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Title:	Nanostructured metal oxide semiconductor-based gas sensors
Other Titles:	A comprehensive review
Authors:	Joshi, Dhananjay (/jspui/browse?type=author&value=Joshi%2C+Dhananjay)
Keywords:	Nanostructured metal oxide semiconductor
Issue Date:	2022
Publisher:	Elsevier
Citation:	review.Sensors and Actuators A: Physical, 341(1), 42736.
Abstract:	Nanostructured metal oxide semiconductor-based gas sensors possess extensive applications due to relatively inexpensive, lightweight, long-lasting, robust, and high sensitivity and quick response and recovery times. Several strategies have been developed to enhance their sensing properties and meet the extended market demand for novel applications by modifying surface morphology, reducing particle size, and manipulating function. This work mainly concentrates on the systematic review of various synthesis methods of nanostructured metal oxide-based semiconductors and their superior gas sensing properties, such as fast response and recovery and a low detection limit towards different hazardous gases. With the prime concern of environmental pollution, a wide range of novel nanostructured metal-oxide based semiconductor gas sensors and their gas sensing properties are interpreted and summarized here. It is essential to measure the sensitivity of the sensors to ensure that they are prepared in a reproducible manner. They must work in ambient conditions and in the presence of humidity. Recent progress in the research and development of metal oxide semiconductor-based gas sensor technology is surveyed in this review. From the bottleneck, this review organizes some prospects that can be expected in future investigations on the gas sensing mechanism of metal oxide semiconductors.
Description:	Only IISER Mohali authors are available in the record.
URI:	<a href="https://doi.org/10.1016/j.sna.2022.113578">https://doi.org/10.1016/j.sna.2022.113578</a> ( <a href="https://doi.org/10.1016/j.sna.2022.113578">https://doi.org/10.1016/j.sna.2022.113578</a> ) <a href="http://hdl.handle.net/123456789/4754">http://hdl.handle.net/123456789/4754</a> ( <a href="http://hdl.handle.net/123456789/4754">http://hdl.handle.net/123456789/4754</a> )
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