# iPhoto-Bio

*Laboratory of Fiber Optics, University of Valencia*
*PIRSES-GA-2013-612267*

VNIVERSITAT D VALÈNCIA

*Workshop*

# In-Line Evanescent Field Fibre Sensors

Co-located with the Workshop Optical Fibres and Signal Processing (FOPS 2015).
Valencia, 4 - 5 November 2015.
Department of Applied Physics and Electromagnetism, Dr. Moliner 50, 46100 Burjassot.
University of Valencia, Spain.

## SPONSORS

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ISIC IMAGEN BIOMEDICA

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## PRESENTATION

This workshop is part of the activities of the International Collaboration on Integrated Photonics Technologies for Advanced Bioapplications (**iPhoto-Bio**, 2014-2018) (Ref.: PIRSES-GA-2013-612267, cordis.europa.eu/projects/rcn/109755_en.html

The objective of the proposed joint exchange programme is to establish long-term stable research cooperation between the partners with complimentary expertise and knowledge. The project objectives and challenges present a balanced mix between industrial application focused knowledge transfer and development and more far-looking studies for potentially ground-breaking applications by exploiting new emerging opportunities with the integration of photonic components and systems:

- photonic crystal fibres,
- fibre tapers and tips,
- fibre gratings,
- micro-nano-bio systems,
- new functional techniques and innovative materials (nanoparticles, biocompatible materials,
- laser micromachining,
- surface Plasmon technology,
- BioMEMs,
- Terahertz detection techniques,

for advanced applications in the health and biomedical (i.e. label-free biosensing, real-time monitoring, early diagnosis of disease), food sectors (quality and safety) and environment.

The iPhoto-Bio workshop is merged with the Workshop Optical Fibres and Signal Processing (FOPS 2015) organized by the Laboratory of Fiber Optics of the University of Valencia.

## OBJECTIVES

- Presentation of works being carried out in the framework of the iPhoto-Bio project.
- Presentation of recent advances on evanescent field fibre devices.
- Discussion of future collaborations.

## PROGRAMME

**Wednesday 4th November**

**Contributions included in the workshop FOPS 2015**

12:20 Chemical and biological optical fiber sensors for environmental applications
Dr. Jose Manuel Baptista
INESC TEC Porto, Portugal.

16:05 Experimental study of optical fibre couplers as refractive index sensors
Dr. Miguel Bello-Jiménez
IICO, Universidad Autónoma de SLP, México.

**Thursday 5th November**

10:00 Welcome
Dr. Miguel V. Andrés
University of Valencia, Spain.

10:05 Progress of the iPhoto-Bio project
Dr. Xianfeng Chen
Bangor University, United Kingdom.

10:25 Simulations of THz evanescent field sensor
Dr. Martina Delgado-Pinar
University of Valencia, Spain.

11:00 Label-free biosensor based on in-fibre gratings
Dr. Xianfeng Chen
Bangor University, United Kingdom.

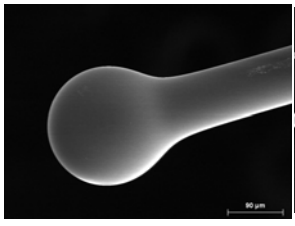
**11:30 Coffee break**

12:00 Experimental THz spectroscopy of the ex-vivo corneal tissue
M. Sc. Wenquan Liu
Shenzhen Institute of Advanced Technology (SIAT)
Shenzhen , China.

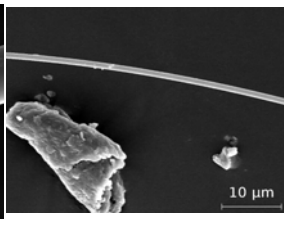
12:35 Analysis of circulating tumor cells from lung cancer patients with multiple biomarkers using high-performance size-based microfluidic chip
M. Sc. Qing Shi
Shanghai Institute of Microsystems and Information Technology (SIMIT), Shanghai, China.

**13:10 Closing remarks**

**13:30 Lunch**



*Microsphere: High Q optical microcavity*




*Nanofibres obtained using a "fusion and pulling" fibre tapering technique*