

Developing Miniature Nanostructured Semiconductor-Metal-Oxide Gas Sensors

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Micromachined nanostructured semiconductor-metal-oxide (SMO) gas sensors have proven promising in gas detection due to their improved sensitivity, robustness, simple signal processing, low fabrication cost and low energy consumption. However, the development of nanostructured micro-SMO sensors must not only satisfy performance-related requirements, but also face reliability-related challenges, particularly false alarm problems caused by environmentally induced drift and shift. In this article, we present results obtained in the development of a novel nanostructured micromachined SMO gas sensor and discuss the challenges in finding solutions to minimize the influences of environmental factors such as temperature, relative humidity, light and oxygen partial pressure.

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