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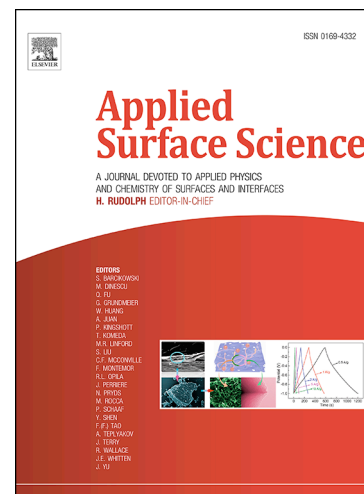
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Selective Detection of CO at Room Temperature with CuO Nanoplatelets Sensor for Indoor Air Quality Monitoring Manifested by Crystallinity

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ABSTRACT

The fabrication of sensitive CO gas sensors with low ppm detection is very imperative for human health, since longer exposure to CO gas can lead to dizziness, loss of consciousness and vomiting, and in severe cases death. As a result, herein, we report on the CO room temperature gas sensing characteristics of CuO nanoplatelets based gas sensor synthesized using the hydrothermal method at 100 and 200 °C for various reaction times. A size-dependent contraction on the crystallite sizes, due to the decrease in platelet size, was observed for the CuO nanoplatelets grown at 200 °C, at various reaction times. The crystal quality and crystallinity improved for nanoplatelets prepared at 100 °C and decreased for those prepared at 200 °C at various reactions times. The **CuO-B-1** based sensor prepared for 6 h at 200 °C demonstrated enhanced response ($R_a-R_g/R_a = 15$) and rapid response time (ca. 81 s) towards 20 ppm CO gas (in 35 % relative humidity) at room temperature, pleasing multiple parameters required

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