Supplementary file:

Ms Title: Modeling the sensing characteristics of chemi-resistive thin film semi-conducting gas sensors

Ms ID: CP-ART-06-2017-004241

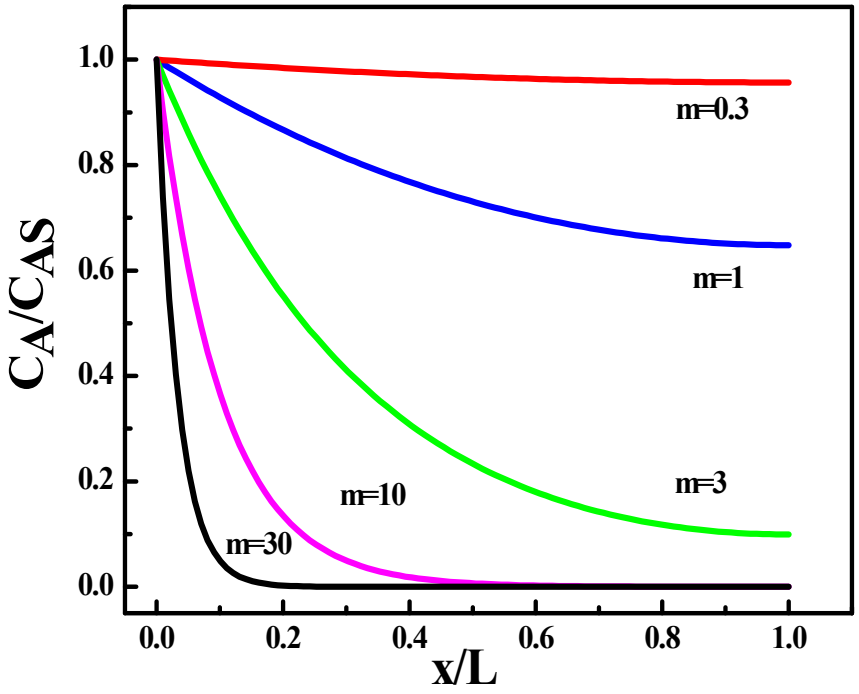

Fig.S1 Simulated variation of test gas concentration with depth of penetration from the surface of the thin film sensing elements for various m ($=L.(k/D_k)^{1/2}$ values.

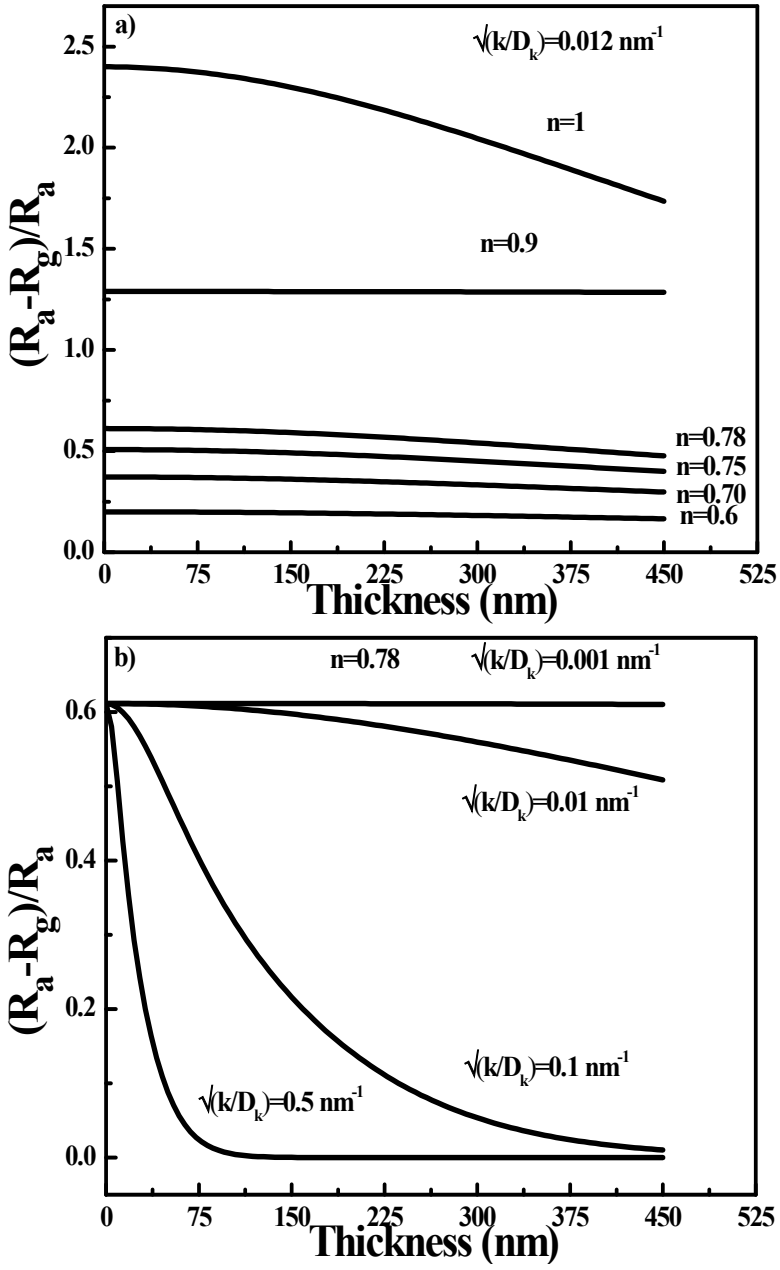

Fig S2 Simulated variation of response with film thickness for various (a) sensitivities (n) and (b) $\sqrt{k/D_k}$ values. In these simulations we have assumed fixed gas concentration (C_{AS} ~ 500 ppm), and sensor operating temperature (T~598K). For Fig. S2(a) $\sqrt{k/D_k}$ ~0.012 nm^{-1} and for Fig. S2(b) n~0.78.

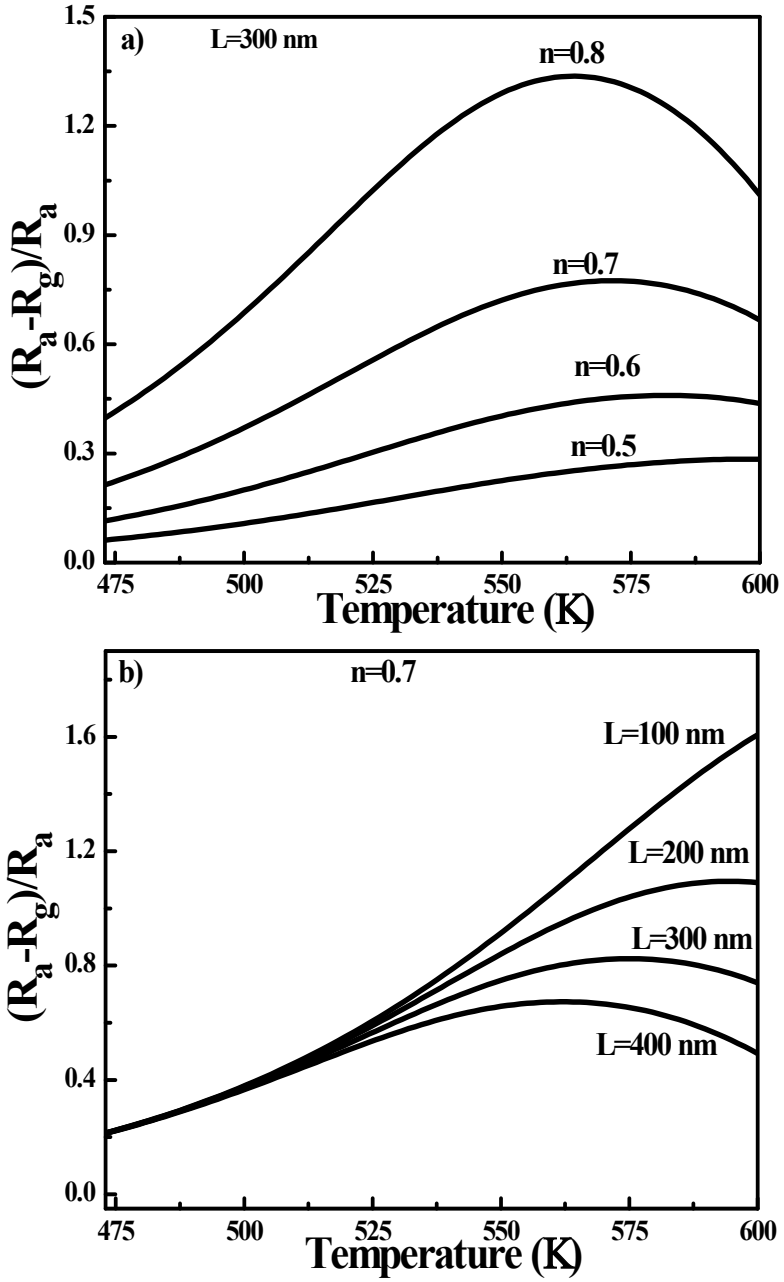

Fig.S3 Simulated variation of the response with operating temperature for various (a) sensitivities (n) and (b) film thicknesses (L) of sensing elements. In these simulations we have assumed fixed gas concentration (C_{AS} ~ 500 ppm). For Fig. S3(a) L ~300 nm and for Fig. S3(b) n~0.7.

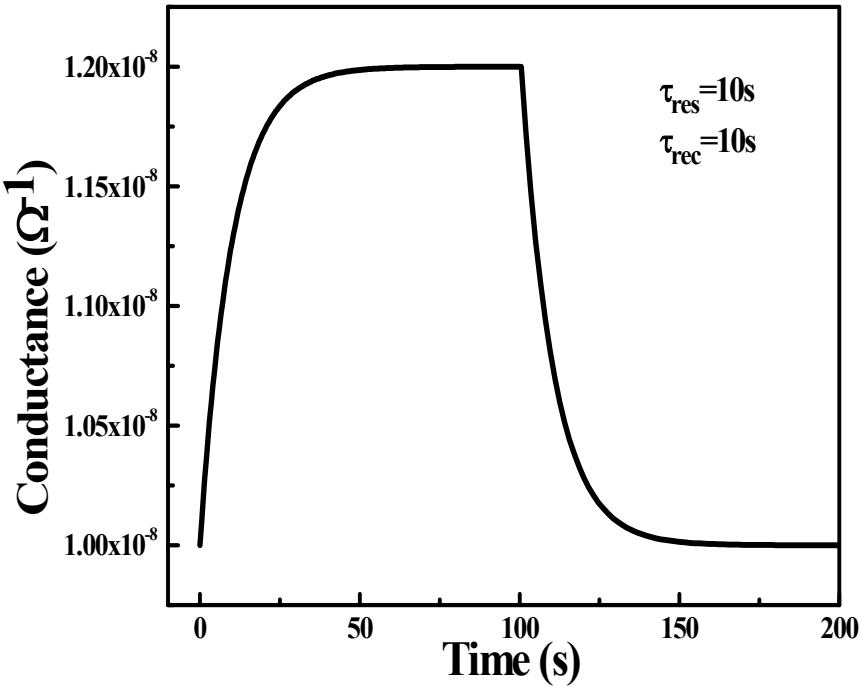

Fig.S4 Simulated response and recovery profile for 'n' type chemi-resistive thin film sensor.