



UNIVERSITÀ  
DI PAVIA

**Ph.D. Program in Electronics, Computer Science and Electrical Engineering**

## **COURSE**

### **Theranostic Photonics:Sensing, Diagnostic, and Therapeutic Applications of Lasers**

***Proff. V. Bello e P. Minzioni***

**OBJECTIVES:** The course will discuss some of the emerging fields in the biophotonics landscape, discussing their basic principles and applications. The course will also include an introductory lesson so that all the students can fruitfully attend the lessons on advanced topics.

#### **PROGRAM**

- Initial review: Laser sources and Laser light characteristics
- Optical manipulation techniques
- Blue light therapy, Photodynamic therapy, Photothermal Therapy, Photobiomodulation
- Optical fibers: Biocompatibility and bioresorbability
- Opto-fluidic biosensors for refractive index measurement
- Plasmon-based optical biosensors
- Overview on other opto-biosensing techniques
- Optical biosensing and artificial intelligence

**EVALUATION:** Each student will be asked to choose a topic, analyze a minimum of two papers regarding the chosen field, and then give a short presentation to the class.

**ATTENDANCE:** The course will take place in the BLUE Seminar Room. Students who are not currently in Pavia can contact the professors to receive the ZOOM link

**LECTURES: 10h; CREDITS: 5 CFU**

**DATES:** Jan. 13, 27, 30; (16:00 – 18:00)  
Feb. 02 (14:00 – 16:00), 03 (14:00 – 17:00)

**Ph.D. Coordinator**

**Prof.ssa Ilaria Cristiani**

Seminar in English

WEBSITE: <https://sites.google.com/unipv.it/theranostic-photonics>

EMAIL: valentina.bello@unipv.it; paolo.minzioni@unipv.it