Gradual Transformation of Ag_2S to Au_2S Nanoparticles by Sequential Cation Exchange Reactions: Binary, Ternary and Hybrid Compositions

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SUPPORTING INFORMATION

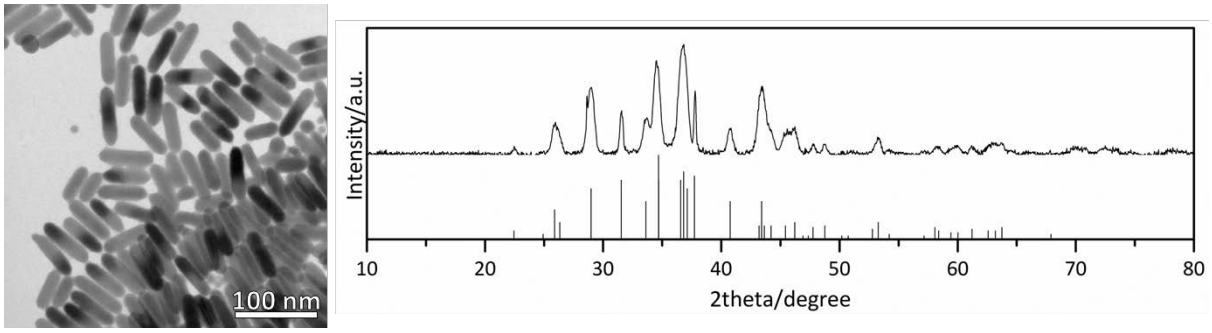

Figure S1: TEM micrograph (left) and XRD pattern (right) of Ag_2S nanorods. Monoclinic Ag_2S (JCPDS 024-0715) reference pattern.

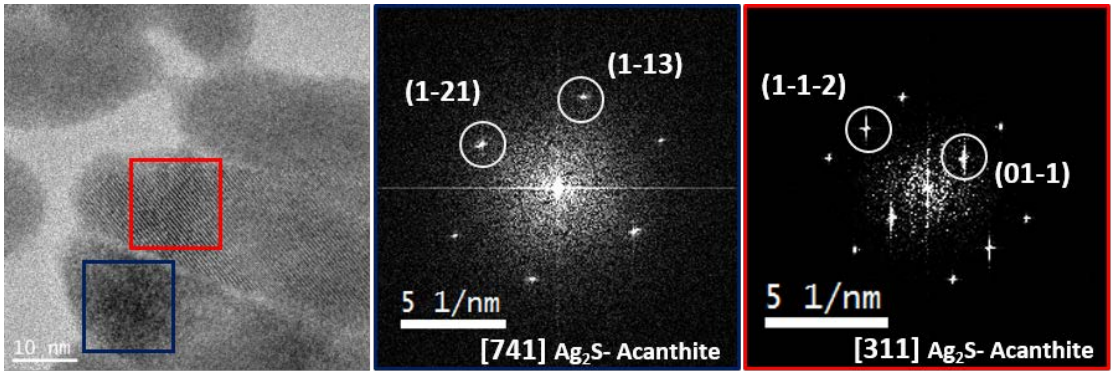

Figure S2: HRTEM image with indexed FFT from the corresponding highlighted regions of Ag_2S nanorods.

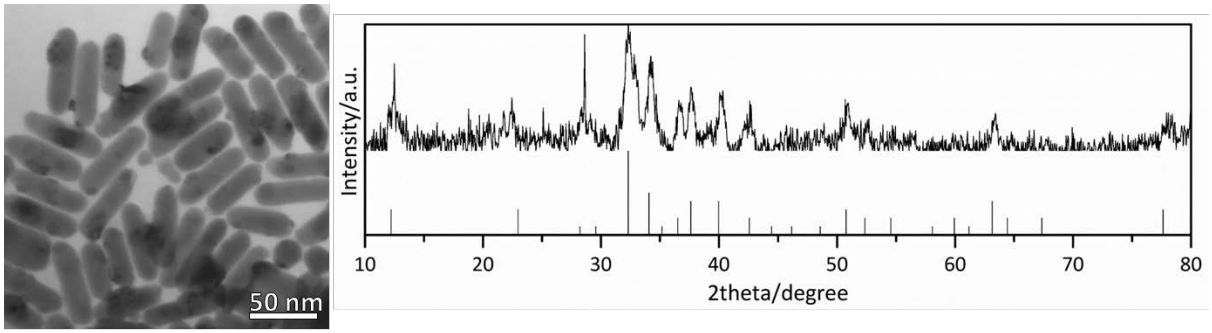

Figure S3: TEM micrograph (left) and XRD pattern (right) of Au-Ag_3AuS_2 hybrid nanorods. Tetragonal Ag_3AuS_2 (JCPDS 020-0461) reference pattern.

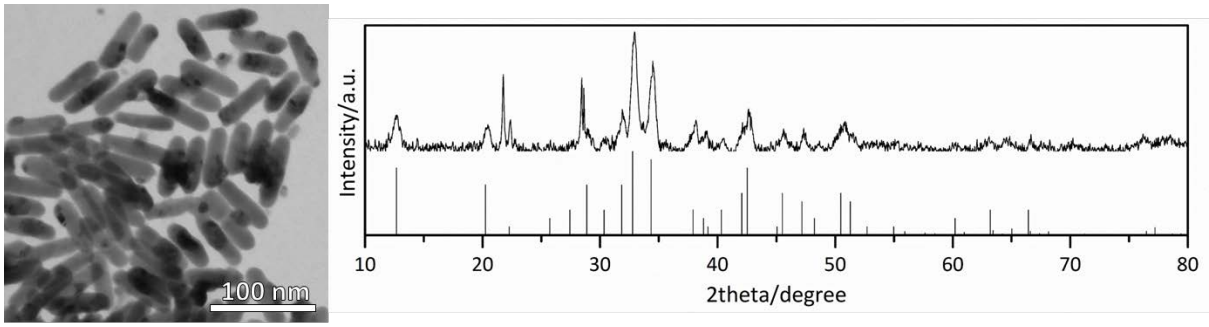

Figure S4: TEM micrograph (left) and XRD pattern (right) of Au-AgAuS hybrid nanorods. Monoclinic AgAuS (JCPDS 038-0396) reference pattern.

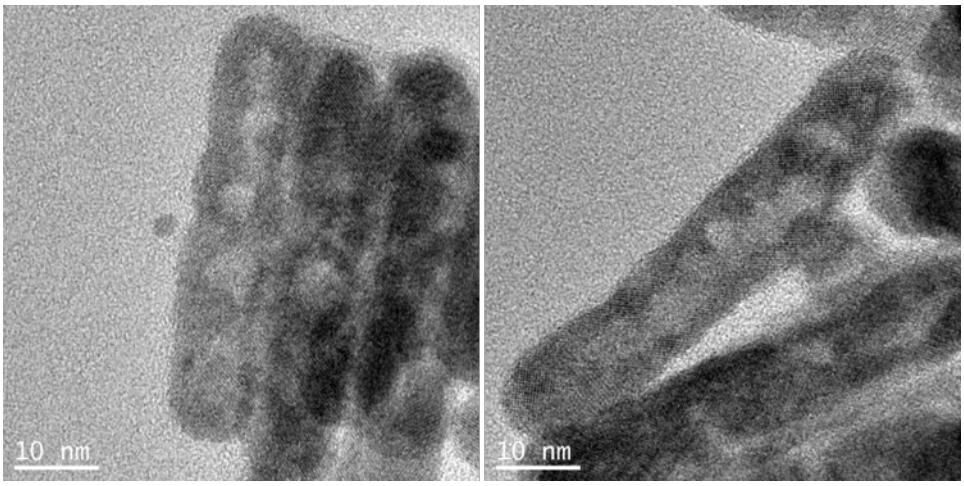

Figure S5: HRTEM images of Au_2S hollow nanorods.

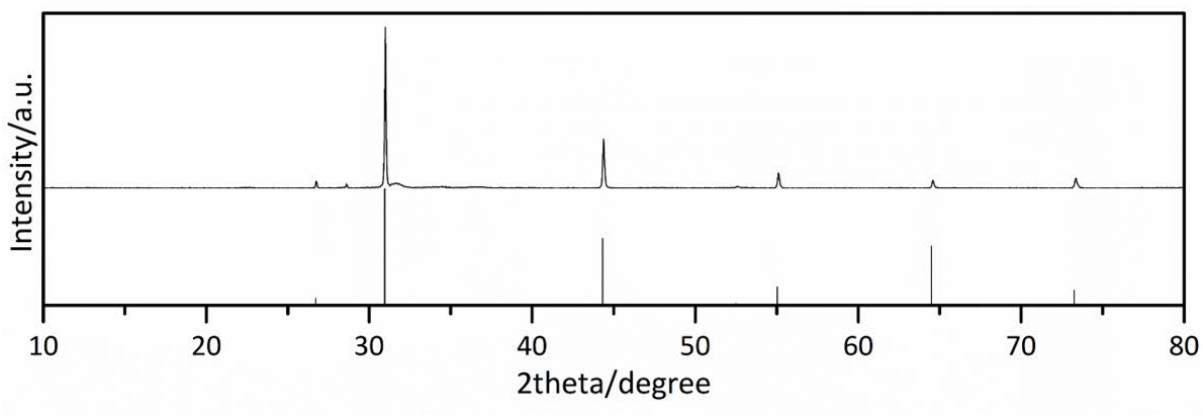

Figure S6: XRD pattern of a Au-Ag_3AuS_2 sample impurified with AgBr. Cubic AgBr (JCPDS 079-0149) reference pattern.

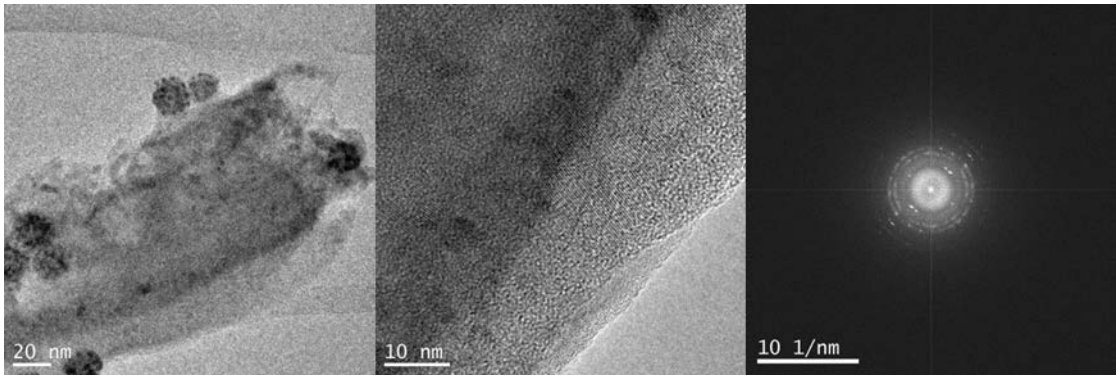

Figure S7: TEM bright field image (left), HRTEM image and corresponding FFT. The circles in the FFT correspond to the following spacings (from innermost to outermost rings): 4.0Å, 2.8Å, 2.4Å, 2.0Å, 1.7Å. This distances correspond to $d\{110\}_{AgBr}$=4.134Å, $d\{200\}_{AgBr}$=2.923Å, $d\{211\}_{AgBr}$=2.387Å, $d\{220\}_{AgBr}$=2.067Å, $d\{222\}_{AgBr}$=1.688Å.