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Master in Photonics – “PHOTONICS BCN” ERASMUS+ “EUROPHOTONICS”

MASTER THESIS PROPOSAL

Dates: April - September 2020

Laboratory : Applied Optics (Engineering Department)

Institution: IRIS TECHNOLOGY SOLUTIONS

City, Country : Castelldefels, Barcelona (SPAIN)

Title of the master thesis: "*From lab to pilot plant, a monitoring LIBS (Laser Induced Breakdown Spectroscopy) system development and validation*"

Name of the master thesis supervisor:

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Keywords : LIBS, monitoring, spectroscopy, pilot plant,

Summary of the subject (maximum 1 page) :

IRIS is an advanced engineering company that specializes in process monitoring and control solutions & novel technologies for process optimization. We are a multidisciplinary team of scientists and engineers involved in different R&D projects related with optical monitoring technologies, circular economy and industry 4.0. We operate in a demanding high performance environment where you will be continually stimulated and you will grow a lot. Up for it?

Laser-induced breakdown spectroscopy (LIBS) is a type of atomic emission spectroscopy which uses a highly energetic laser pulse as the excitation source. The laser is focused to form a plasma, which atomizes and excites the sample. LIBS is a rapid chemical analysis technology that offers compelling advantages compared to other elemental analysis techniques.

The work will be part of a European funded project called MULTICYCLE focus on advanced and sustainable recycling processes and value chains for plastic-based multi materials (<http://multicycle-project.eu/>).

The student will be involved in the development and the validation of the monitoring system including signal optimization through optical and mechanical adjustments.



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Additional information :

* Required skills : Basic knowledge in optomechanics, prototyping and spectroscopy.

* Miscellaneous : Team work, problem solving abilities, curiosity, analytical thinking and a great deal of enthusiasm.