Electronic Supplementary Information

Gold-spiked coating of silver particles through cold nanowelding

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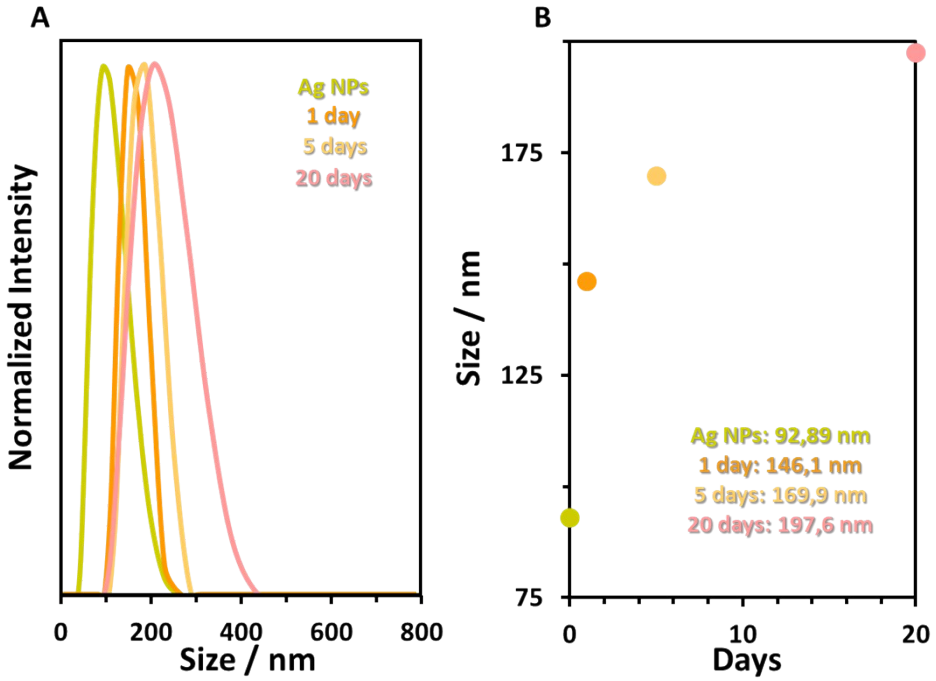

Figure S1. (A) DLS size distribution of the individual silver nanoparticles and the segregated alloy of silver coated with gold formed after the reaction of the Ag particles with the Au seeds at different times (1 day, 5 days, and 20 days). (B) Plot showing the size evolution of the silver nanoparticles and the segregated alloy with time.

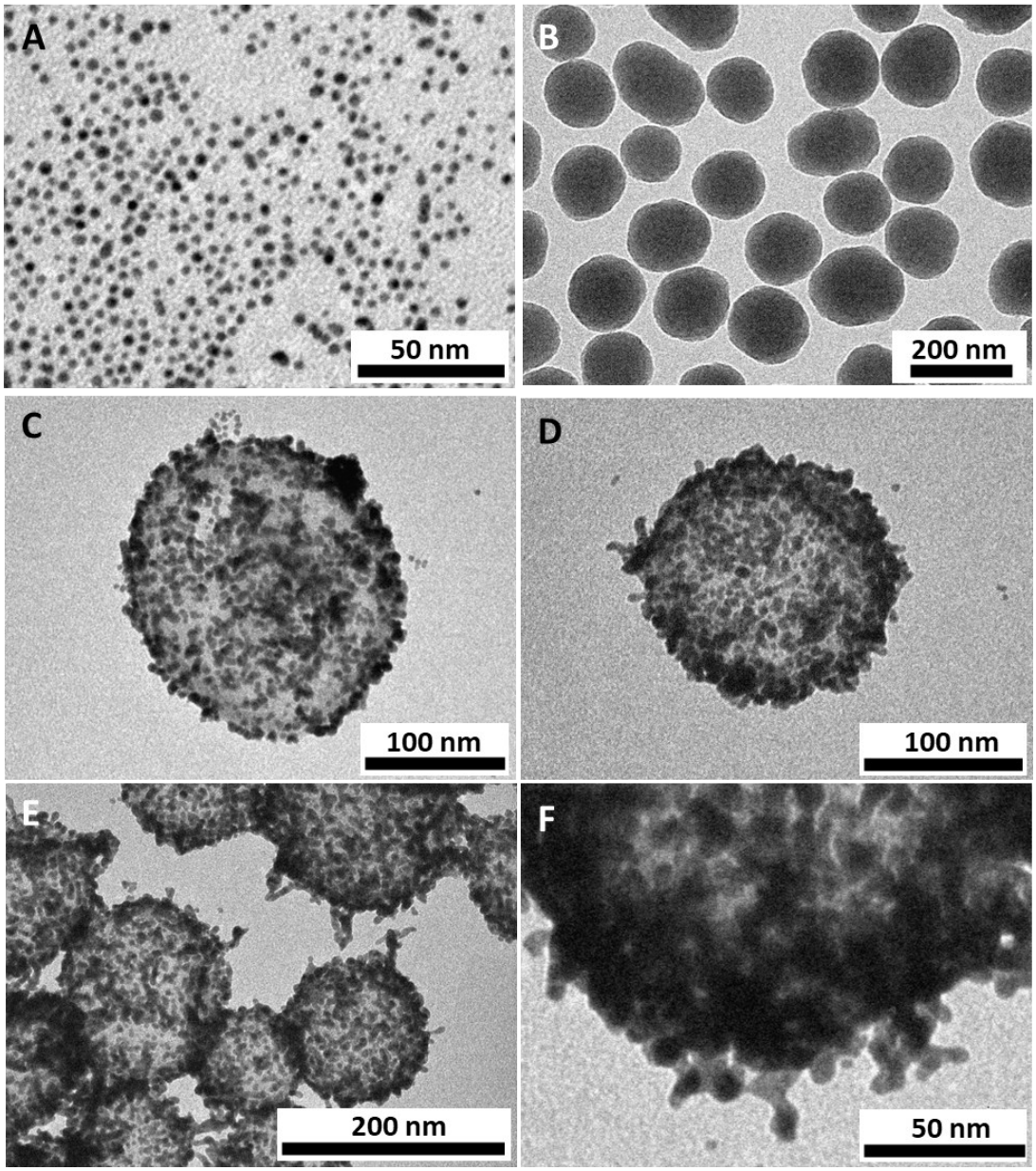

Figure S2. Transmission electron microscopy images of the individual gold seeds (A), SiO_2 nanoparticles (B), and the SiO_2 NPs coated with the Au seeds at different times 1 day (C) and 5 days (D). (E and F) are TEM images corresponding to 5 days welding process at lower and higher magnifications respectively. Showing how the welding process also takes place in the absence of Ag cores.

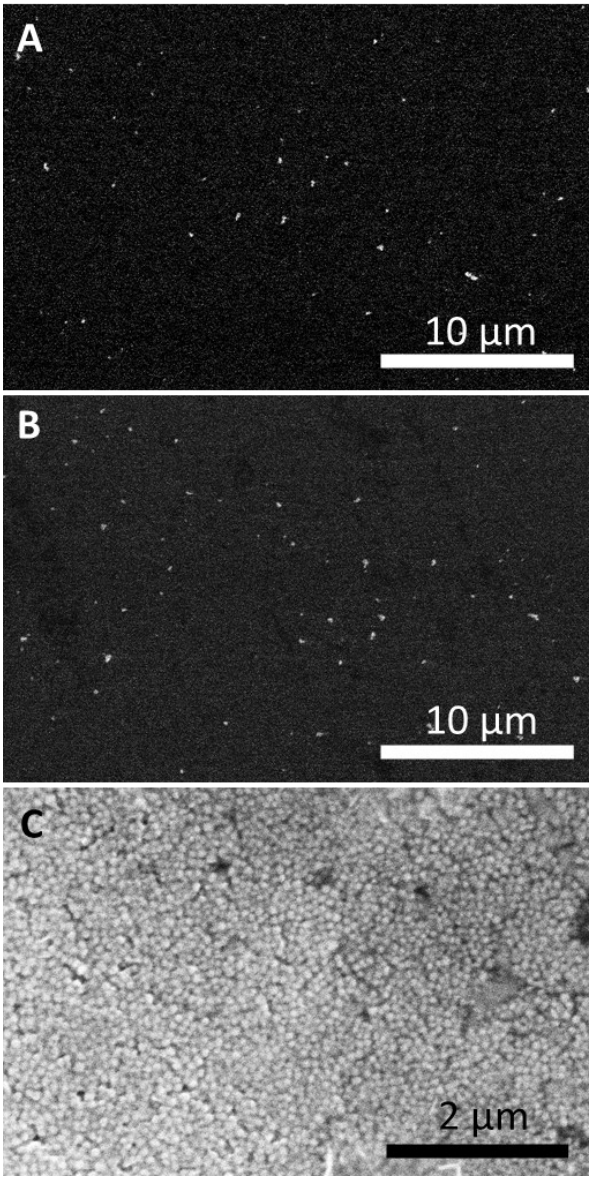

Figure S3. SEM images of the isolated segregated alloy of Ag@Au after 5 days of reaction (A), isolated silver nanoparticles of 90 nm (B) and aggregated silver nanoparticles (C). The samples (A, B) were prepared by spin-coating diluted solutions of the colloids on silicon wafers to achieve isolated NPs. Sample (C) was prepared casting concentrated solutions to generate extended aggregates.