UNIONE EUROPEA
Fondo Sociale Europeo

Ministero dell'Istruzione, dell'Università e della Ricerca

PON RICERCA E INNOVAZIONE 2014 - 2020

PhD in Physics - XXXIV cycle

Research and development of optoacoustic trace gas sensors for industrial, safety and environmental applications

Industrial partner

MERMEC is a developer of high-tech solutions to the railway and steel industries, focused on rail inspection and diagnostics, signaling and asset management software.

Within the PhD project they will collaborate in the implementation of "on-rail" QEPAS sensors for hazardous gases transport security

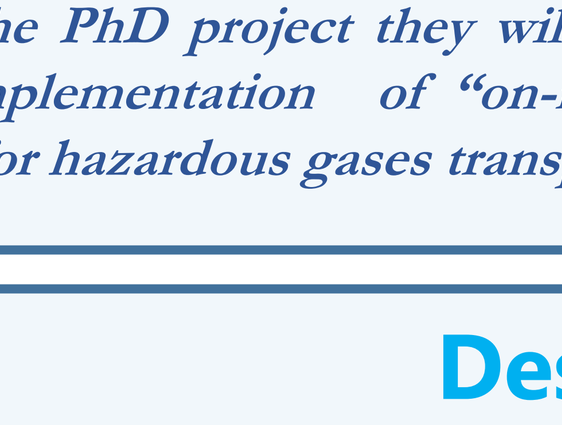
Industrial partner

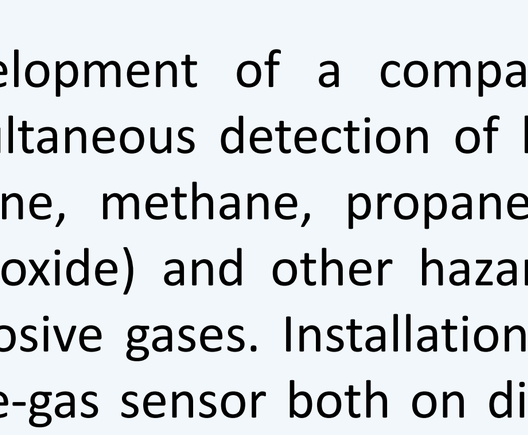
Thorlabs is a vertically integrated manufacturer of photonics and optomechanic equipments for research, industrial, medical, and defense applications.

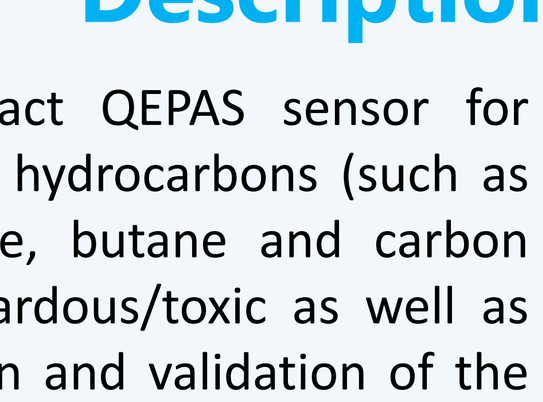
Within the PhD project they will collaborate in the development of compact "on-drone" QEPAS sensors for early fire detection and environmental security

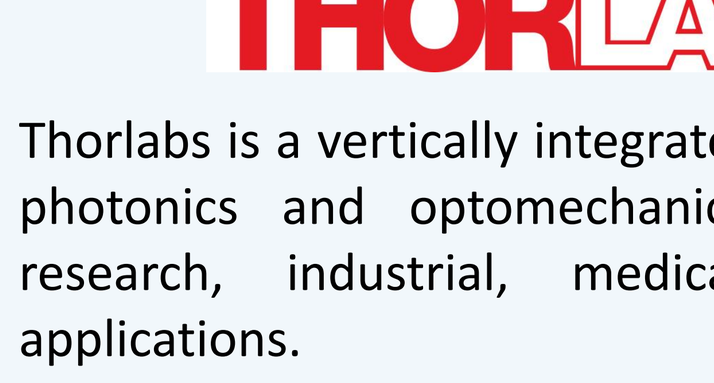
Description of Activities

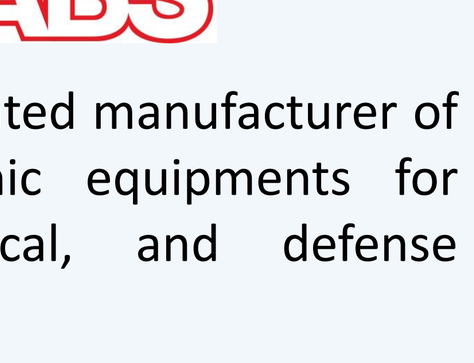
Development of a compact QEPAS sensor for simultaneous detection of hydrocarbons (such as ethane, methane, propane, butane and carbon monoxide) and other hazardous/toxic as well as explosive gases. Installation and validation of the trace-gas sensor both on diagnostic trains as well as on ordinary trains or Undergrounds.

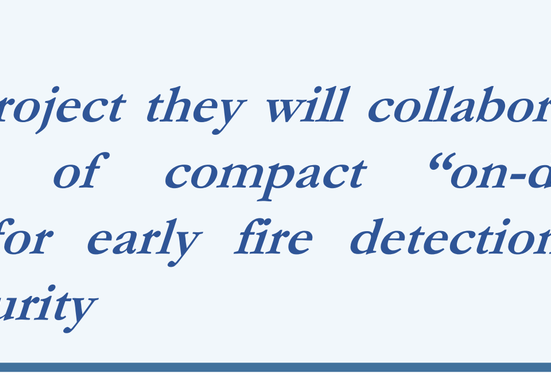












Development of "on-drone" QEPAS smart-sensor for detection of hydrocarbons and other fire-related gases, which have to be able to recognize and follow gradients in gas concentrations and reach locations inaccessible to man both for early fire detection and pipeline/oil extraction monitoring.

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