to the Information for Cultural Heritage Objects and Monuments) research project, Action KRIPIS, project No MIS-448300 (2013SE01380035) that was funded by the General Secretariat for Research and Technology, Ministry of Education, Greece and the European Regional Development Fund (Sectoral Operational Program: Competitiveness and Entrepreneurship, NSRF 2007-2013)/ European Commission.



WORKSHOP OUTLINE

Days 1-5 Intro, Basics and Lab sessions

DAY 1 Historic, cultural and monumental context. Conservation considerations in Cultural Heritage research.
Materials context
Materials and finishes with emphasis in the Eastern Mediterranean Cultural landscape. Chemistry and physics of color and surface morphology.
Optics and Imaging (the seen and the unseen)
Basic optics and imaging physics, Multi-spectral imaging, Case studies, Practical session on imaging.

DAY 2 **Laboratory and Laser Safety**
Elemental Analysis by LIBS
LIBS basics, Case studies, Practical session.
Participants presentations

DAY 3 **Molecular Analysis by Raman microscopy**
Raman basics, Case studies, Practical session.
Holographic interferometry
Holography and interferometry basics, Case studies, Practical session.
Visit at the Archaeological Museum, Heraklion

DAY 4 **Laser conservation**
Basics of laser ablation removal of materials , Case studies, Practical session. Demonstration of laser cleaning
Visit at Knossos Palace

DAY 5 **Special lectures, Wrap up and conclusions, Overview of site visit**

Days 6-7 Work on site

DAY 6 **Site context, meaning and values**
Campaign planning, Dividing problems based on materials and pathologies. Assembling working groups
Setting up of equipment and documentation workstations, Start working

DAY 7 **Working on site and data interpretations**, Interaction with Ephoria staff. Preparation of short reports.
Campaign overview. Conclusions. What we learned. Return to Heraklion.