

Supporting Information

Aqueous Route to Facile, Efficient and Functional Silica Coating of Metal Nanoparticles at Room Temperature

Kwok Wei Shah^{a,†}, Thammanoon Sreethawong^{a,†}, Shu-Hua Liu^a, Shuang-Yuan Zhang^a,
Li Sirh Tan^b and Ming-Yong Han^{a,*}

^aInstitute of Materials Research and Engineering, Agency for Science, Technology and Research (A*STAR), 3 Research Link, Singapore 117602.

^bBuilding and Construction Authority, 200 Braddell Road, Singapore 579700.

*E-mail: my-han@imre.a-star.edu.sg

†These authors contributed equally to this work.

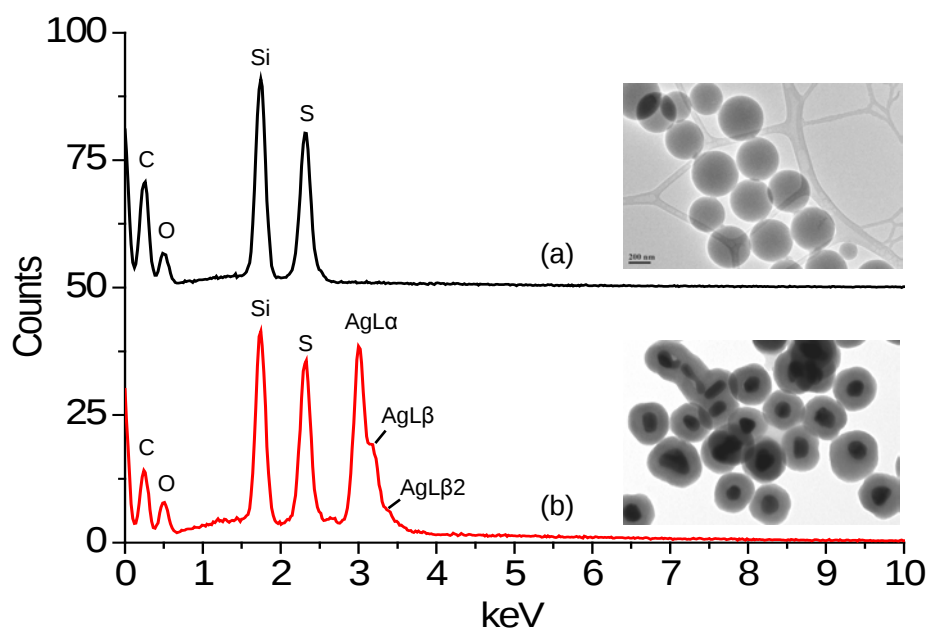


Figure S1. EDX spectra of (a) SiO₂-SH NPs and (b) Ag@SiO₂-SH NPs (synthesized after 3 h silica coating). Insets are their corresponding TEM images. Carbon peaks appear due to the scattering caused by carbon tape used to mount the samples on a holder.

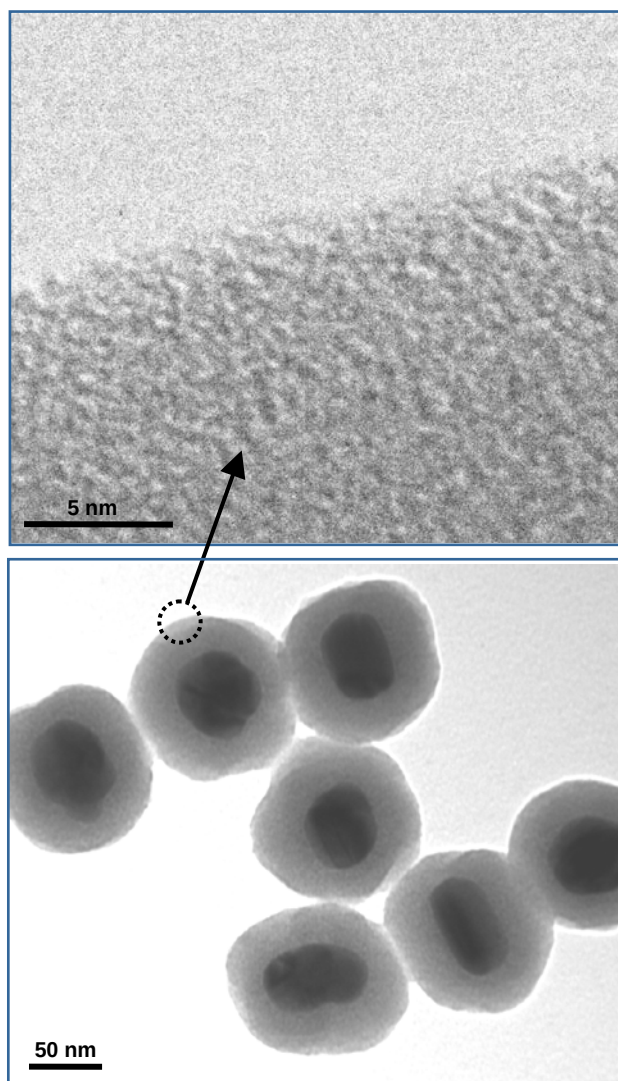


Figure S2. High-resolution TEM image of SiO₂-SH shell and its corresponding TEM image of Ag@SiO₂-SH NPs.

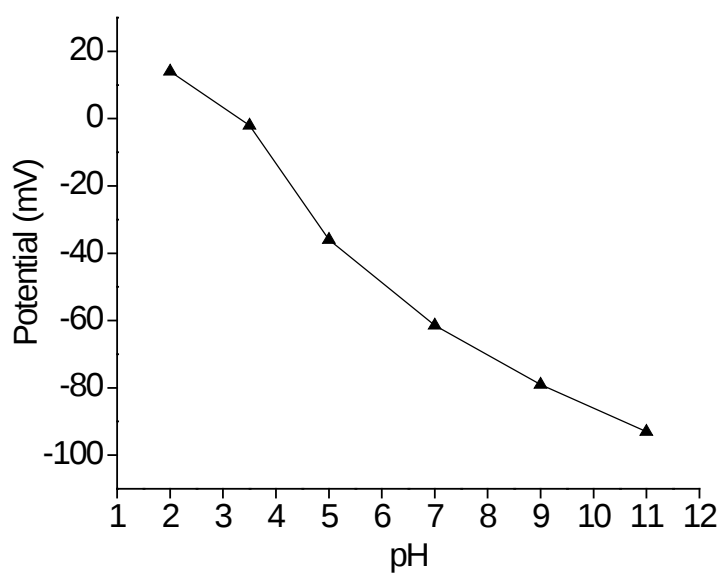


Figure S3. pH-dependent Zeta potential of MPTMS-derived SiO₂-SH NPs.

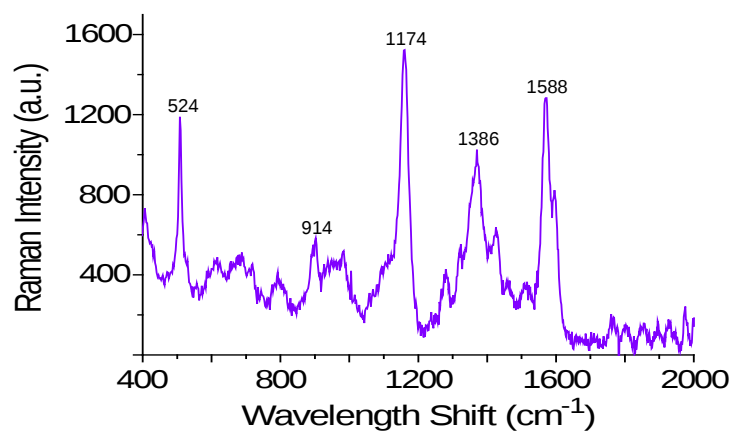


Figure S4. SERS spectrum of crystal violet (CV)-adsorbed Ag@SiO₂-SH NPs.

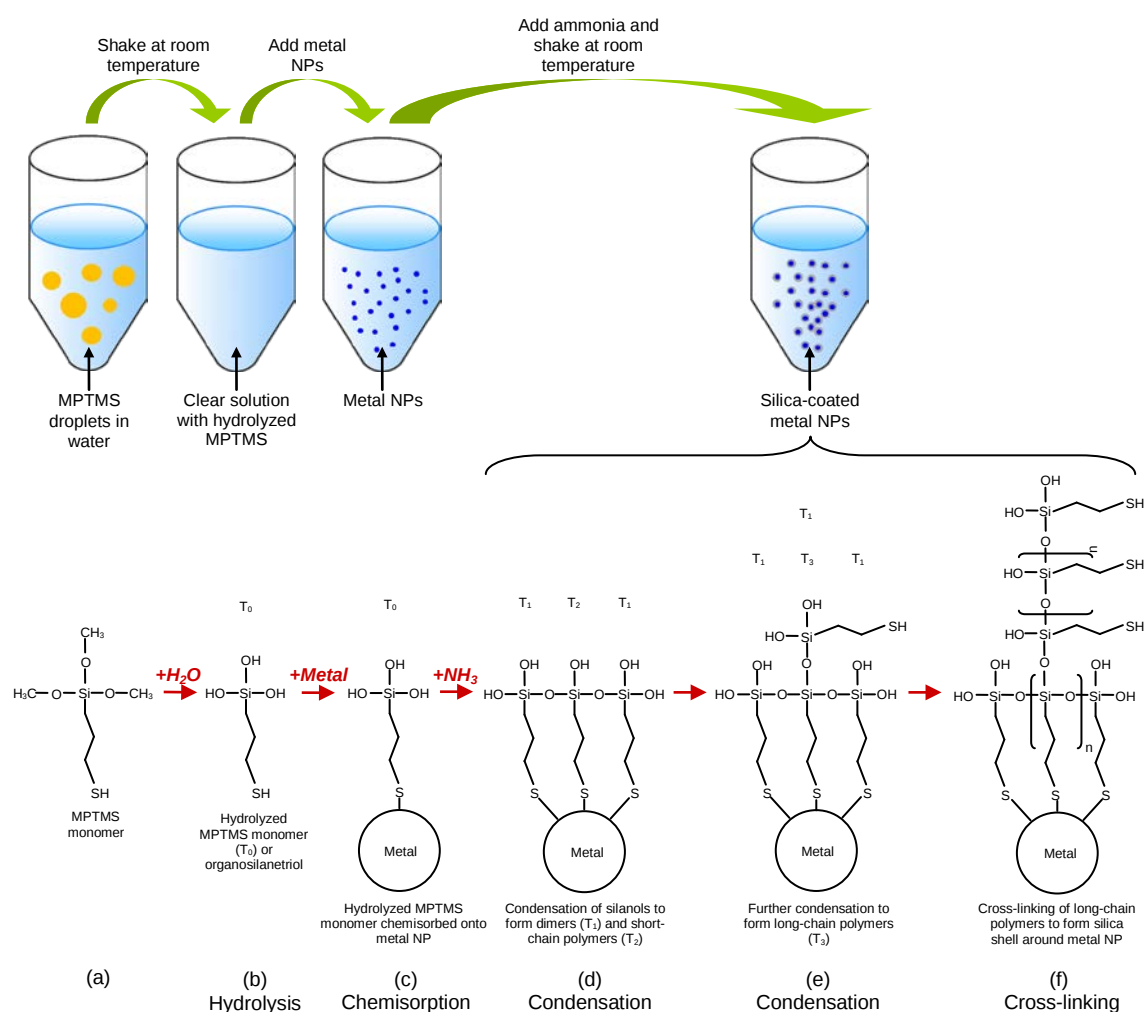


Figure S5. Schematic diagram showing the process and mechanism of $\text{SiO}_2\text{-SH}$ coating on surface of metal NPs using MPTMS in aqueous solution. T_n denotes the number of connectivity (n) of silicon atoms to form a siloxane bond (Si-O-Si).