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# Multiselective visual gas sensor using nickel oxide nanowires as chemiresistor

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**KEYWORDS** metal oxide, gas sensor, nanowire, nickel oxide, selectivity

Highlights:

- nickel oxide nanowires have been fabricated via easy and cheap hydrothermal way
- a thermal gradient (spatial or temporal) is used to get different responses
- responses are combined in a three-dimensional plot with no overlapping clouds
- responses are transformed in RGB components, giving a visual selective response

**ABSTRACT:** Nowadays the detection of unwanted volatile compounds in air is increasingly important in a wide range of fields. Metal oxide nanosensors are extremely small and cheap devices that could be integrated in any application, but their single resistance response make them non-selective. For this reason, sensor arrays are used where pollutant recognition is needed. Unfortunately, these electronic noses, consisting of different active materials, are complex and expensive. Here, we present a simple visual nanosensor that can detect and recognize selectively several volatile compounds at a relatively low temperature (200-300°C). The dynamic resistance of a conductometric NiO nanosensor is simply transformed in a visual output that allows to recognize different gases and their concentration with a quick look. This way, one single nanostructured metal oxide can act as a sensitive and selective electronic nose, using the powerful post-processing given

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