Article:
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Fig.1. Schematic and photo of the interdigitated Au electrode.

Fig.2. Schematic diagram of the experimental setup.

Fig.3. (a) Comparison of cyclic voltammograms of aniline electropolymerization in the absence (red line) and presence (black line) of NiTSPc; (b) Continuous cyclic voltammograms of aniline electropolymerization in the presence of NiTSPc for 5 cycles. Electrolyte: 0.5 M H_2SO_4, 50 mM aniline, 2 mM NiTSPc; scan rate: 20 mV/s; potential limit: −0.2-0.9 V.

Fig.4. (a) SEM images of the porous PANI/NiTSPc film deposited on IAE scanned for 1 cycle and (b) the details of the porous film; images of the (c) PANI/NiTSPc film and (d) pure PANI on IAE scanned for 5 cycles; AFM images of PANI/NITSPc films scanned for (e) 1 cycle and (f) 5 cycle; (g) EDS, (h) Raman spectrum and (i) FT-IR spectra of the PANI/NiTSPc composites.

Fig.5. Dynamic response of the sensor prepared in electrolyte containing (a) 0.5 mM, (b) 2mM and (c) 4 mM NiTSPc toward 1000 ppm NH_3; dependence of the (d) resistance and response, (e) response time and recovery time on NiTSPc concentration.

Fig.6. Dependence of the response and R_0 of the prepared sensors on (a) the applied potential limit and (b) the scan rate.

Fig.7. (a) Response transients and (b) the response of PANI/NiTSPc thin films exposed to NH_3 of different concentrations at 25 ℃.

Fig.8. (a) Influence of humidity levels on the R, R_0 and response (S) of the prepared sensors exposed to 50 ppm NH_3; (b) the dynamic response transients of the sensor toward 1000 ppm NH_3 for 6 times.

Fig.9. Response transients of the PANI/NiTSPc sensor exposed to (a) 50 ppm and (b) 500 ppm NH_3 employing N_2 or dry air as the carrier gas at 25 ℃.

Scheme 1. Proposed structure of PANI/NiTSPc composites and mechanism for interaction between PANI/NiTSPc and NH_3.