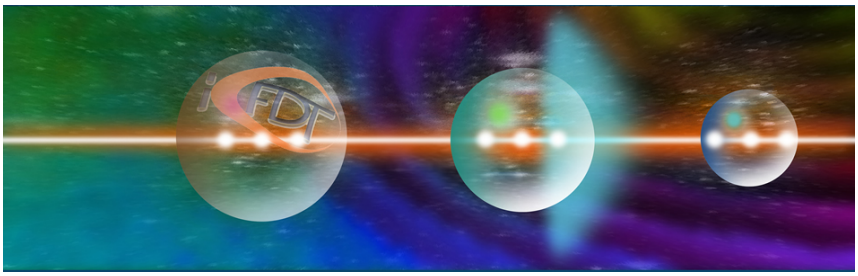

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The Project TELEMACO: Detection, Identification and Concentration measurement of Hazardous Chemical Agents

Thursday, 4 October 2018 14:30 (1h 30m)

Nowadays, the monitoring of air in the environment is crucial to prevent chemical poisoning and disease onsets. Among the several techniques used to monitor the environment, the DIAL method has a very interesting approach. It is a remote technique able to give linear, areal or volumetric information. The range can be very large (until than 2 km) and the response is fast. Contrariwise, the classical DIAL approach is limited to the measurement of only one chemical and it is affected by the influence of other chemicals, which makes the sensitivity and specificity of the method low. In this work, the authors describe the project TELEMACO, which was born to develop a multiwavelength-based DIAL demonstrator able to perform the measurement of several hazardous chemicals in the environment in the same time and to increase the accuracy of the technique decreasing the false allarm. TELEMACO able to scan 66 wavelength lines and, at the moment, it can identify and measure the concentration of 24 chemicals enclose into database. However, the database can be extended with new chemicals compound. The experimental apparatus is thoroughly described as well as its functioning. Then, the most relevant tests performed to validate the functioning of TELEMACO are shown and discussed. The potentialities and the limits of this promising technology are analysed, highlighting its future developments.

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