

Supplementary Information

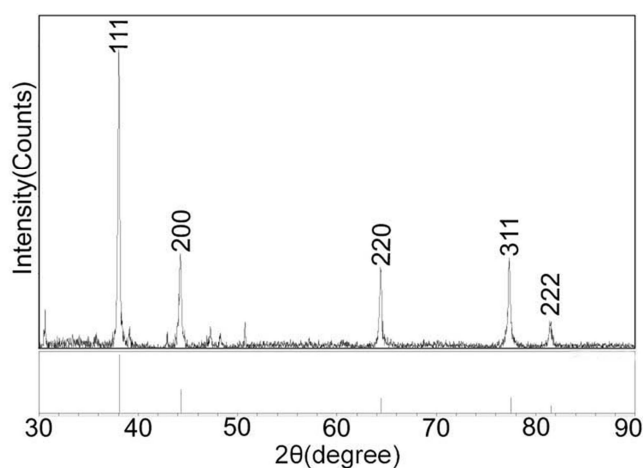


Fig. S1 XRD patterns of silver dendrites.

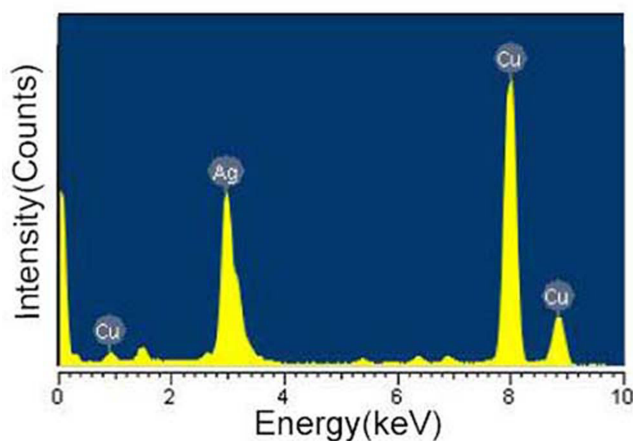


Fig. S2 EDS analysis of silver dendrites. Cu is from the TEM grid.

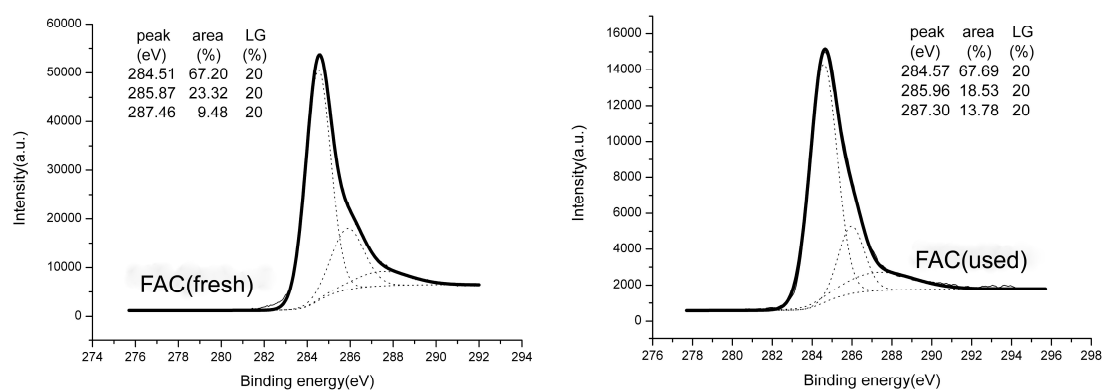


Fig. S3 XPS analysis of virgin FAC (FAC (fresh)) and silver- deposited FAC (FAC (used)).

	BET surface area (m ² /g)	conductivity (S/cm)
formed activated carbon (FAC)	700	35
grafite	320	2
bamboo-charcoal	1300	0.014
generic activated carbon	223	2.77

Tab. S1 The conductivity and BET surface area data of FAC and other carbon products (grafite, bamboo-charcoal, generic activated carbon).

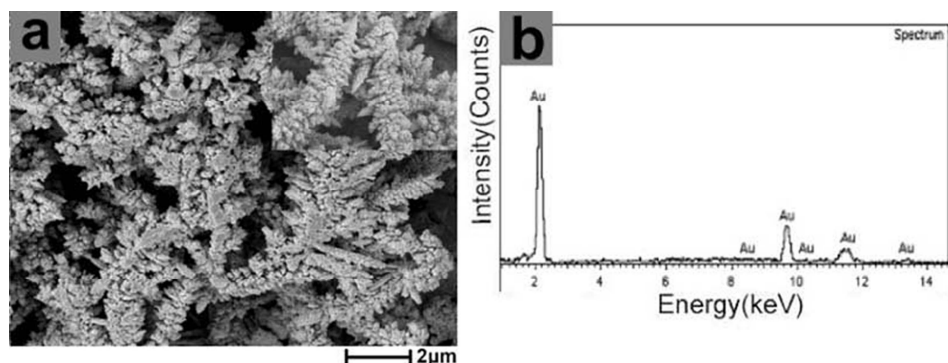


Fig. S4 a) SEM image and b) EDX analysis of gold dendrites.

The IR characteristic absorptions of the virgin FAC (FAC (fresh)) and the silver-deposited FAC (FAC (used)) samples are shown in Fig. 2. Both samples show an intense and broad band situated in the region 3429–3438 cm⁻¹ corresponding to -OH stretching vibrations in hydroxyl groups involved in hydrogen bonds and attributed to the presence of adsorbed water by FAC samples. Other intense bands at 1629/1634, 1384/1388 cm⁻¹ are associated with stretching C=C and bending in-plane CH₃, respectively.

Pictures in Scheme 1 show scanning electron microscopy (SEM) images of the nanostructures obtained at different stages of the reactions between an aqueous solution of silver nitrate and FAC. We change immersion time while keeping other parameters such as concentration and volume of aqueous silver nitrate solution, size of FAC constant. At an initial stage of the adsorb-grow process, silver nanodots appear on smooth site of FAC outer surface. Silver nanodots grow up gradually and have a marked tendency to form clusters according to the extension of immersion time. The SEM image indicates the formation of distinct Ag dendrites after 2 hours immersion. The fractals of dendritic nanostructures are constantly formed as time extends. Ultimately, a layer of shedding silver dendritic fibers fall off from outer surface of FAC, which was confirmed by SEM.