Manuscript ID: TC-ART-11-2016-005095

TITLE: Enhancing the Isopropanol gas sensing performance of SnO2/ZnO core/shell nanocomposites.

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Supplementary Materials

Experimental

The schematic diagram of the gas sensing measuring circuit is shown in fig. 1. In the process of gas sensing test the input voltage was set at 5 V and the adjustment of operating temperature of the gas sensor could be done by varying the heater voltage (V_H). Test gas formed by evaporating the liquid that injected on to the bottom surface of gas chamber (bottom contain heater plate) by a microsyringe. The output voltage was taken across virtual resistance which is change with sensor resistance. The sensor resistance is depends on test gas and their concentration.

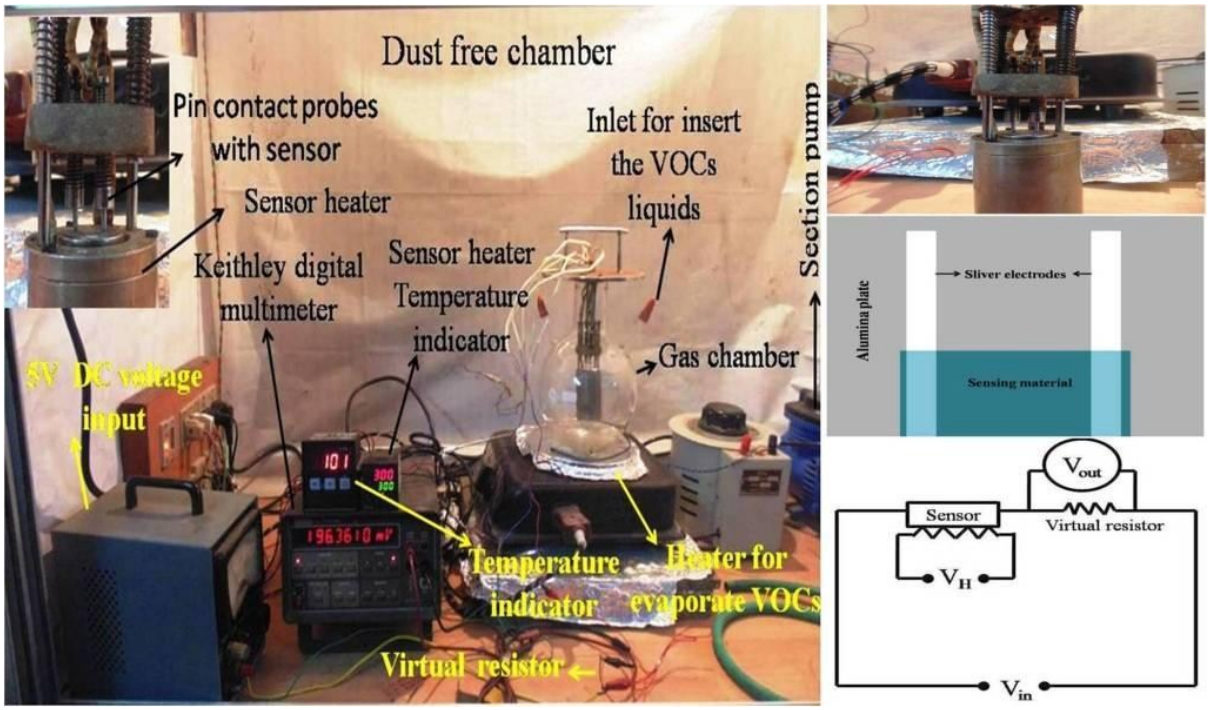

Figure. S1. Gas sensing experimental setup and circuit diagram.

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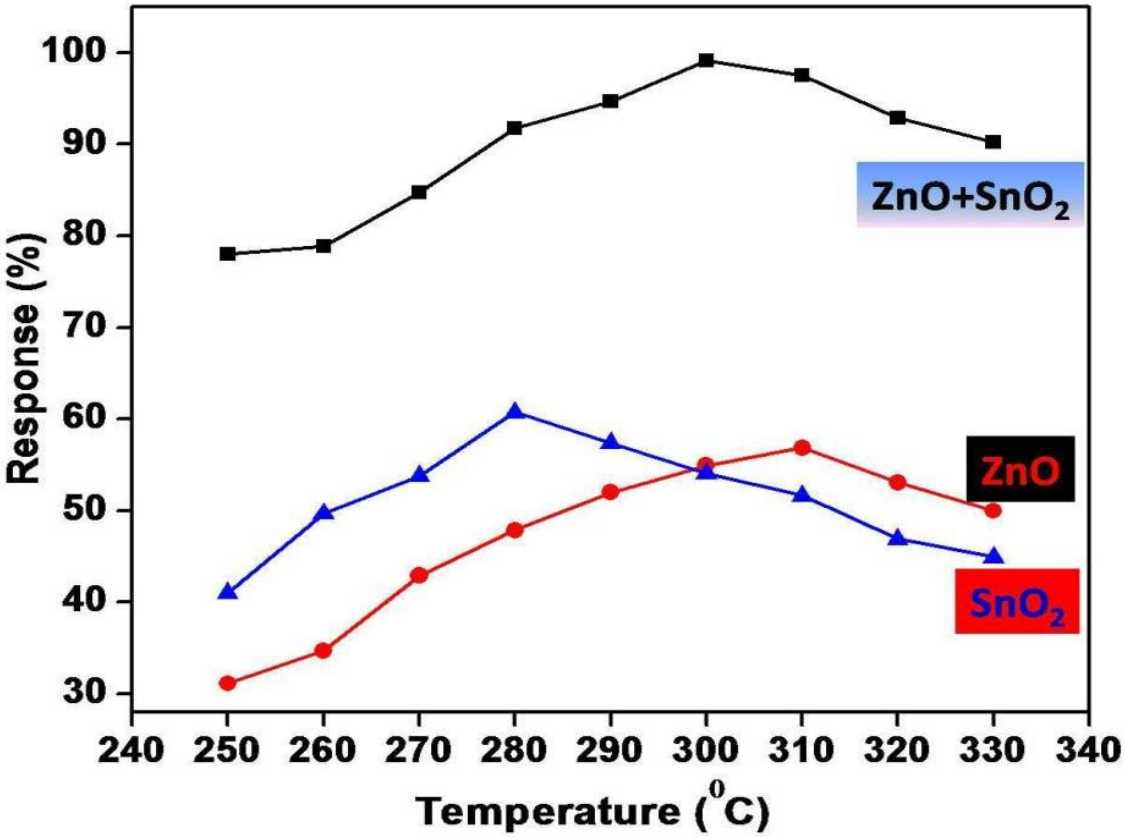
The variation of gas sensing response with operating temperature by taking scale bar of step 50^{o}C; hence it is difficult to find the error bar in the result. To find the error bar clearly in the result the scale bar has to be taken with the step of 10^{o}C in the response of these materials. However to clear the confusion we are presenting the graph of the sensing response over temperature by taking scale bar of step 10 ^{o}C. The response of pure ZnO, SnO_2 and SnO_2/ZnO shows maximum at 310, 280 and 300 ^{o}C respectively (Figure shown below).



2.

Figure. S2. The variation of gas sensing response of ZnO, SnO_2 and ZnO/SnO_2 core/shell NCs with temperature.

The response of SnO_2/ZnO sensor for different VOC gases were shown in percentage (i.e., Response S% = ($\Delta R/R_{air}$) X 100% = ($R_{air} - R_{gas}/R_{air}$)X 100%) to visualize all the responses of VOC gases in the chart. If we present the response as R_a/R_g instead of percentage in the chart, one can easily identify the difference between the responses of isopropanol and other VOC

gases. But it is very difficult to accommodate the response of all VOCs by means of R_a/R_g in the bar chart; hence the bar chart has been shown in percentage(S%) instead of R_a/R_g.

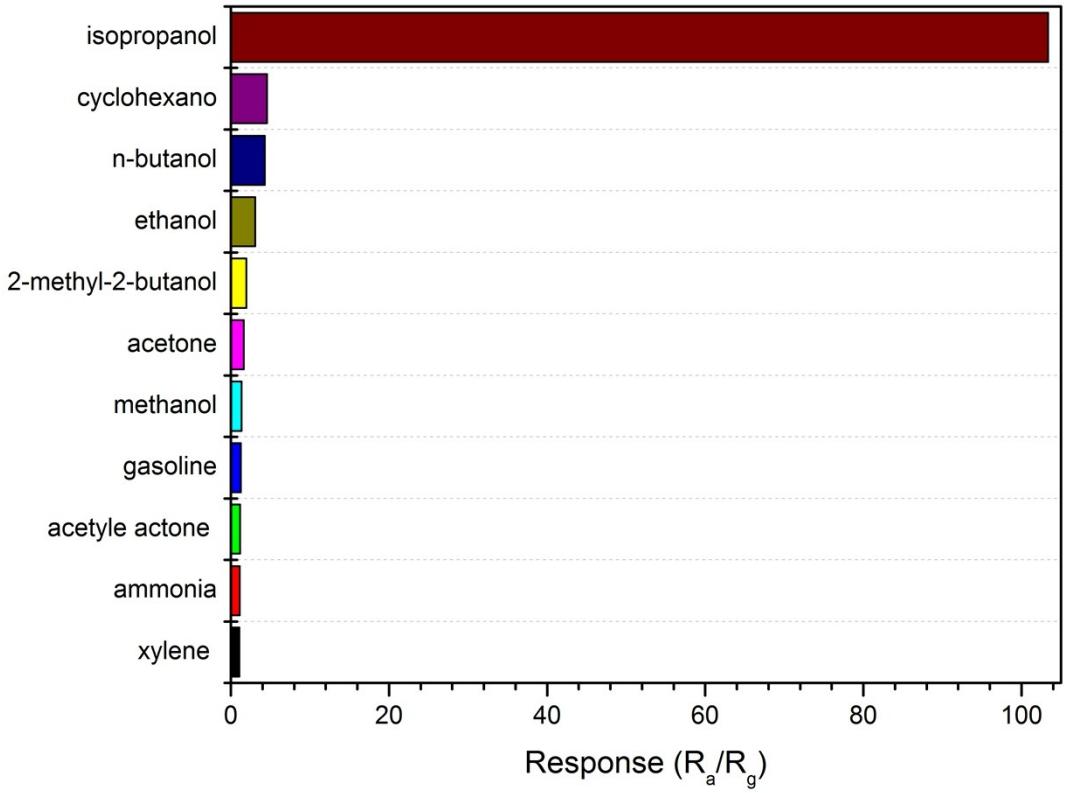


Figure. S3. Response of SnO_2/ZnO sensor for different VOC gases.

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