Deposition of titania layer on spherical porous silica particles and their nanostructure-induced vapor sensing properties

Kota Shiba,[a] Toshiaki Takei,[a] Genki Yoshikawa[a] and Makoto Ogawa[b]*

[a] World Premier International Research Center Initiative (WPI), International Center for Materials Nanoarchitectonics (MANA), National Institute for Materials Science (NIMS), 1-1 Namiki, Tsukuba, Ibaraki 305-0044, Japan

[b] School of Energy Science and Engineering, Vidyasirimedhi Institute of Science and Technology, 555 Moo 1 Tumbol Payupnai, Amphoe Wangchan, Rayong, 21210, Thailand

*Corresponding author; e-mail: makoto.ogawa@vistec.ac.th

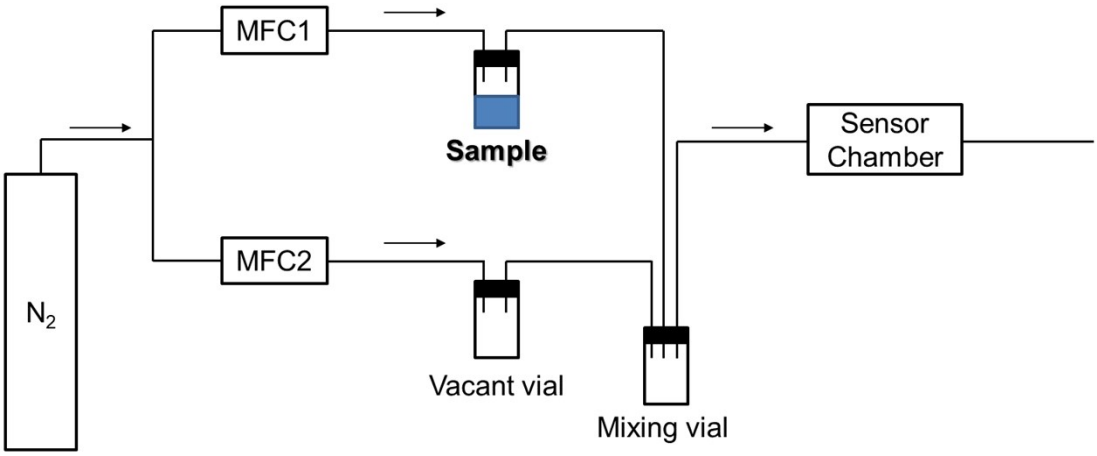

Fig. S1 A present setup for the vapor sensing tests.

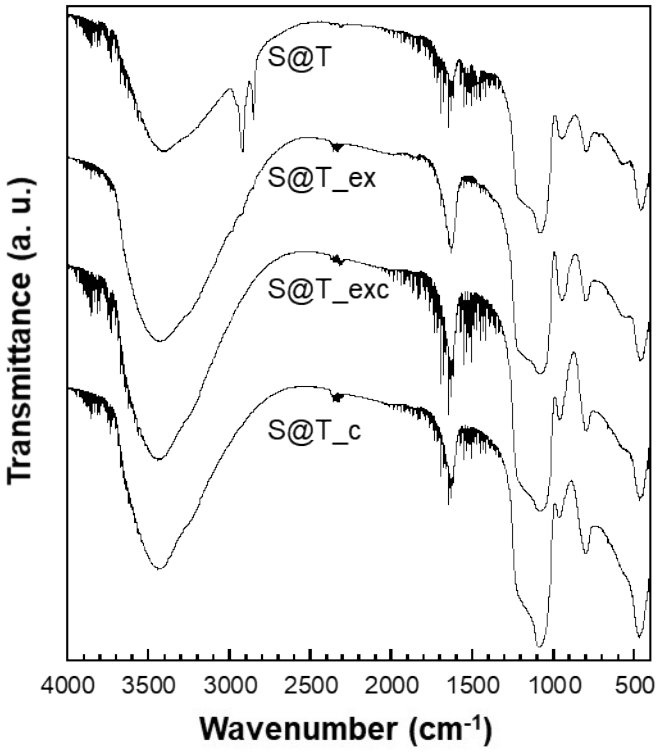

Fig. S2 FT-IR spectra of S@T, S@T_ex, S@T_exc and S@T_c.

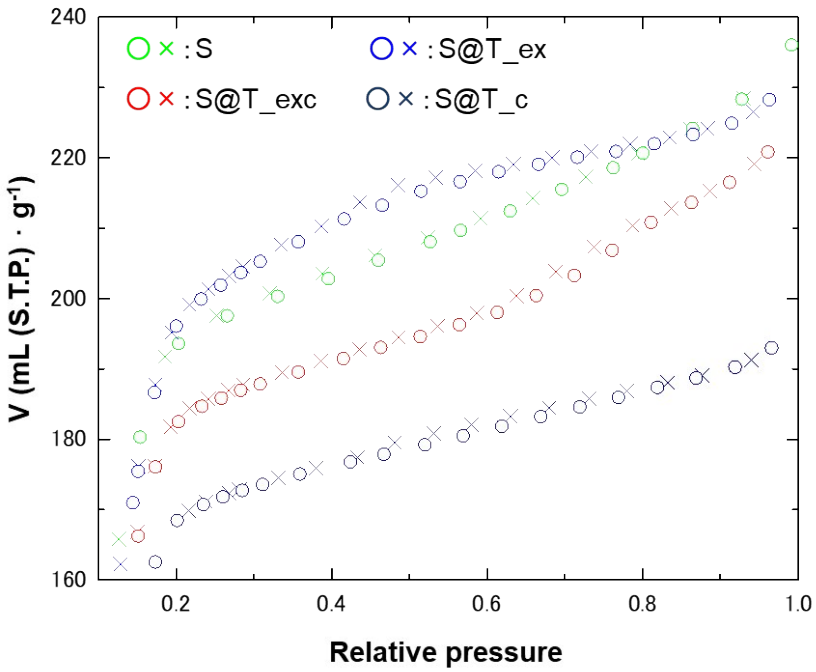

Fig. S3 Enlarged nitrogen adsorption/desorption isotherms of the samples shown in Fig. 3.

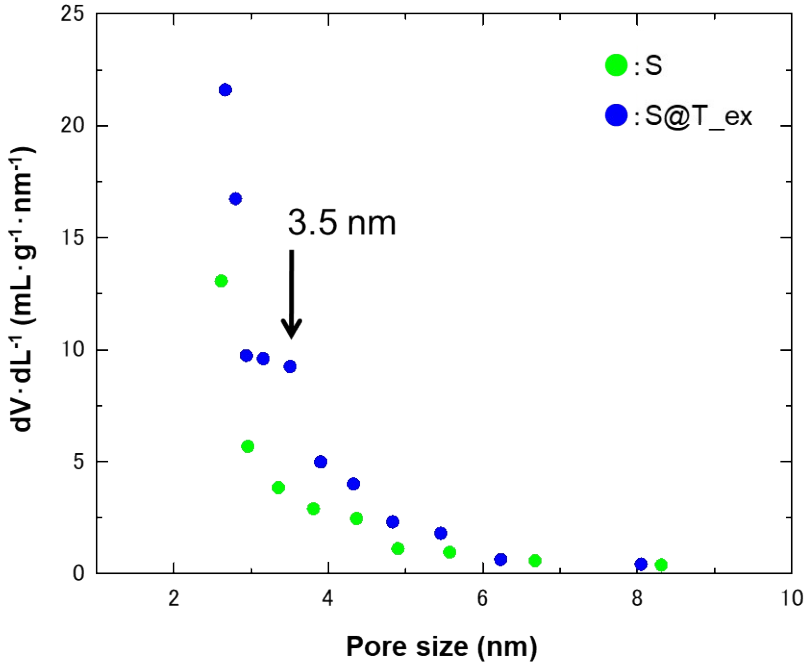

Fig. S4 Enlarged BJH pore size distributions of the samples (S and S@T_ex) shown in Fig. S3.

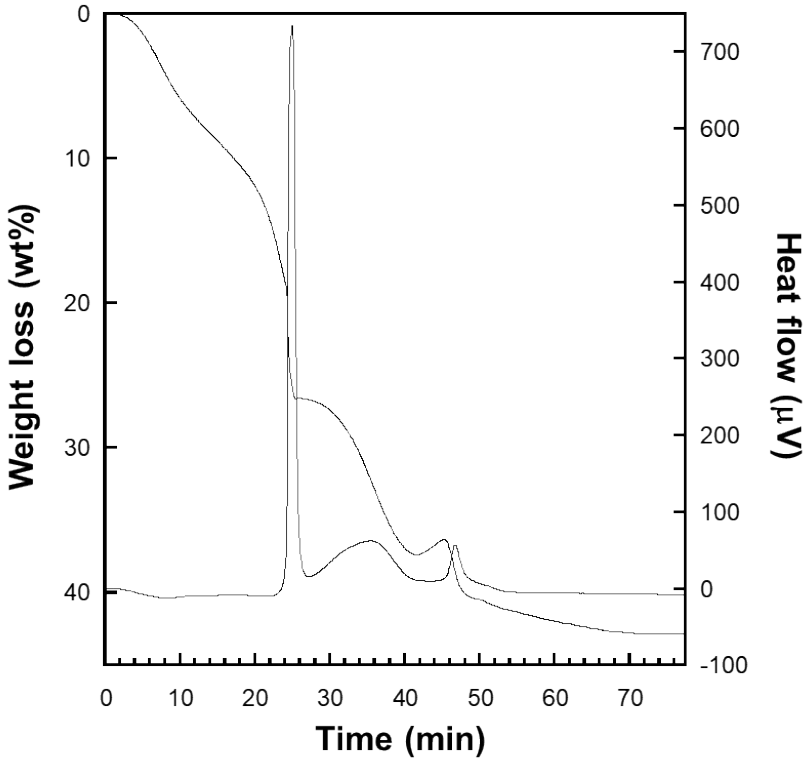

Fig. S5 TG-DTA curves of as-synthesized titania-stearic acid hybrid spherical particles.

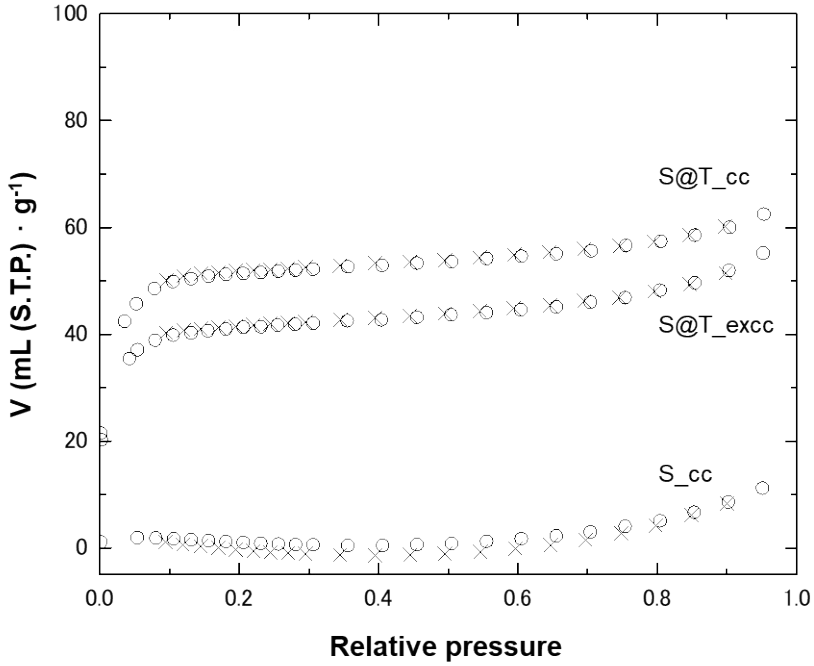

Fig. S6 Nitrogen adsorption/desorption isotherms of the samples (S, S@T_ex and S@T) after the calcination at 1000 ^{o}C for 1 h.

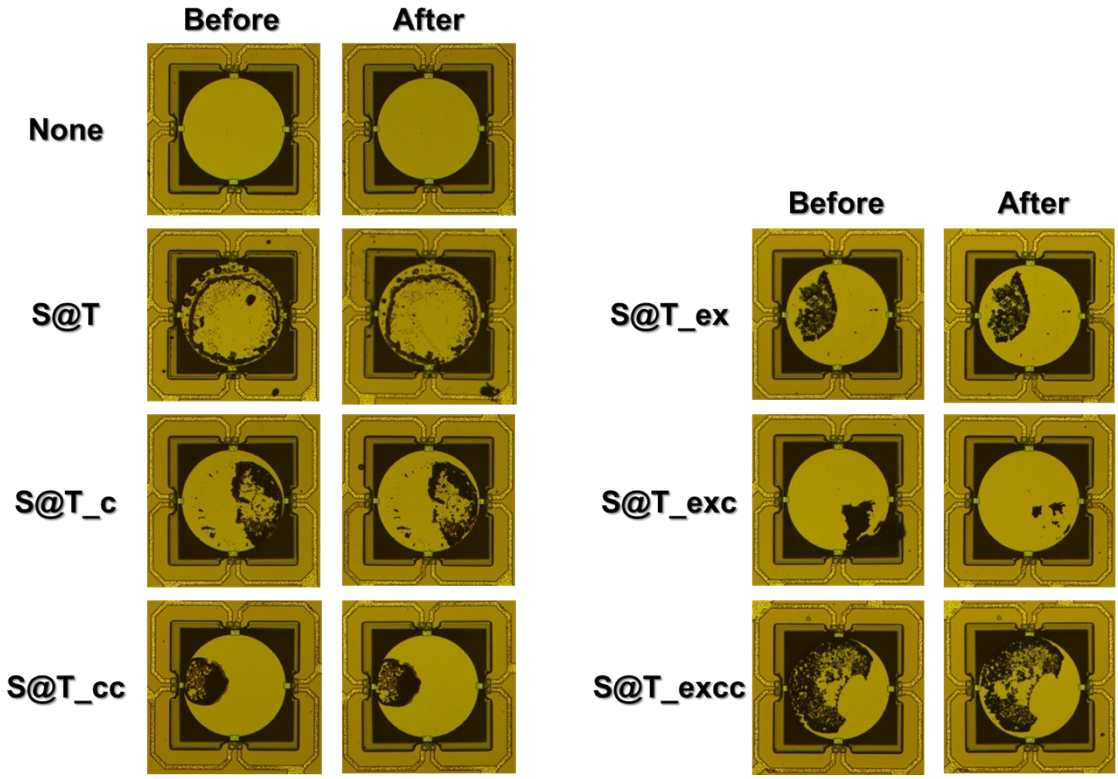

Fig. S7 Optical microscope images of each coating before and after the vapor sensing tests.