



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

MASTER THESIS PROPOSAL

Dates: April - September 2019

Laboratory: Remote Sensing Lab., CommSensLab

Institution: Dept. of Signal Theory and Communications, Univ. Politècnica de Catalunya

City, Country: Barcelona, Spain

Title of the master thesis: Automatic data inversion platform for near-real time lidar retrievals

Name of the master thesis supervisor: Alejandro Rodríguez Gomez

Email address: alejandro@tsc.upc.edu

Phone number: 934137237

Mail address: UPC, Dept. TSC

c/ Jordi Girona, 1-3, Edif. D4-008
08034, Barcelona, Spain

Keywords: lidar inversion, aerosol optical properties, automatic platform

Summary of the subject (maximum 1 page): The UPC multi-wavelength lidar system, used to monitor the vertical distribution of tiny particles in the atmosphere, is becoming an autonomous system with programmable measurement cycles and rain and aircraft warning sensors. This autonomy has a direct impact on the number of measurements performed which has increased significantly in the last two years. In the meantime the inversion chain, i.e. the algorithmic chain converting the raw lidar measurements into aerosol optical properties, is still a manual process. In this project the student will develop an automatic platform in charge of automatically detect newly saved measurements, convert them in netcdf format, upload them to a European central inversion server, download products and plots, and feed the UPC local database and other European databases linked to international projects in which the RSLab is participating.

Additional information:

* Desirable skills: background in atmospheric sciences and notions of Matlab and LabVIEW would be appreciated.

* Miscellaneous: The UPC closes in August, but the student will have full access to his/her office and should be able to work on his/her own during that month.