

Supplementary information

Article

Effect of Nitrogen Atoms in the CNT Structure on the Gas Sensing Properties of PANI/CNT Composite

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Abbreviations and parameters

1. PANI/uCNT – Composites of polyaniline with undoped carbon nanotubes.
2. PANI/N-CNT - Composites of polyaniline with nitrogen doped (2at.%) carbon nanotubes.
3. PANI/N⁺-CNT - Composites of polyaniline with nitrogen doped (4at.%) carbon nanotubes.

Fourier-transform infrared spectroscopy

The FTIR transmission spectra of the samples were measured using a VERTEX 70 FTIR spectrometer (Bruker).

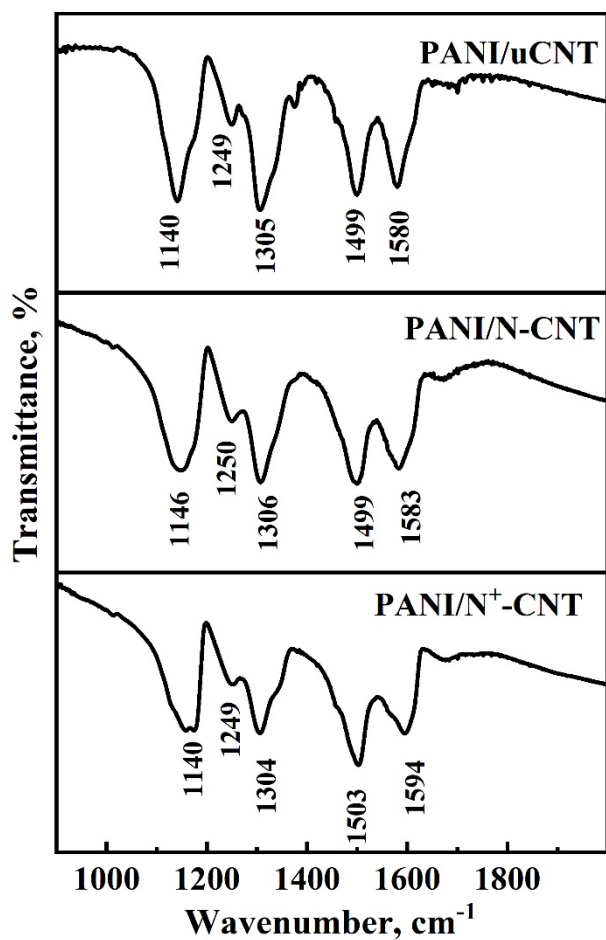


Figure S1. FTIR transmission spectra of PANI/uCNT, PANI/N-CNT and PANI/N⁺-CNT.

Wavenumber, cm ⁻¹	Assignment
1590	C=C quinonoid (Q) ring stretching
1500	C=C benzenoid (B) ring stretching
1300	C-N stretching vibrations
1250	C-N ⁺ stretching vibration n in the polaron structure
1100-1140	C-H plane bending vibration (modes of N=Q=N, Q=NH ⁺ B and B-NH ⁺ -B) and aromatic C-H bending in the plane for the 1,4-disubstituted aromatic ring

Time characteristics of gas sensing measurements

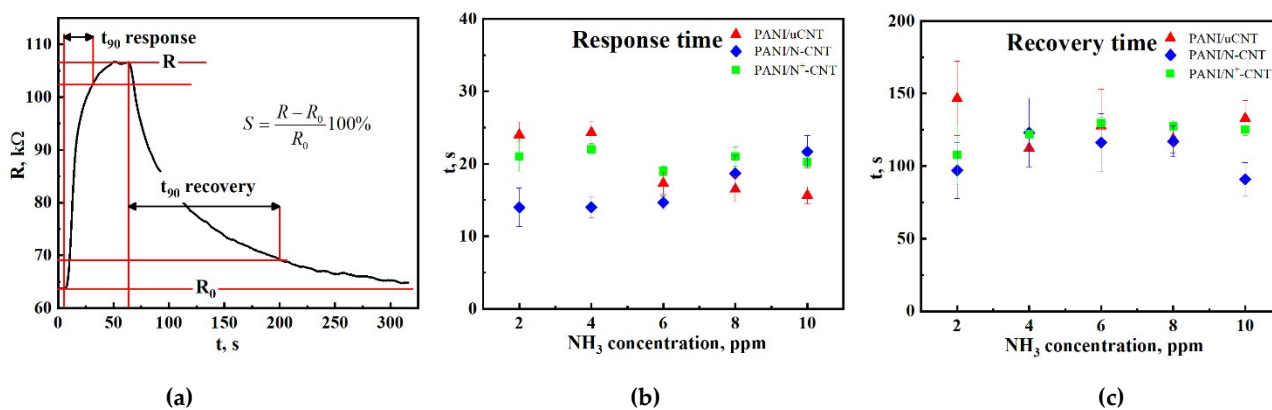


Figure S2. Scheme for determining the timing characteristics of gas tests (a); response (b) and recovery (c) time of PANI/uCNT, PANI/N-CNT and PANI/N⁺-CNT nanostructures.