



# OPTO-CH 2017 workshop

 **FORTH**  
INSTITUTE OF ELECTRONIC STRUCTURE AND LASER

Heraklion, Crete, Greece

[www.optoch2017workshop.iesl.forth.gr](http://www.optoch2017workshop.iesl.forth.gr)

**Laser technologies in  
Cultural Heritage  
analysis, diagnosis and  
conservation**

**June 19-24, 2017**

The **aim** of the OPTO-CH thematic workshop is to introduce participants to applications of advanced laser technologies in Cultural Heritage (CH) science, diagnostics and conservation. Lectures from experts on modern laser diagnostic, analytical techniques and cleaning methodologies are combined with practical demonstrations, hands-on sessions in the laboratory and on-site field tests.



## OPTO-CH 2017 workshop

June 19-24, 2017

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

### What Does it Cover?

OPTO-CH 2017 training workshop combines 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, DR )
- Optical Coherence Metrology for Structural Diagnosis
- Imaging and Mapping; multispectral, multi-photon, photo-acoustic and THz
- Laser Cleaning

### What Will You Learn?

- The general concepts & principles of operation for 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
- ✓ Professionals in Cultural Heritage

### OPTO-CH 2017 Workshop

**June 19-24 2017**

Applications deadline  
**March 19, 2016**

Notice of acceptance  
**March 22, 2016**

For info related to fees & registration please check the workshop's homepage

Certificates of attendance will be given to all participants

### Contact

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# WORKSHOP' S OUTLINE

## Days 1-4 Intro, Basics and Lab sessions

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**DAY 1**      **Historic, cultural and monument related 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.  
**Participants presentations**  
**Optics and Imaging (the seen and the unseen)**  
Basic optics and imaging physics, Multi-spectral imaging, Case studies, Practical session on imaging.

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**DAY 2**      **Laboratory and Laser Safety**  
**Laser Spectroscopy for material analysis**  
**Elemental Analysis by LIBS and DR**, LIBS and DR basics, Case studies, Practical session.  
**Molecular Analysis by Raman microscopy**, Raman basics, Case studies, Practical session.

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**DAY 3**      **Holographic interferometry**  
Holography and interferometry basics, Case studies, Practical session.

### **Special Lectures**

Visit at the Archaeological Museum of Heraklion/ Knossos Archaeological site

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**DAY 4**      **Laser conservation**  
Basics of laser ablation removal of materials, Case studies, Practical session. Demonstration of laser cleaning  
**Special lectures**  
**Wrap up and conclusions**  
**Overview of site visit**  
Visit at the Archaeological Museum of Heraklion/ Knossos Archaeological site

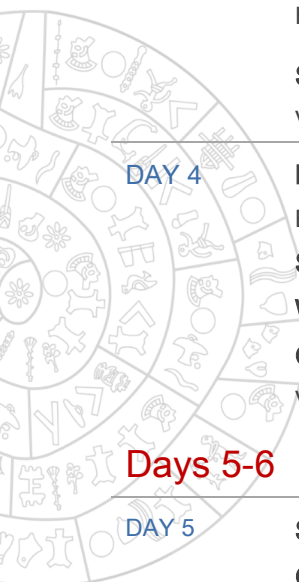
## Days 5-6 Working on-site

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**DAY 5**      **Site context, meaning and values**  
**Campaign planning**, Dividing problems based on materials and pathologies. Assembling working groups  
Setting up of equipment and documentation workstations.  
**Working on site and data interpretations.**

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**DAY 6**      **Working on site and data interpretations,**  
Interaction with the staff of the Ephorate of Antiquities of Heraklion.  
**Campaign overview. Conclusions. What we learned.**  
**Return to Heraklion.**





## Contact

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