

Cursos
de verano
Santander
23

19 a 23
de junio

Universidad
Internacional
Menéndez Pelayo

UIMP

ESCUELA

VI International
School on Light
Sciences and
Technologies

Light in
Health and
Medicine

Ciencia
y Tecnología

Horario y dirección de contacto

Mañana de L a V: 9.00 a 14.00 h

Santander
Campus de Las Llamas
Avda. de Los Castros, 42
39005 Santander
Tlf.: 942 29 87 00

Madrid
Calle Isaac Peral, 23
28040 Madrid
Tlf.: 91 592 06 31 / 33

A partir del 19 de junio

Mañana de L a V: 9.00 a 14.00 h
Tarde de L a J: 15.30 a 18.00 h

Santander
Palacio de la Magdalena
39005 Santander
Tlf.: 942 29 88 00

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Colaboración



Este curso es susceptible de ser reconocido como formación permanente del profesorado para el personal docente de los centros que imparten las enseñanzas reguladas en la Ley Orgánica 2/2006, de Educación, en base al artículo 21 y 29 de la Orden EDU/2886/2011, de 20 de octubre, por la que se regula la convocatoria, reconocimiento, certificación y registro de las actividades de formación permanente del profesorado.

Código 65EF - ETCS: 2,5

Dirección

José Miguel López-Higuera
Head of Photonic Engineering Group of UC, CIBER-BBN
and IDIVAL, Spain

Secretaría

María Ángeles Quintela Incera
Photonic Engineering Group of UC, CIBER-BBN and
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Photonics is the science and technique of generating, controlling, propagating, storing and detecting light waves and photons, which are particles of light. Photonics is the field of Light Sciences and Technologies.

Light plays a vital role in our daily lives and is being an imperative cross-cutting discipline of science in the 21st century. It has revolutionized medicine, made possible international communication via the internet, enabled sustainable development and provided solutions to global challenges in education, energy, environment and agriculture. It continues to be a key discipline to link cultural, economic and political aspects of the global society. Today, it is widely accepted that the present century will depend as much on Photonics as the 20th century depended on electronics.

The United Nations Organization (UN) has recognized the **key or essential** role of Light Sciences and Technologies to raise global awareness and proclaimed 2015 as the International Year of Light and Light-based Technologies (IYL 2015). Aware of the key role of Photonics in the economies and in the societies of the XXI century, the UIMP has decided to create the “**International School on light Sciences and Technologies (ISLIST)**”.

This International school is envisioned to be a worldwide top International forum (every fourth week of June) on Light Sciences and Technologies in the framework of a “special top university” that is recognized as the “university of universities” and in a privileged environment “the Royal Magdalena Palace” in Santander, Cantabria, Spain. Each edition of this international school will have an intensification or main core in a specific application area and additional current hot topics. **Light in Health and medicine** is the core of this 2023 edition: VI-ISLIST.

ISLIST has been conceived as a great opportunity to review, actualize and improve the knowledge of **scientists, professionals and technicians**; to contribute to the education and to enhance the motivation of **PhD students**; to offer an ideal frame for **networking** and also to contribute to the education of the **citizens**. It is also a great opportunity to ensure that **policymakers, entrepreneurs**, and other key “actors” will be aware of the problem-solving potential of Photonics.

Seventeen (17) **highly renowned** professors and researchers from the most prestigious worldwide institutions and, as well, responsables of most reputed international Photonic Scientific Organizations and some politicians will participate in this meeting.

Apertura matrícula

Desde el día 17 de abril de 2023
(plazas limitadas)

Solicitud
online





Monday 19

- 10.15 h Opening Ceremony
- 11.00 h Opening talk. Deep-learning enabled computational microscopy and diffractive imaging
Aydogan Ozcan
Bio&Nano-Photonics Laboratory
University of California, Los Angeles, USA
- 12.10 h Light in Health and Medicine: a general overview
José Miguel López-Higuera
- 15.30 h Round Table
Light in diagnostics: Challenges to face on Challenges to Face in *Point-of-Care Diagnostic Devices Based on Smartphone Platforms*
Aydogan Ozcan
Optoacoustic Imaging in Pharmacology
Angelos Karlas
Technical University of Munich (TUM)
Lighting to improve the way of older adults
Mariana G. Figueiro
Director of Light and Research Center, (LHRC)
Icahn School of Medicine, Mount Sinai, NY, USA
Light-based techniques to reach very effective, efficient and socialized diagnosis of humans' vision
Pablo Artal
Director of Optics Laboratory
University of Murcia, Spain
Moderación
José Miguel López-Higuera



Tuesday 20

- 09.30 h LIGHT IN DIAGNOSTICS AND MOOD
Listening to Light: Advances in Optoacoustic Imaging
Angelos Karlas
- 11.00 h Light's effects on human health, well-being, and behaviour
Mariana G. Figueiro
- 12.10 h Raman based Spectroscopic techniques for Biomedical diagnosis Life Sciences
Michael Schmitt
Group Leader of Institute of Photonic Technology
Jena, Germany
- 15.30 h LIGHT TECHNOLOGIES IN HUMAN VISUAL SYSTEM
Light based techniques to evaluate vision
Pablo Artal

16.40 h Light based technologies for vision correction
Susana Marcos
D. R. W. Director of Center for Visual Science
The Institute of Optics, University of Rochester, NY, USA



Wednesday 21

- 09.30 h LIGHT IN TRAPPING, DIAGNOSTIC AND TREATMENT
Optical Tweezers: trapping and manipulation for biomedical applications
Kishan Dholakia (Videoconferencia)
Director of Centre of Light for life and School of Biological Sciences
University of Adelaide, Australia
- 11.00 h Optical Diffuse Systems for effective Management of breast cancer
Paola Taroni
Head of Photonics for health, Food and Cultural Heritage
Politecnico di Milano, Italy
- 12.10 h Bio-Photonic Sensors after the COVID-19 pandemic
Laura Lechuga
Head of Nanobiosensors and Bioanalytical Applications Group
ICN2, CSIC, CIBER-BBN and BIST, Barcelona, Spain
- 15.30 h LIGHT IN THE HUMAN'S BRAIN
All-optical control of neuronal circuits by wave front shaping and optogenetics
Valentina Emiliani
Director of Photonics Department
Head of WFEMO
CNRS Vision Institute, Paris, France
- 16.40 h Noninvasive measurement of deep tissue hemodynamics and oxygen metabolism at the intensive care
Turgut Durduran
Head of the Medical Optics Group
Instituto de Ciencias Fotónicas, ICFO, Barcelona, Spain



Thursday 22

- 09.30 h LIGHT IN SUPERVISION, SENSING AND TREATMENT
Optical Fiber technology on Biomedical Applications
Alexis Méndez
President of MCH Engineering LLC
Alameda, California, USA
- 11.00 h Light to fight cancer and infectious diseases: The Yin and Yang of PDT
Tayyaba Hasan
Director of Harvard Medical School and MIT
Wellman Center for Photomedicine, Boston, USA



Friday 23

- 12.10 h Photobiomodulation for effective treatment of skin lesions
Alessandro Corsi
Director of Simple Vulnology Unit at the IRCCS San Raffaele Hospital, Milan, Italy
- 15.30 h Round Table
Treatments and tools using light-based technologies
Light and silk-based biopolymers in acular regeneration (Silk-Eye Project)
Susana Marcos
Laser based technology for regenerative medicine
Carlos Molpeceres
Director of Laser Centre
Polytechnic University, Madrid, Spain
Optogenetic for light control of biological Systems
Valentina Emiliani
PDT translation to Clinic
Tayyaba Hasan
How does the light exposure affect memory and cognitive vitality?
Mark Rea
Icahn School of Medicine
Mount Sinai, New York, USA
Moderación:
José Miguel López-Higuera



LASER LIGHT IN REGENERATIVE AND CIRCARDIAN RHYTHMS

- 09.30 h Laser fabrication technologies helping the regenerative medicine
Carlos Molpeceres
- 11.00 h Bridging the science of circadian rhythms to real-world applications
Mark Rea
- 12.15 h Closing Remarks, Announcement of ISLiST 2024



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