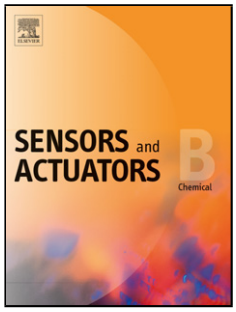

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Chemoresistive gas sensor based on ZIF-8/ZIF-67 nanocrystals

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Abstract

In the present work, nanostructures of zeolitic imidazolate frameworks (ZIF-8 and ZIF-67) were combined to obtain a novel chemoresistive sensor, improving the response of ZIF-67 and facilitating measurement of ZIF-8 by decreasing the resistivity. The sensor detected concentrations as low as 10 ppm of toluene, ethanol, carbon monoxide, hydrogen and nitrogen dioxide, showing large resistance change. In the case of toluene and hydrogen for a 10 ppm concentration, the response of ZIFs combination based sensor was significantly higher than ZIF-67 based sensor; about 7.0 and 5.4 times, respectively.

Keywords Gas sensor, ZIF, VOC, nanocrystal, zeolite