Supporting Information

Superhydrophobic Pure Silver Surface with Flowerlike Structures by a Facile Galvanic Exchange Reaction with $[Ag(NH_3)_2]OH$†

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Experimental Section:

Materials and Methods.

The copper plate was first treated by hydrochloric acid to to remove oxidants from the surface and then rinsed with water to eliminate contaminants. Subsequent immersion of this freshly treated substrate into an aqueous solution of $[Ag(NH_3)_2]OH$ for a certain time. The whole reaction was performed at room temperature and ambient pressure. the silver nanostructures with different morphologies were obtained by adjusting the $Ag(NH_3)^{2+}$ solution concentration and reaction time. The obtained products were rinsed using distilled water, then blow-dried with N_2 for characterization by SEM and contact-angle system. Samples for TEM were fribrated as follow: The obtained products were peeled carefully from the copper plate with tweezers and put into a beaker. Then, the products were rinsed using distilled water within an ultrasonic condition. Finally, the product was collected for characterization by TEM.

Characterization.

Scanning electron microscopy (SEM) and energy-dispersive X-ray analysis (EDX) were carried out by using a Hitachi, S-4300 equipped with an energy-dispersive X-ray detector. The high-resolution transmission electron microscopy (HRTEM, JEOL JEM-2010) measurements were performed at an accelerated voltage of 200 kV equipped with a CCD camera. The electron diffraction (ED) experiment was carried out on a single nanoplate observed in the TEM micrograph; the crystal spacing (dhkl) values were calculated directly by measuring the distance between the opposite spots on the same circumference of the ED pattern. CAs were measured on a dataphysics Germany OCA20 contact-angle system. Deionized water droplets (about 3μL) were dropped carefully onto the obtained film. An average CA value was obtained by measuring the same sample at five different positions.

SEM image of different size of micro-nanoflower

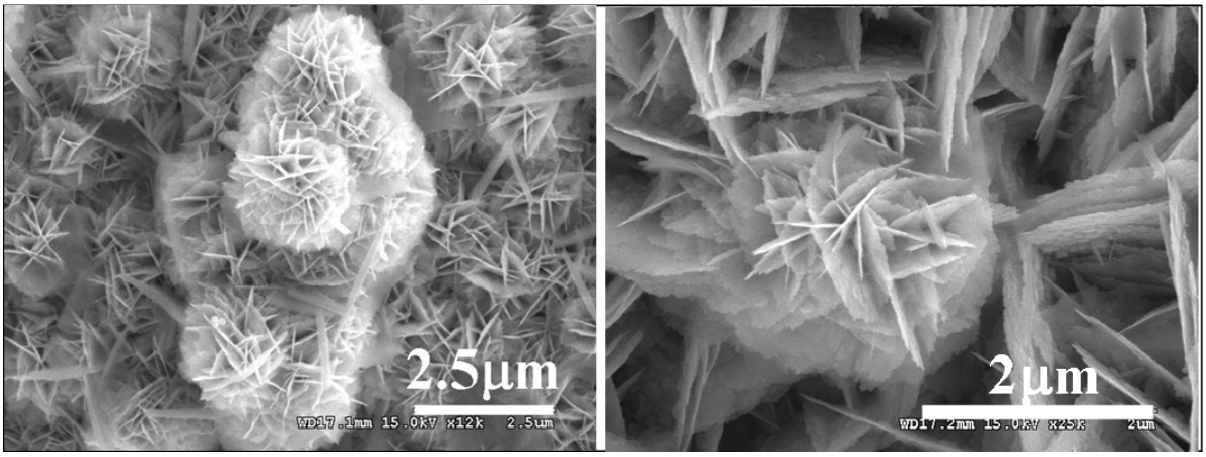

Figure S1. SEM image of different size of micro-nanoflowers

SEM image of the as-prepared silver surfaces (0.01 M, 12 h).

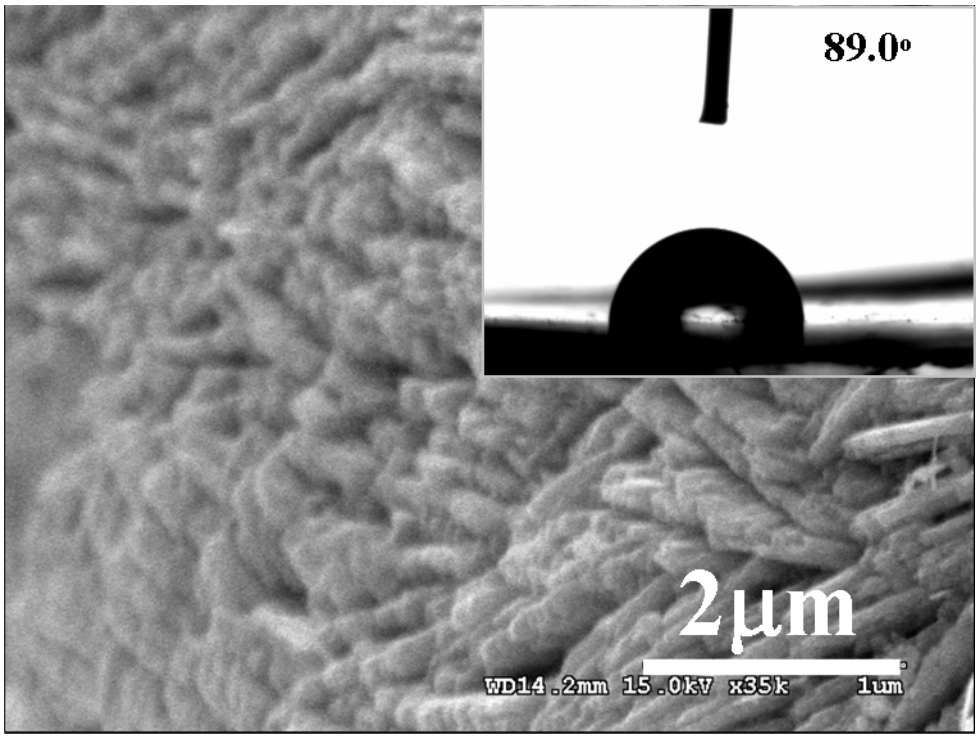

Figure S2. SEM image of the as-prepared silver surfaces (0.01 M, 12 h).