



MASTER IN PHOTONICS – “PHOTONICS BCN” ERASMUS+ “EUROPHOTONICS”

MASTER THESIS PROPOSAL

Dates: April - September 2019

Laboratory: Optics and Photonics Unit. Department of Applied Physics

Institution: Universitat de Barcelona

City, Country: Barcelona

Title of the master thesis: Just in time calculations in partially coherent and partially polarized beam propagation problems

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Keywords: Partially coherent and partially polarized light beams, tightly focused beams

Summary of the subject (maximum 1 page):

The objective of this project is to develop a Python library intended for beam propagation problems using partially coherent and partially polarized tightly focused fields. This module has to be flexible enough that it can be easily adapted to a variety of problems in this area. Since partially coherent light formalism involves 4-D integrals and convolutions speed is a key variable. This goal might be achieved by developing a smart algorithm, plus the combined use of code optimization and GPU or LLVM programming. The code will be tested in several illustrative examples. This project may involve lab work as well.

Additional information :

- * Required skills: Very good programming capabilities. Excellent lab skills.
- * Miscellaneous:



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**This project is
Pérez Aviñoa, who
group since January 2017.**

**intended for Marcos
has been collaborating in my**