

SUPSI

AirQuMoS High performance active station for detecting nitrogen dioxide (NO₂) in the air

The problem

NO₂ is formed by reaction of NO, a primary air pollutant produced during fossil fuel combustion. High NO₂ concentrations can produce significant health effects on human populations, leading to photochemical smog formation and decreased visibility. In order to prevent over concentrations of NO₂ it becomes important to provide a widespread online monitoring of the NO₂ concentration especially in densely populated areas or nearby to sources of harmful gases. The most used low cost technologies for detecting NO₂ are affected by both the zero and sensitivity drift over time and aren't really suitable for measurements in the resolution range around 1 ppb and lifetime is limited to 12 months.

The project

The proposed technology for detecting concentration of NO₂ is based on absorption spectroscopy representing an intrinsically absolute measurement methodology suitable for the ppt-ppb range, with high accuracy and stability, without any zero and sensitivity drift over the time and with lifetime up to 10 Years.

The result

The artificially conditions created inside the measuring core permits to reach a very high degree of compactness. The conditioning environment in the optical cavity absorption spectroscopy represent a new powerful versatile technology for detecting also other chemical compounds other than nitrogen dioxide.

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Funding agency

Commission for Technology and Innovation CTI

Partner

New Celio Electronics GmbH

Research domain

3 Innovative products and processes
 6 Social systems and public health

