

## **CEA-Leti and Partners Target Innovative Device for Indoor Air Quality Control and Non-invasive Diagnosis of Tuberculosis**

*Uses Include Air Pollution Control in Schools and Hospitals  
And Early Diagnosis Of Infectious Diseases through Analysis of Human Breath*

GRENOBLE, France – December 2010 – CEA-Leti today announced the launch of the new project COVADIS, aimed at developing an on-site, highly sensitive system to detect and quantify volatile organic compounds (VOCs) in ambient air or human breath.

CEA-Leti's partners in this project, which is supported by the French Centers of Excellence Lyon Biopole, Advancity and Axelera, are:

- Ethera (project coordinator), a startup that develops and sells indoor air-quality control systems
- bioMérieux, an industrial leader in medical diagnosis
- Pleiades Technologies, a developer of optical readers, and
- The Francis Perrin Laboratory (CEA/CNRS common lab)

The system is based on a simple and inexpensive technology developed by the Francis Perrin Laboratory, sol-gel nanoporous material functionalized with specific molecules (the sensor). These molecules produce a specific compound when they chemically react with VOCs, and the compound can be detected optically using colorimetry or fluorescence. CEA-Leti develops a portable, highly sensitive system (the reader) to detect and measure this optical signal.

Ethera, a startup supported by CEA and CNRS, has introduced the first commercial application using the technology, a formaldehyde colorimetric indicator. Within the COVADIS project, the partners will develop and commercialize a more sensitive and accurate device to meet two major human health challenges: protecting individuals from indoor air pollution, and non-invasive diagnosis of pathologies.

For the first application, a portable device comprised of a kit of sensors and an optical-detection reader will measure concentrations of the most common toxic indoor pollutants, such as formaldehyde, benzene and xylene. Uses include air-quality control in nurseries, schools, hospitals and other public buildings, as well as measuring the exposure of workers to toxic chemicals in industrial plants.

The same technology will also be applied for non-invasive analysis of specific VOCs present in human breath, as markers of various pathologies. The project will focus on detection of specific markers of tuberculosis, with the aim of replacing the current time-consuming and expensive methods of diagnosis, such as radiography.

### **About CEA-Leti**

CEA is a French research and technology public organisation, with activities in four main areas: energy, information technologies, healthcare technologies and defence and security. Within CEA, the Laboratory for Electronics & Information Technology (CEA-Leti) works with companies in order to increase their competitiveness through technological innovation and transfers. CEA-Leti is focused on micro and nanotechnologies and their applications, from wireless devices and systems, to biology and healthcare or photonics. Nanoelectronics and microsystems (MEMS) are at the core of its activities. As a major

player in MINATEC campus, CEA-Leti operates 8,000-m<sup>2</sup> state-of-the-art clean rooms, on 24/7 mode, on 200mm and 300mm wafer standards. With 1,200 employees, CEA-Leti trains more than 150 Ph.D. students and hosts 200 assignees from partner companies. Strongly committed to the creation of value for the industry, CEA-Leti puts a strong emphasis on intellectual property and owns more than 1,500 patent families. For more information, visit [www.leti.fr](http://www.leti.fr).

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