



Ge–As–Te-based gas sensor selective to low NO₂ concentrations

S. Marian, D. Tsiulyanu, H.-D. Liess

[https://doi.org/10.1016/S0925-4005\(01\)00811-5](https://doi.org/10.1016/S0925-4005(01)00811-5)

Abstract

A new kind of gas sensor based on chalcogenide glassy semiconductors for the detection of nitrogen dioxide has been investigated. It contains a sandwich metal–semiconductor (Ge–As–Te ternary alloys)–metal structure which is used as chemical sensor for the detection of NO₂ to concentrations in the ppm and sub-ppm ranges. The detection principle is based on the measurement of the conductivity of the sensitive film. The dependence of the sensitivity to the gas concentration has been studied. The NO₂ response was found to be high and reversible. The response time was fast and the reproducibility satisfactory. The cross-sensitivity to interfering gases has been investigated. The chalcogenide-oxide–silicon FET-based (COSFET) sensor is presented as an application example of these layers. All measurements were performed at room temperature.