SUPPORTING INFORMATION

Engineering Hollow Mesoporous Silica Nanocontainers with Molecular Switches for Continuous Self-Healing Anticorrosion Coating

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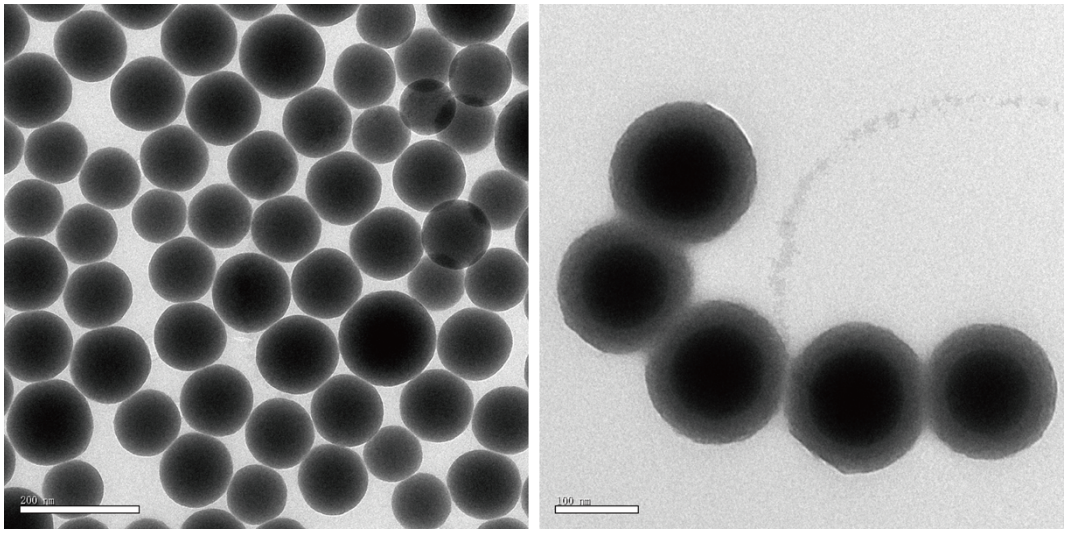

Figure S1. SEM micrographs of a) SiO_2 and b) SiO_2@CTAB/Azo-SiO_2 particles.

Figure S2. FTIR spectra of azobenzene and Azo-HMSs. It can be found that azobenzene has been successfully immobilized into mesoporous silica layer by the appearance of the azobenzene vibration modes (▲).

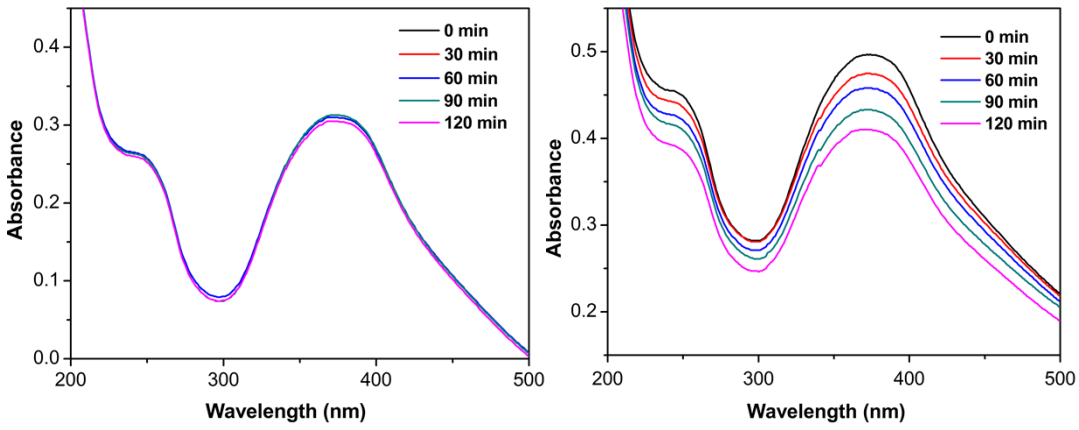

Figure S3. (left) UV-vis absorption spectral changes of Azo-HMSs under visible light. (right) UV-vis absorption spectra of Azo-HMSs before and after irradiation with UV light (365 nm) for 0 to 120 min.

Figure S4. BET nitrogen adsorption/desorption isotherms (left) and BJH pore size distribution (right) of Azo-HMSs and BTA@Azo-HMSs. Nitrogen adsorption-desorption isotherm measurements on Azo-HMSs and BTA@Azo-HMSs show an average BET surface area of approximately 991.1 and 384.2 $m^2 \cdot g^{-1}$, respectively, and a total pore volume of 0.86 and 0.35 $mL \cdot g^{-1}$. The pore size distribution of both Azo-HMSs and BTA@Azo-HMSs is as narrow as ~ 2.1 nm.

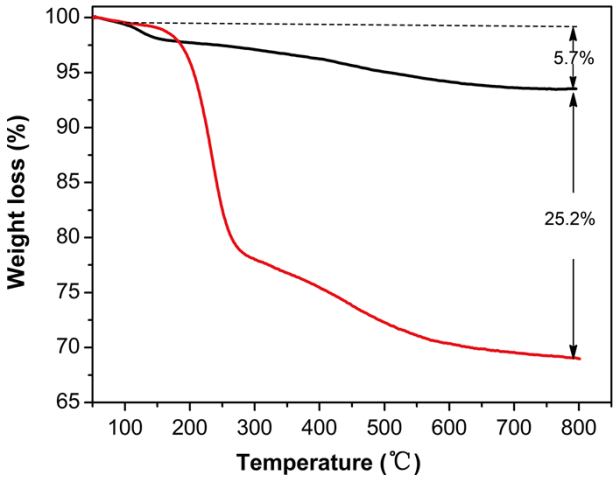

Figure S5. TGA profiles of Azo-HMSs and BTA@Azo-HMSs. TGA data show that the weight loss of Azo-HMSs and BTA@Azo-HMSs are 5.7 % and 30.9 %. The amount of azobenzene is determined to be 0.2 $mmol \cdot g^{-1}$ SiO_2 for Azo-HMSs. The loading amount of BTA is 252 mg g^{-1} SiO_2, calculated by the difference of weight loss of Azo-HMSs and BTA@Azo-HMSs.

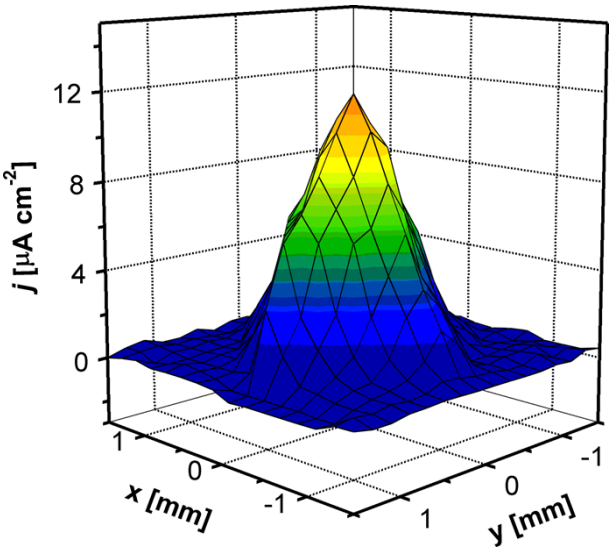

Figure S6. SVET current density maps obtained after the fourth times of repeating scratching.