CHEMICAL-SENSITIVE FIELD-EFFECT TRANSISTOR

Tech ID: 24184 / UC Case 2014-191-0

PATENT STATUS

<table>
<thead>
<tr>
<th>Country</th>
<th>Type</th>
<th>Number</th>
<th>Dated</th>
<th>Case</th>
</tr>
</thead>
</table>

BRIEF DESCRIPTION

Conventional metal-oxide semiconductor field-effect transistor (MOSFET) technology consists of a source, drain, gate, and substrate. The chemical field-effect transistor (chemFET) is a type of a field-effect transistor acting as a chemical sensor, and is similar to MOSFET except for the gate structures.

Modern industrial players seek higher-sensitivity technologies which are small, durable, efficient, and versatile. Further advances in these materials and structures could enable many new kinds of layered semiconductors and devices. To address need, researchers at the University of California, Berkeley, have developed chemical-sensitive field-effect transistor (CS-FET) platform technology. By exploiting selective thin films incorporated into the CS-FET, researchers have created chemical sensors with commercial promise in terms of chemical-versatility and low-power.

SUGGESTED USES

- Chemical sensing and analysis
- Gas sensing and analysis
- Environmental monitoring

ADVANTAGES

- Smaller footprint than conventional chemFET
- High sensitivity
- Leverages industry standard platforms and low-cost parts

RELATED MATERIALS

INVENTORS

- Javey, Ali

OTHER INFORMATION

KEYWORDS

metal oxide semiconductor field effect transistor, MOSFET, chemical field effect transistor, chemFET, chemical sensitive field effect transistor, CS-FET, chemical sensor, sensor, layered semiconductor, multi-gas, gas sensor, lab-on-chip

CATEGORIZED AS

- Environment
- Sensing
- Semiconductors
- Design and Fabrication
- Sensors & Instrumentation
- Environmental Sensors
- Process Control
- Scientific/Research

RELATED CASES

2014-191-0

ADDITIONAL TECHNOLOGIES BY THESE INVENTORS

- Enhancing Photoluminescence Quantum Yield for High Performance Optoelectrics
- A Thin Film Vls Semiconductor Growth Process