



A systematic study on gas selectivity of a MOX-based gas sensor



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Abstract

High-temperature operation and poor selectivity are two main shortcomings of metal oxides-based gas sensors. The relationship between gas molecular structure and gas selectivity is studied by systematically comparing sensing performance to alcohols using a room temperature-operated gas sensor. Results show that the more slender the gas molecule, the higher the response. Operation temperature affects the gas selectivity and multifunctional gas sensors were developed by using temperature to modulate the gas selectivity. Based on the above results, we developed several room-temperature-operated gas sensors with ultrahigh gas selectivity. A portable device has been developed to evaluate the real applications of the sensor.

Biography

Fang Xu, obtained the PhD degree from The Chinese University of Hong Kong in 2018 (Supervisor: Professor HO Ho Pui) and B.S. degree from Huazhong University of Science and Technology in 2012. She is now an associate Professor and the Dean of Applied Physics in the College of Engineering Physics in Shenzhen Technology University. She is Shenzhen Overseas High-level Talents.

She works on semiconductor-based sensors and optoelectronics. From 2017 to now, she has published 13 SCI papers as the first/corresponding author, authorized 2 national invention patents, instructed students won the first prize in the Chinese Mechanical Engineering Innovation and Creativity Competition. She was invited to be the guest editor of "Chemosensors", the reviewer of National Natural Science Foundation of China (NSFC) and Shenzhen Science and Technology Innovation Commission (SZSTIC), and the academic member of the 2nd National Conference on Electronic Materials and Devices (NCEMD).

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