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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<sub>2</sub>SO<sub>4</sub>, 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<sub>3</sub>; 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<sub>3</sub> of different concentrations at 25 °C.

**Fig.8.** (a) Influence of humidity levels on the  $R$ ,  $R_0$  and response ( $S$ ) of the prepared sensors exposed to 50 ppm NH<sub>3</sub>; (b) the dynamic response transients of the sensor toward 1000 ppm NH<sub>3</sub> for 6 times.

**Fig.9.** Response transients of the PANI/NiTSPc sensor exposed to (a) 50 ppm and (b) 500 ppm NH<sub>3</sub> employing N<sub>2</sub> or dry air as the carrier gas at 25 °C.

**Scheme 1.** Proposed structure of PANI/NiTSPc composites and mechanism for interaction between PANI/NiTSPc and NH<sub>3</sub>.