

# MASTER IN PHOTONICS – PHOTONICS BCN EUROPHOTONICS-POESII MASTER COURSE

## PROPOSAL FOR A MASTER THESIS

**Dates: April - September 2017**

**Laboratory: Optoelectronics**  
**Institution: ICFO-The Institute of Photonic Sciences**  
**City, Country: Castelldefels**

**Title of the master thesis: Nano-structured optical surfaces using ultrathin and two-dimensional materials**

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### **Summary of the subject (maximum 1 page) :**

The synthesis of new materials, including 2-D materials such as graphene, and the advances in controlling new masking fabrication processes at the nanoscale are the basis for the development of new designs and added functionalities in surface engineering. Despite the intensive academic research in nano-photonics and the demonstration of its potentials in various fields, significant effort is still needed to fully exploit it at industrial level.

The research will focus on developing optical surfaces and interfaces with unprecedented properties by using advanced concepts and nano-fabrication techniques scalable at industrial level. These include transparent conductors, antireflection display screens, and tunable laser projection screens.

**Keywords: 2-D materials, graphene, tactile and projection display screens**