



Microfluidics Device and Methods of Detecting Airborne Agents

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BRIEF DESCRIPTION

A microfluidic platform for real time sensing of volatile airborne agents.

BACKGROUND

Currently existing devices that identify explosives, such as neutron analysis and electron capture devices, are limited to detection of large samples. The size and cost of these systems also limit their application in most settings. Other systems rely on mass spectrometry to identify agents, which identify species by mass/charge ratios, but do not provide molecular specificity. These devices and techniques are limited by false positive identification and large necessary target mass.

DESCRIPTION

Researchers at the University of California, Santa Barbara have developed a microfluidic platform for real time sensing of volatile airborne agents, such as explosives. The Free-Surface Fluidics (FSF) platform enables the exploitation of several physical phenomena and is capable of operating in a range of length scales from tens of micrometers to a few nanometers. The system architecture can also be incorporated with a variety of sensing techniques, such as surface enhanced Raman Spectroscopy (SERS), for detection of airborne agents. By incorporating SERS, the resulting system is comprised of sensing methods and devices that are both sensitive and molecular-specific.

ADVANTAGES

- ▶ Molecular specificity
- ▶ Operates at range of length scales (10µm-nm)

APPLICATIONS

- ▶ Environmental toxicology
- ▶ Biomedicine
- ▶ Explosives and bio warfare detection

PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Issued Patent	8,431,409	04/30/2013	2007-499

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OTHER INFORMATION

KEYWORDS

Analysis and Sensing,  
  
indansens, Explosives and Bio  
  
Warfare Detection,  
  
Biomedicine, Environmental  
  
Toxicology, Airborne Agents,  
  
Microfluidics Device

CATEGORIZED AS

- ▶ **Biotechnology**
  - ▶ Other
- ▶ **Environment**
  - ▶ Other
- ▶ **Medical**
  - ▶ Devices
  - ▶ Diagnostics
- ▶ **Security and Defense**
  - ▶ Other
- ▶ **Sensors & Instrumentation**
  - ▶ Biosensors

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