

Electronic supplementary information for:

**Synthesis of Gold Nanopeanuts by Citrate
Reduction of Gold Chloride on Gold-Silver
Core-Shell Nanoparticles**

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Energy-dispersive X-ray (EDX) and Inductively Coupled Plasma Optical

Emission Spectrometer (ICP-OES) were employed to analyze the components of our products at different stages of the nanopanute growth reaction. AgCl precipitate in the samples was removed by adding NaCl powder and washing with water for several times. Before EDX analyses, the samples were dried in vacuum. The spectra shown here indicate that the Ag shells were dissolved completely in the first few seconds (Fig. S1-S2) and no Ag component was detected after 10 seconds (Fig. S3-S4). For ICP-OES detection, the samples are dissolved in aqua regia. The result in Table S1 also indicates that the Ag component was dissolved in the first 10 seconds.

High-resolution transmission electron microscopy (HRTEM) was performed to characterize the core-shell structure of the starting nanoparticles. The image in Fig. S5 shows that the Au NPs are coated by a low-contrast layer, indicating that the starting nanoparticles synthesized by reduction of AgNO₃ on Au NPs are Au-Ag core-shell structure.

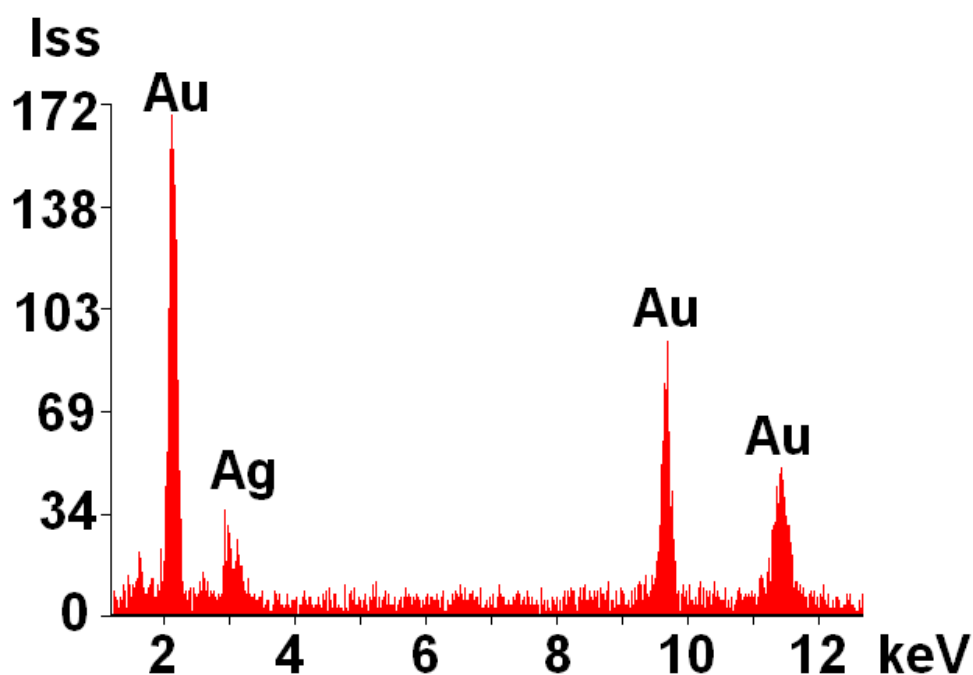


Fig. S1 EDX spectrum of the Au-Ag core-shell nanoparticles (NPs) (sample of Fig. 2C). The atom ratio of Ag and Au (Ag:Au) in this sample is about 0.33.

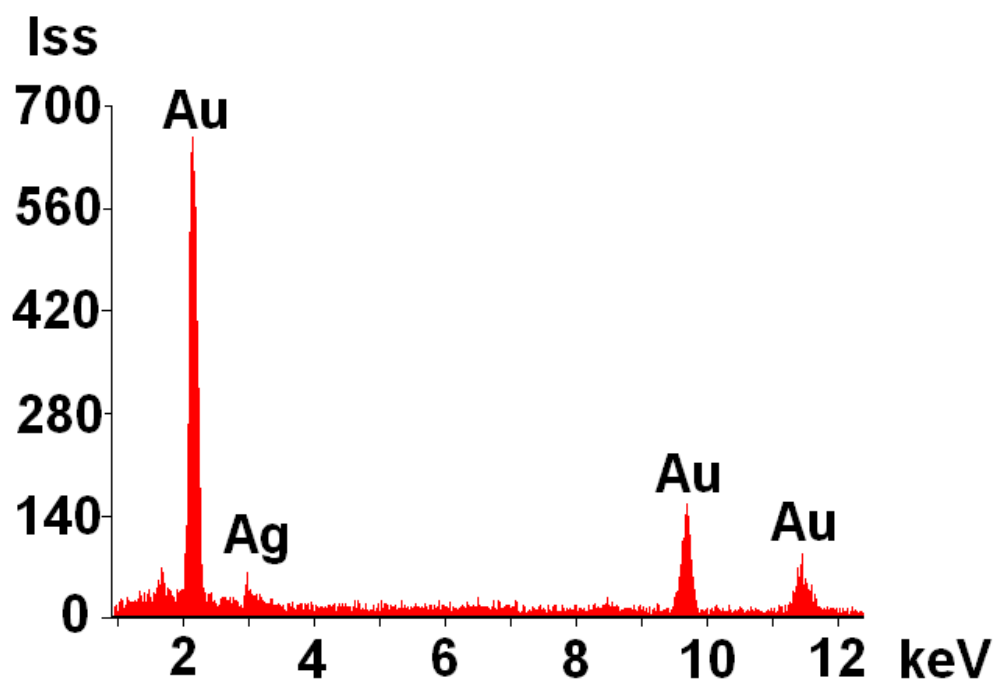


Fig. S2 EDX spectrum of the product obtained at 5 s (sample of Fig. 2D). The atom ratio of Ag and Au (Ag:Au) in this sample is about 0.15.

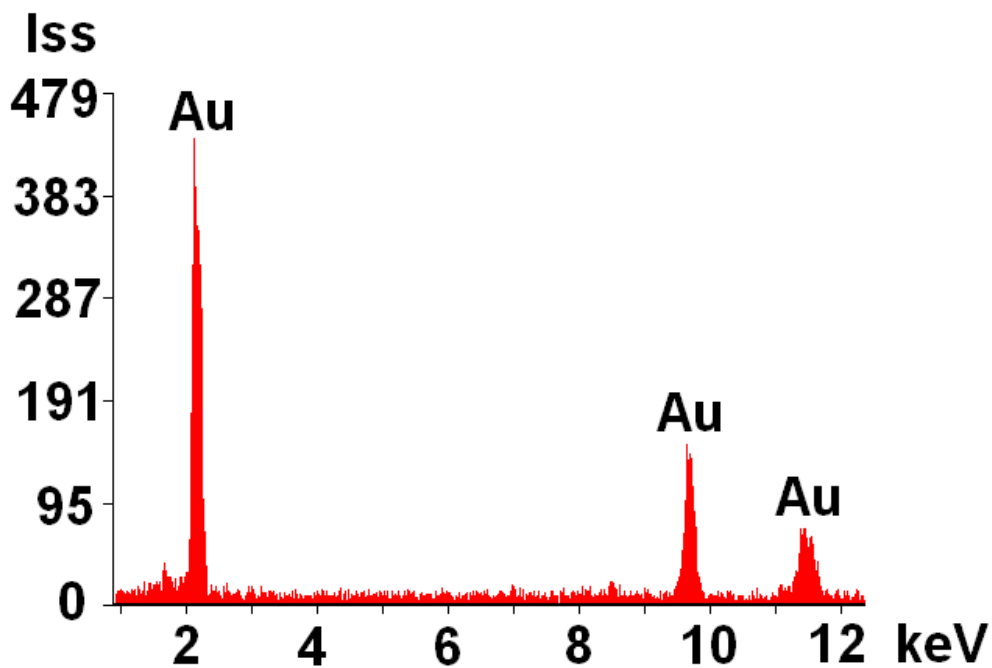


Fig. S3 EDX spectrum of the product obtained at 10 s. No Ag component was found in this sample.

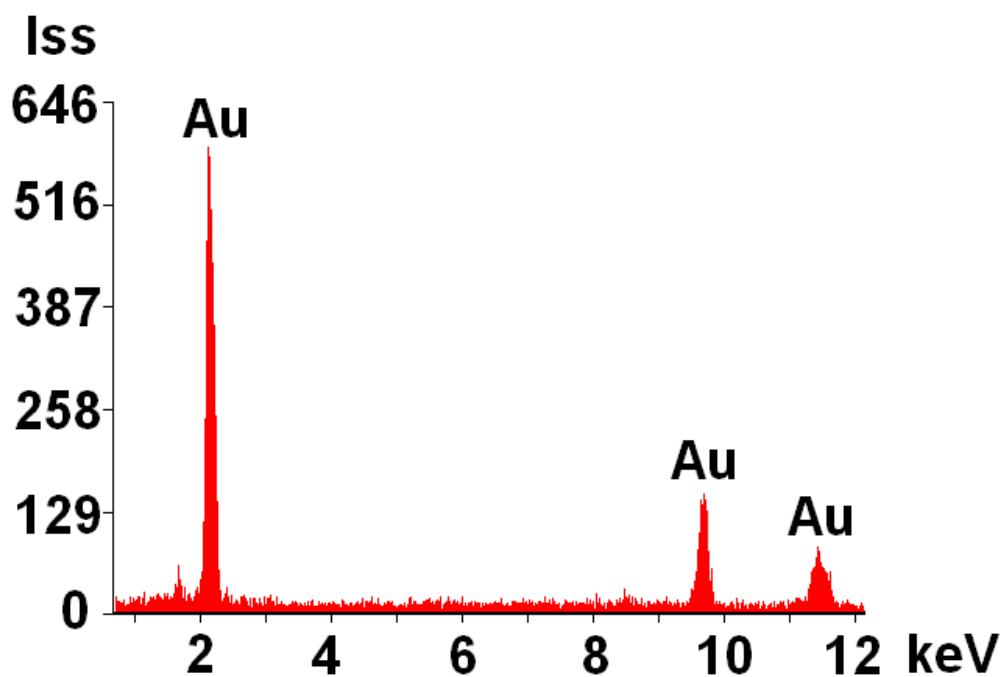


Fig. S4 EDX spectrum of the product obtained at 20 min (sample of Fig. 2F). No Ag component was found in this sample.

Table S1 The atom ratio (Ag:Au) of Au-Ag core-shell NPs (0s) and products obtained at different reaction times measured by ICP-OES.

Sample	0s	5s	10s	20min
Ag:Au	0.58	0.18	0	0

Table S2 Operation parameters of Intrepid XSP Radial ICP-OES.

RF generator power (W)	1150
Frequency of RF generator (MHz)	27.12
Coolant gas flow rate (L/min)	14
Auxiliary gas flow rate (L/min)	0.5
Carrier gas flow rate (L/min)	0.6
Max integration times (s)	15
Analytical wavelength (nm)	
Ag	338.289
Au	242.795

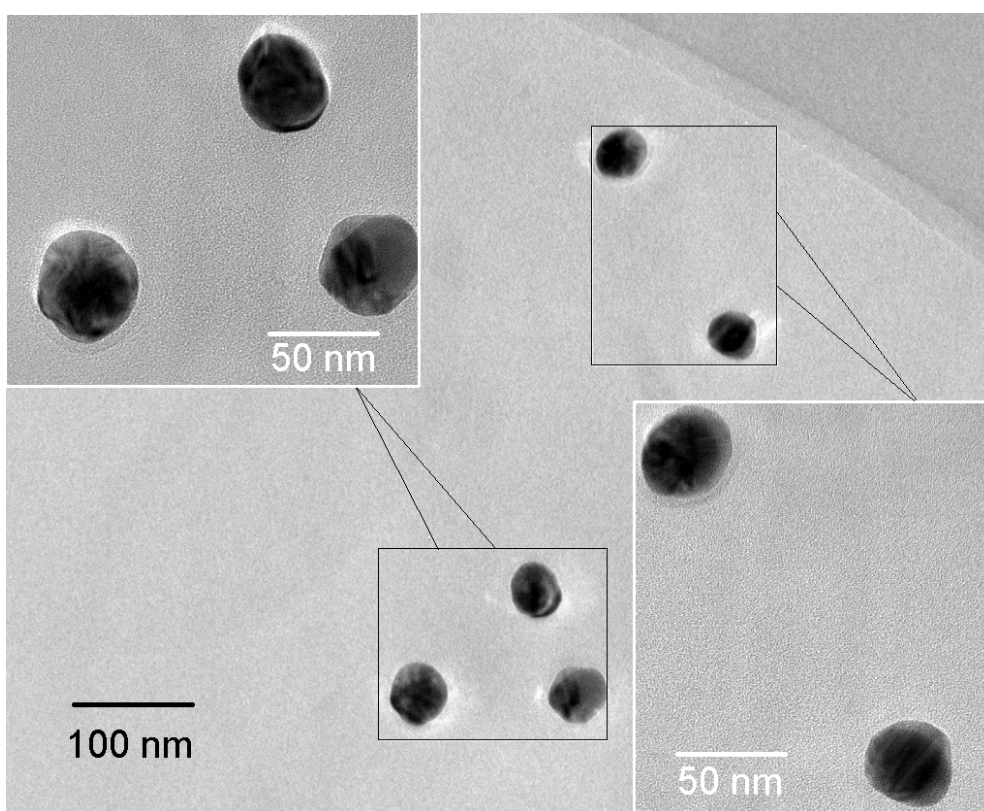


Fig. S5 HRTEM image of the Au-Ag core-shell NPs synthesized by reduction of AgNO₃ on Au NPs.