1. Record Nr. UNINA9910742495103321

Autore	Deng Yonghui
Titolo	Semiconducting Metal Oxides for Gas Sensing / / by Yonghui Deng
Pubbl/distr/stampa	Singapore : , : Springer Nature Singapore : , : Imprint : Springer, , 2023
ISBN	9789819926213 9819926211
Edizione	[2nd ed. 2023.]
Descrizione fisica	1 online resource (xvi, 393 pages) : illustrations (some color)
Disciplina	681.2
Soggetti	Chemical detectors Semiconductors Porous materials Chemistry, Inorganic Materials Materials - Analysis Sensors Porous Materials Inorganic Chemistry Materials Engineering Characterization and Analytical Technique
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Understanding semiconducting metal oxides gas sensors -- Sensing mechanism and evaluation criteria of semiconducting metal oxides gas sensors -- Semiconducting metal oxides: Morphology and sensing performance -- Semiconducting metal oxides: Composition and sensing performance -- Semiconducting metal oxides: Microstructure and sensing performance -- Interfacial interaction model between gas molecules and semiconducting metal oxides -- New approaches towards high-performance gas sensing -- Sensing devices of semiconducting metal oxides gas sensors -- Integration technologies in gas sensor application -- Applications of semiconducting metal oxides gas sensors.
Sommario/riassunto	The second edition of this book focuses on the synthesis, design, and

application of semiconducting metal oxides as gas sensing materials, including the gas sensing mechanism, and modification methods for sensing materials, while also providing a comprehensive introduction to semiconductor gas sensing devices. As an essential part of IoT (Internet of things), gas sensors have shown great significance and promising prospects. Therefore, studies on functional mesoporous metal oxides, one of the most important gas sensing materials based on their unique Knudsen diffusion behavior and tailored pore structure, have increasingly attracted attention from various disciplines. The book offers a valuable reference guide to metal oxide gas sensing materials for undergraduate and graduate students alike. It will also benefit all researchers who are involved in synthesis and gas sensing of metal oxides nanomaterials with relevant frontier theories and concepts. Engineers working on research anddevelopment of semiconductor gas sensors will also find some new ideas for sensor design.