

† Electronic supplementary information

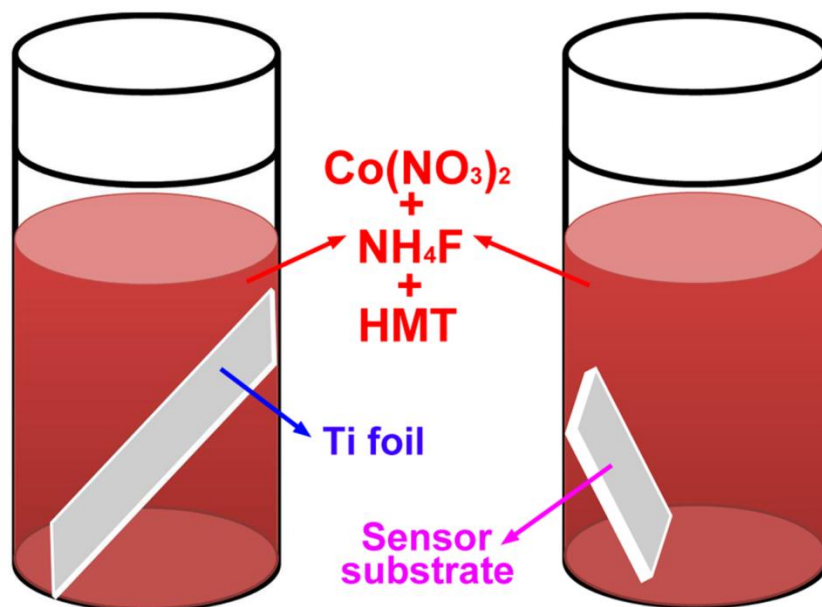


Fig. S1. Schematic diagram of the fabricating process.

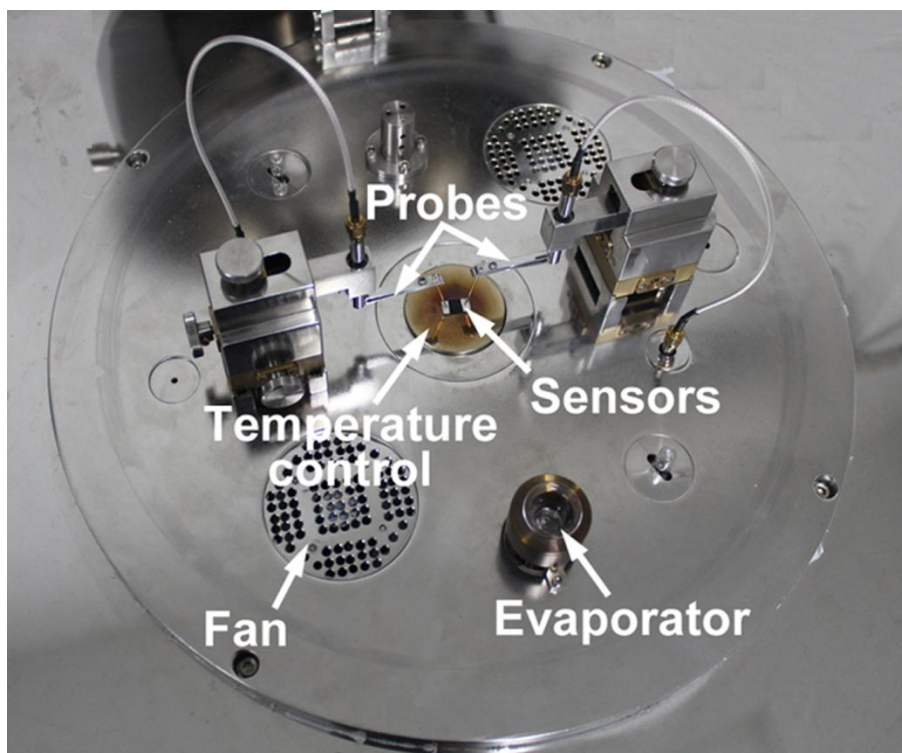


Fig. S2. A photograph of the gas sensing analysis system.

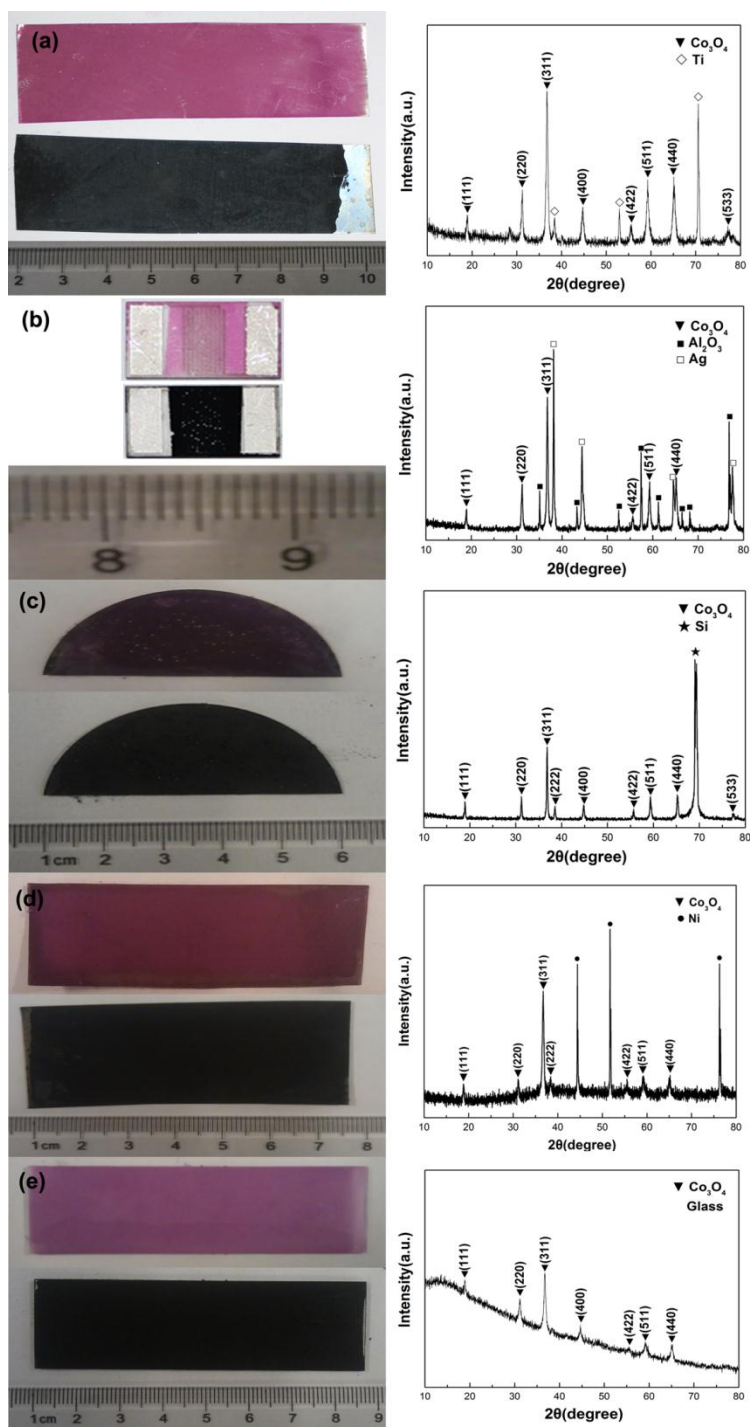


Fig. S3. Optical images and XRD patterns of rhombus-shaped Co_3O_4 NR array on: (a) Ti foil, (b) polycrystalline alumina plate, (c) Si wafer, (d) Ni foil and (e) glass substrates, respectively.

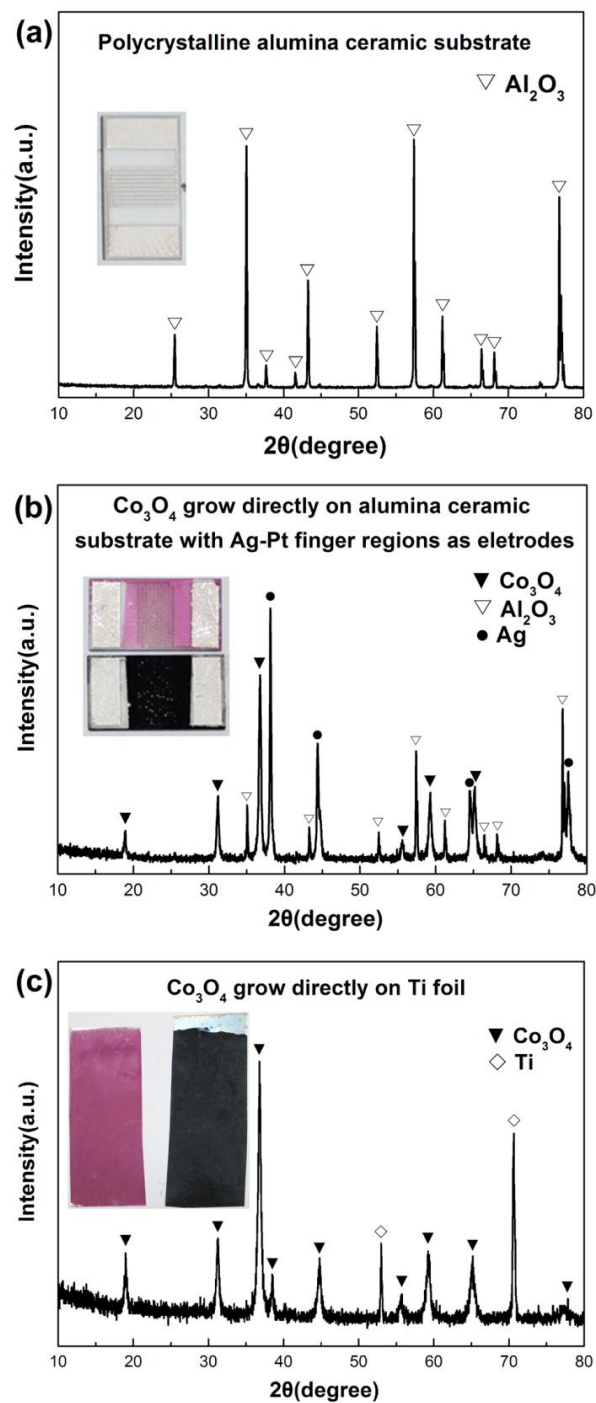


Fig. S4. XRD patterns of: (a) polycrystal alumina plate; (b) rhombus-shaped Co_3O_4 NRs on polycrystal alumina plate with Ag-Pt electrodes; (c) rhombus-shaped Co_3O_4 NRs on Ti foil.

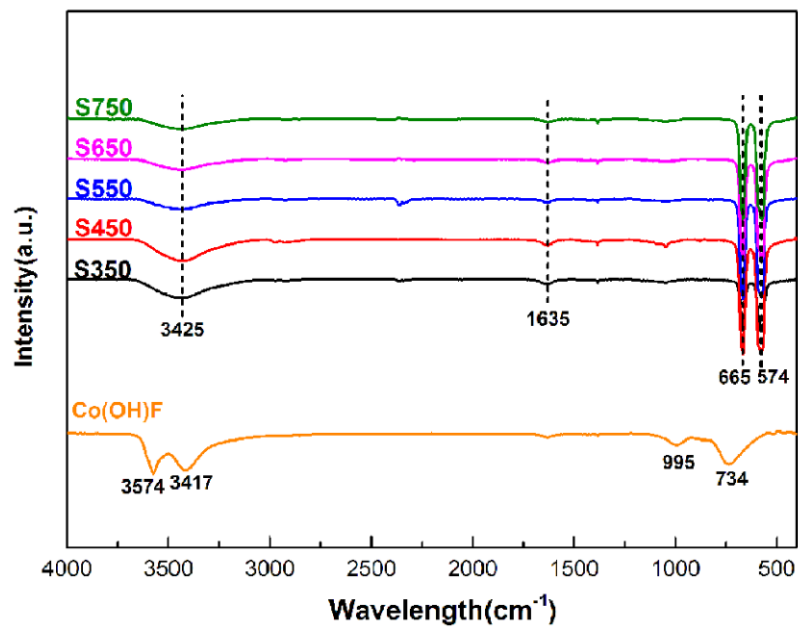


Fig. S5. FT-IR spectra of the precursor Co(OH)F and the rhombus-shaped Co₃O₄ NRs S350-S750, respectively.

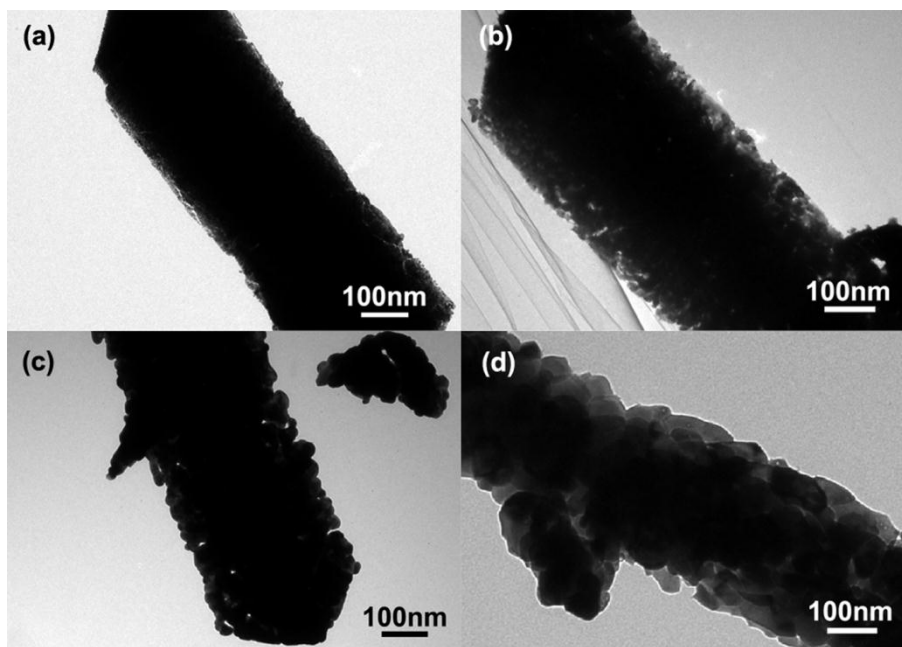


Fig. S6. TEM images of a single rhombus-shaped Co₃O₄ NR annealed at: (a) 350 °C, (b) 550 °C, (c) 650 °C and (d) 750 °C, respectively.