IMPROVED, WIRELESS-ENABLED PORTABLE PARTICULATE MATTER MONITOR

Tech ID: 20968 / UC Case 2010-063-0

BRIEF DESCRIPTION

There is growing interests in widespread monitoring of the health effects of airborne particulates in the general population as well as with industrial workers. To address this growing interest, low-cost, distributed particulate matter monitors are needed. Advanced MEMS-based particulate monitors have been developed, but detection limitations, temperature sensitivity, and power requirements continue to impede the broad, distributed application of these monitors.

To address these limitations, UC Berkeley researchers have developed a substantially improved MEMS-based particulate matter monitor. In comparison to prior MEMS-based particulate monitors, this innovative Berkeley monitor uses different microfabrication methods, an alternate means of particulate deposition, novel microfluidic principles, and innovative components for filtration and condensation of airborne particulates.

SUGGESTED USES

Inexpensive and thereby widespread measurement of airborne particulate matter concentrations such as diesel exhaust, woodsmoke, tobacco smoke and potentially pollen.

The monitors can be situated on buildings, electricity distribution and transmission lines, and other infrastructure, as well as in mobile applications such as on individuals and vehicles (i.e. cars, buses, trucks and trains).

ADVANTAGES

- Increases sensitivity
- Reduces temperature sensitivity
- Reduces power requirements
- Reduces size and costs
- Eliminates the need for vertically orienting the device to maintain a vertical airflow
- Analyzes data without the need for bulky, expensive equipment
- Couples to a location-aware mobile device (i.e. cell phone)

to enable geographical analysis of particulates

PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Issued Patent	8,806,915	08/19/2014	2010-063

ADDITIONAL TECHNOLOGIES BY THESE INVENTORS

- Improved Energy Harvesting for Current-Carrying Conductors

CONTACT

Michael Cohen
mcohen@berkeley.edu
tel: 510-643-4218.

INVENTORS

- Doering, Frederick
- Paprotny, Igor
- White, Richard M.

OTHER INFORMATION

CATEGORIZED AS

- **Environment**
  - Sensing
- **Sensors & Instrumentation**
  - Biosensors
  - Environmental Sensors
  - Scientific/Research

RELATED CASES

2010-063-0

University of California, Berkeley Office of Technology Licensing
2150 Shattuck Avenue, Suite 510, Berkeley,CA 94704
Tel: 510.643.7201 | Fax: 510.642.4566
ipira.berkeley.edu/ | otl-feedback@lists.berkeley.edu