

Press release

Light for the industry

- ▶▶ *IK4-TEKNIKER and UPV/EHU are to jointly organise the seminar “Photonics in the industrial sector: Key technological elements for shedding light on business”*
- ▶▶ *During the event, applications and successful cases of lighting technologies used in different sectors such as health care, industry or the food business*
- ▶▶ *The seminar will take place on December 2 at the Bizkaia Aretoa conference centre in Bilbao*

(Eibar, Basque Country. 26 November, 2015).- The industrial opportunities offered by Photonics, a technology that is used to detect, monitor and generate light particles, will be discussed on December 2 in Bilbao. [IK4-TEKNIKER](#) and [UPV/EHU](#) are the two organisers of an event that will take place in Bilbao at the Bizkaia Aretoa venue that is entitled “Photonics in the industrial sector: Key technological elements for shedding light on business”.

Experts from both organisations as well as from the prestigious the German [Fraunhofer IPMS](#), from the [Materials Physics Center](#) –a joint body of which CSIC and UPV/EHU form part- and from [SECPhO](#) (the Southern European Cluster in Photonics & Optics) a cluster that brings together optics and photonics in the south of Europe, will discuss applications connected to this discipline in the industrial sector and describe successes obtained in different areas.

This seminar, that lies within the scope of the [UPV/EHU|IK4-TEKNIKER learning environment](#), will take place within the framework of the [International Year of Light and Light-Based Technologies](#) declared by United Nations to underscore the importance of this element for human life and wellbeing and how it will produce further developments in terms of science and technology.

The programme

The seminar will open with a welcome speech given by the rector of UPV/EHU, Iñaki Goirizelaia, and the General Director of IK4-TEKNIKER Alejandro Bengoa and will be followed by outstanding speakers such as Heinrich Grueger from the Fraunhofer IPMS and Javier Aizpurua, from the Materials Physics Center of (CSIC-UPV/EHU).

The next session will focus on specific applications and experiences. Members of IK4-TEKNIKER and UPV/EHU will offer information on successful cases such as photonic biosensors used for diagnostic purposes in the health care sector; laser in the processing of materials applied to macro and micro-processes, on-line fluid monitoring solutions in the industrial, food and health sectors; random laser sources; devices based on special fibre optics. Scientific posters will also be presented during the event together with applications and patents covering vision, metrology, coatings and manufacturing.

IK4-TEKNIKER capabilities

IK4-TEKNIKER possesses significant capabilities in the field of photonics that have resulted in products, technologies and patents. The seminar “Photonics in the industrial sector: key technological elements for shedding light on business” will feature three presentations from the centre addressing several light-based technologies.

The first presentation entitled “Biosensors based on nanophotonics” will explain how the interaction between light and nanostructures made of different materials can be useful to detect biomolecules that deliver information on diagnostics, prognostics or therapies associated with a disease.

The second lecture, “Beam shaping in material processing using laser” will review some of the beam shaping techniques most commonly applied to material processing in which laser is involved.

Finally, the paper entitled “On-line low cost solutions for spectroscopy and fluorescence” will address the design and manufacture of very low cost photonic solutions for on-line inspection and measurement of physical-chemical parameters.

Photonics

Photonics is a technology allowing for the detection, control and generation of photons, i.e., light particles. The term was first coined in the middle of the 20th century subsequent to the onset of laser and its applications. In general terms, it can be said that the term photonics is a modern denomination for optics that became widespread subsequent to the spectacular growth brought about by the onset and eventual extensive user of laser technology.

In addition to visible light, this discipline explores a broader range of wavelengths, from radio gamma rays, including X rays, to ultraviolet (UV), infrared light (IR) and millimetric waves.

Photonics enhances applications in innumerable sectors: consumer electronics (plasma screens, LEDs, 3D cinema, e-books, mobile phones,...), telecommunications, health (X rays, laser surgery, 3D scanners, echography,...), the manufacturing business (laser cutting and machining), defence and security (thermal cameras, night vision goggles, presence detectors, anti-forgery holograms,...), entertainment (holography, laser shows, internet, TV sets,...), automotive (proximity sensors, car parking systems,...), etc.

Researchers are currently looking into whether photonics might replace electronics in the future. As photons are approximately 2,000 times smaller, they are much faster than electrons and this allows them to transmit, handle and store information much more efficiently. This application could possibly give rise to a revolution in the capacity of our devices as regards the storage, handling and transmission of information.

About IK4-TEKNIKER

With experience spanning over 30 years in research into applied technology and its transfer to companies, IK4-TEKNIKER has achieved a high degree of expertise in four major areas (Advanced Manufacturing, Surface Engineering, Product Engineering and ICTs), which enables it to put its state-of-the-art technology at the service of any kind of task.

PROGRAMME

08:30 - 09:15h Welcome

09:15 - 09:30h

- Iñaki Goirizelaia | Rector of the UPV/EHU
- Alejandro Bengoa | General Director of IK4-TEKNIKER

09:30 - 11:00h KEYNOTE SPEAKERS

Chairperson: Juan Manuel Zorrilla | Aula UPV/EHU | IK4-TEKNIKER

- Heinrich Grueger | FRAUNHOFER IPMS
- Javier Aizpurua | CENTRO FÍSICA MATERIALES (CSIC-UPV/EHU)

11:00 - 11:30h Coffee break | Exhibition and posters

11:30 - 13:00h Photonics and applications. Experiences

Chairperson: Loreto Susperregi | Aula UPV/EHU | IK4-TEKNIKER

- Biosensors with photonics | IK4-TEKNIKER
- Photonics for manufacturing | IK4-TEKNIKER
- Low cost solutions on spectroscopy and fluorescence lines | IK4-TEKNIKER
- Random laser light sources | Joaquín Fernández – UPV/EHU
- Devices based on special optical fibres | Joel Villatoro – UPV/EHU
- Sensors based on optical fibre | Joseba Zubia – UPV/EHU

13:00h - 13:30h Closing related to the year of light

CLUSTER OF PHOTONICS and ENTREPRENEURIAL INITIATIVES

13:30h Lunch | Exhibition and posters

Further information

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