Supporting Information for
High performance chemiresistive H$_2$S sensors using Ag-loaded SnO$_2$ yolk-shell nanostructures.

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Fig. S1 Schematic diagram of the large scale ultrasonic spray pyrolysis process.
Fig. S2 SEM and TEM images of (a-c) SnO$_2$ spheres with dense inner structures (D-SnO$_2$) and (d-f) pure SnO$_2$ yolk-shell spheres (YS-SnO$_2$).
Fig. S3  X-ray diffraction patterns of (a) D-SnO$_2$, (b) YS-SnO$_2$, and (c) Ag-YS-SnO$_2$ spheres.
Fig. S4 X-ray photoelectron spectroscopy results of SnO$_2$ yolk-shell spheres loaded with 0.13 and 3.3 at% Ag: (a) full range spectra and (b) 3d$_{3/2}$ and 3d$_{5/2}$ peaks.
Fig. S5 Dynamic sensing transients to 5 ppm interference gases at 350°C: (a) D-SnO$_2$ spheres, (b) YS-SnO$_2$ spheres (a,b-1: C$_2$H$_5$OH; a,b-2: HCHO; a,b-3: trimethylamine; a,b-4: NH$_3$; a,b-5: benzene; a,b-6: toluene; a,b-7: o-xylene; a,b-8: H$_2$; a,b-9: CO).