



UNIONE EUROPEA  
Fondo Sociale Europeo



Ministero dell'Istruzione,  
dell'Università e della Ricerca



PhD in Physics - XXXIII cycle

# Development of innovative photoacoustic sensors for industrial and biomedical applications

Industrial partner

## MASMEC

Masmec is a company specializing in precision technology, robotics and mechatronics, applied to the automotive and biomedical sectors.

*Within the PhD project they will collaborate in the implementation of leak sensors in the production line created for external costumers.*

International partner

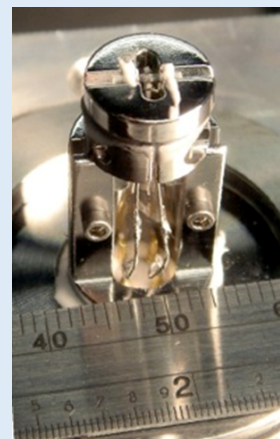
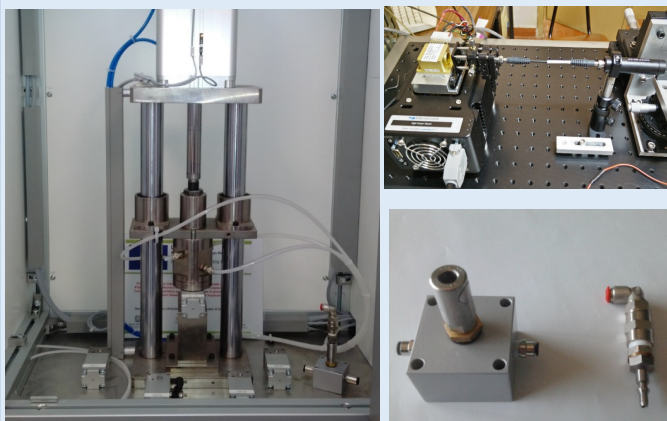
## THORLABS

Thorlabs is a vertically integrated manufacturer of photonics and optomechanic equipments for research, industrial, medical, and defense applications.

*Within the PhD project they will collaborate in the development of compact QEPAS sensors for future commercialisation*

## Description of Activities

Development of a compact QEPAS sensor for the detection of SF<sub>6</sub>. Installation of the leak sensor in the test station and its validation in situ (measure's reliability, efficacy in the response time).



Development of a prototype of a compact QEPAS sensor for the detection of ethylene. Study of the response of the ethylene sensor for breath analysis application with gas matrices that simulate human breath. Coupling of the sensor with a breath sampling system and preliminary test with real samples of human breath.

**Industrial partner supervisor**

Ing. Leonardo Chieco [leonardo.chieco@masmec.com](mailto:leonardo.chieco@masmec.com)

**International partner supervisor**

Dr. Verena Mackowiak [vmackowiak@thorlabs.com](mailto:vmackowiak@thorlabs.com)

**PhD student**

Dott. Arianna Elefante  
[arianna.elefante@uniba.it](mailto:arianna.elefante@uniba.it)

**Supervisor**

Prof. Vincenzo Spagnolo  
[vincenzoluigi.spagnolo@uniba.it](mailto:vincenzoluigi.spagnolo@uniba.it)



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DEGLI STUDI DI BARI  
ALDO MORO



Dipartimento Interateneo di  
Fisica di Bari

"Michelangelo Merlin"

