

## REGISTRATION

Please use the on-line registration form:

<http://iuca.unizar.es/science-and-past-registration>

Registration fees:

REGISTRATION PERIOD	DATE	SENIOR REGISTRATION FEE	STUDENT REGISTRATION FEE
Early registration	Extended to November 20, 2015	200 €	110 €
Late registration	from November 21, 2015	275 €	180 €

Registration fees include:

- Attendance to course sessions
- Program and course documentation
- Certificate of attendance
- Coffee breaks

### PAYMENT:

Payment (in euro) should be made by bank transfer to:

Bank: Ibercaja

IBAN: ES 82 2085 0111 79 0330788546

Swift code: CAZRES2Z

Please, include clearly your name in the bank transfer boucher

### CONFIRMATION OF REGISTRATION:

Your registration will be confirmed when the payment of the registration fee is received (please, send copy of the bank transfer to [iuca@unizar.es](mailto:iuca@unizar.es))

### Course coordinator:

Dr. Josefina Pérez-Arantegui  
(IUCA, University of Zaragoza)

### FURTHER INFORMATION:

Environmental Sciences Institute (IUCA),  
University of Zaragoza (Spain)  
c/ Pedro Cerbuna, 12. 50009 Zaragoza  
Email: [iuca@unizar.es](mailto:iuca@unizar.es)  
<http://iuca.unizar.es>



# SCIENCE & PAST

## Light-matter interactions in heritage studies

7th Interdisciplinary Course

**NOVEMBER 30 - DECEMBER 2, 2015**

University of Zaragoza (SPAIN)



INTERNATIONAL YEAR OF LIGHT 2015

**REGISTRATION**  
<http://iuca.unizar.es>  
Deadline for early registration: NOVEMBER 20, 2015  
Deadline for financial support applications: NOVEMBER 6, 2015

**ORGANIZATION**  
Environmental Sciences Institute – IUCA  
(University of Zaragoza)  
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Twitter: @IUCAunizar



### ATTENDEES PROFILE

Students, researchers and professionals in **chemistry, physics, geology, archaeology, conservation science, palaeontology...** to acquire a solid knowledge on the state of art of light-matter interactions in heritage studies

VENUE: Faculty of Sciences  
Campus San Francisco. University of Zaragoza

# LIGHT MATTER INTERACTIONS IN HERITAGE STUDIES

## 7TH INTERDISCIPLINARY COURSE

Celebrating the International Year of the Light, the course is focused on the modern methodologies that use light-matter interactions and on the role that they play in the study of cultural heritage problems.

The lectures are addressed to students, researchers and professionals in chemistry, physics, geology, geography, archaeology, conservation science, palaeontology, etc., to acquire a solid knowledge on the state of art of this topic.

Program and activities include topics on:

- New developments on X-Ray Fluorescence and X-Ray imaging
- Synchrotron radiation in Art and Archaeology
- FTIR and Raman spectroscopy
- Colour and spectrometry
- Imaging cultural heritage

### Monday, 30th November

11:00. Registration

11:25. Presentation

11:30. "X-ray diffraction and X-ray fluorescence: Portable equipments. Comparisons with other apparatus and facilities. Examples of application (Part I)".

**Adrián Durán** (Universidad de Navarra, Spain)

13:00. Discussion

*Lunch*

16:00. "X-ray diffraction and X-ray fluorescence: Portable equipments.

Comparisons with other apparatus and facilities. Examples of application (Part II)". **Adrián Durán** (Universidad de Navarra, Spain)

17:30. Discussion

### Tuesday, 1st December

9:00. "From the laboratory to the field: vibrational spectroscopy".

**Kepa Castro** (Universidad del País Vasco, Spain)

10:30. Coffee break

11:00. "When colour speaks: the application of UV-visible reflectance spectrophotometry to the characterisation of cultural heritage items. Part I".

**Maurizio Aceto** (Università degli Studi del Piemonte Orientale, Italy)

12:00. "When colour speaks: the application of UV-visible reflectance spectrophotometry to the characterisation of cultural heritage items. Part II".

**Maurizio Aceto** (Università degli Studi del Piemonte Orientale, Italy)

13:00. Discussion

*Lunch*

16:00. "In-situ non-invasive tests with FORS instruments. Some practical applications".

**Maurizio Aceto** (Università degli Studi del Piemonte Orientale, Italy)

17:30. Discussion

### Wednesday, 2nd December

9:30. "X-ray imaging and microtomography by Synchrotron Radiation. Part 1".

**Dennis Voeten** (European Synchrotron Radiation Facility, France)

11:00. Coffee break

11:30. "X-ray imaging and microtomography by Synchrotron Radiation. Part 2".

**Dennis Voeten** (European Synchrotron Radiation Facility, France)

13:00. Discussion and Concluding remarks