

# ABSTRACT: Ultra-Sensitive Nitrogen Dioxide Gas Sensor

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## ABSTRACT

Over the past few decades, the detection of nitrogen dioxide (NO<sub>2</sub>) in combustion exhaust or in the environment has been of significant interest because the presence of NO<sub>2</sub> has been correlated to the formation of acid rain, photochemical smog and some respiratory diseases including emphysema and bronchitis. Several types of NO<sub>2</sub> sensors have been developed including chemiresistive, potentiometric, and amperometric, based on metal oxides (for example, WO<sub>3</sub>, SnO<sub>2</sub>, ZnO, NiO and ZrO<sub>2</sub>). However, metal oxide based sensors can require high operating temperatures in order to obtain decent sensitivities and faster response/recovery times. High operating temperatures can significantly reduce selectivity, while also increasing power consumption and device complexity.

Researchers at the University of California, Riverside have developed a NO<sub>2</sub> gas sensor operable at ambient conditions. The sensor includes functionalized feather-like tellurium (Te) nanostructures on single-walled carbon nanotube (SWNTs) networks.

## OTHER INFORMATION

### CATEGORIZED AS

- [Sensors & Instrumentation](#)
- [Environmental Sensors](#)

### RELATED CASES

2012-850-0

## PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Issued Patent	<a href="#">9,632,057</a>	04/25/2017	2012-850

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