Electronic Supplementary Material (ESI) for Nanoscale.

Supplementary Information

Networks of As-Dispersed, Polymer-Wrapped (6,5) Single-Walled Carbon Nanotubes for Selective Cu^{2+} and Glyphosate Sensing

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Spectroscopic characterisation of polymer-sorted CoMoCat dispersions

The optical properties of the selective dispersions of CoMoCat SWNTs with the wrapping polymers PFO-BPy and PFO were investigated by collecting photoluminescence excitation-emission (PLE) maps and absorbance spectra. Out of all chiralities in the CoMoCat raw material, PFO-BPy disperses almost exclusively (6,5) SWNTs. In contrast to that, PFO yields a (7,5) SWNT enriched dispersion, with small amounts of (7,6) and (6,5) SWNTs.

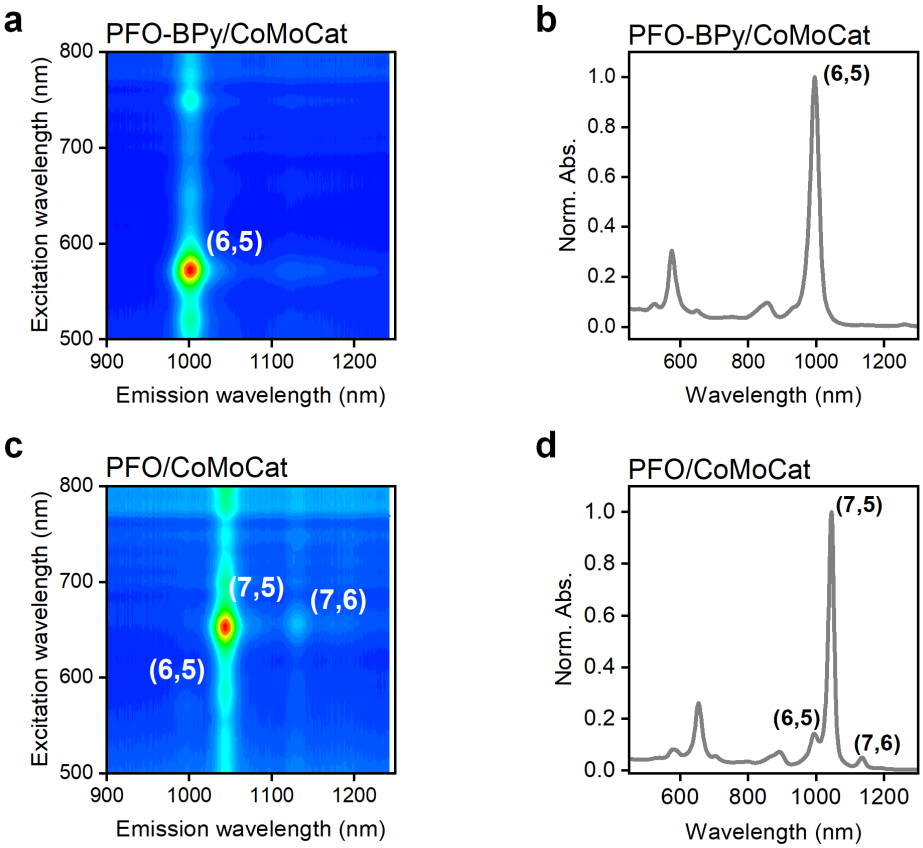

Figure S1. PLE maps and absorbance spectra of PFO-BPy/CoMoCat (**a,b**) and PFO/CoMoCat (**c,d**) dispersions in toluene. The absorption peaks at 575 nm and 650 nm correspond to the E_{22} transitions of the (6,5) and (7,5) SWNTs, respectively.

Conditioning of transistors with PFO-BPy/CoMoCat SWNT network

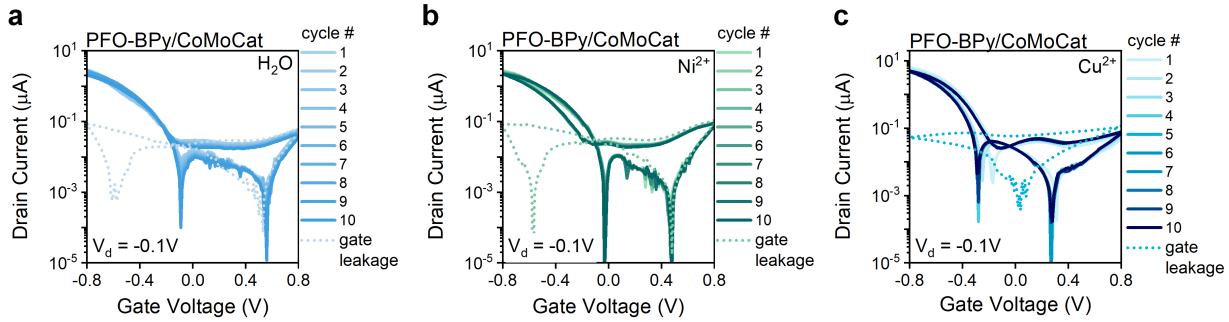

Figure S2. Conditioning of PFO-BPy/CoMoCat SWNT network-based, water-gated transistors (ten consecutive cycles of transfer characteristics, sweep rate ~50 mV/sec, total measurement time ~ 13 min) with (**a**) de-ionized water, (**b**) 15 µM Ni^{2+} aqueous solution, (**c**) 15 µM Cu^{2+} aqueous solution as electrolyte.

Conditioning of transistors with PFO/CoMoCat SWNT network

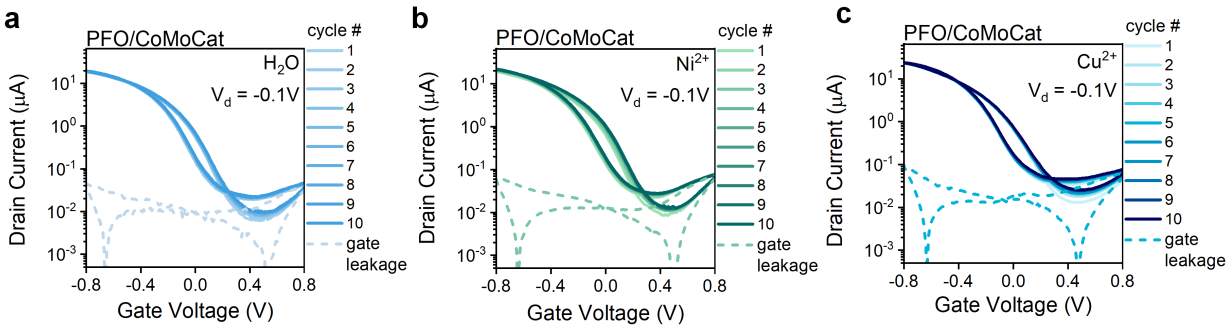

Figure S3. Conditioning of a reference transistor based on a PFO/CoMoCat SWNT network (ten consecutive cycles of transfer characteristics, sweep rate ~50 mV/sec, total measurement time ~ 13 min) with (**a**) de-ionized water, (**b**) 15 µM Ni^{2+} aqueous solution, (**c**) 15 µM Cu^{2+} aqueous solution as electrolyte.

Pyrophosphate sensing

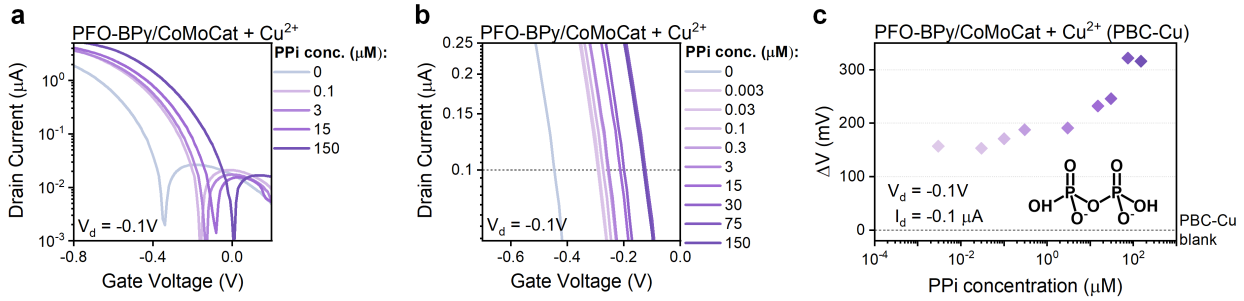

Figure S4. (**a**) Transfer characteristics of a water-gated transistor with a Cu^{2+}-treated PFO-BPy/CoMoCat SWNT network recorded at various pyrophosphate (PPi) concentrations in DI water. (**b**) Zoomed-in view of the transfer curves showing a shift to more positive gate voltages with increasing pyrophosphate concentration. (**c**) Correlation of the gate voltage shift (ΔV) versus blank (PBC-Cu blank) with increasing PPi concentration at a fixed drain current of -0.1 μA (inset: molecular structure of PPi).