Supporting Information

Multi-interfacial Plasmon Coupling in Multigap (Au/AgAu)@CdS Core-Shell Hybrids for Efficient Photocatalytic Hydrogen Generation

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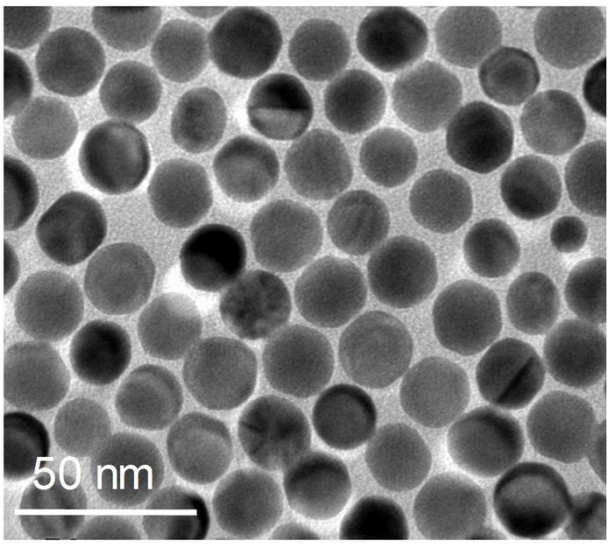

Figure S1. TEM image of Au nanospheres.

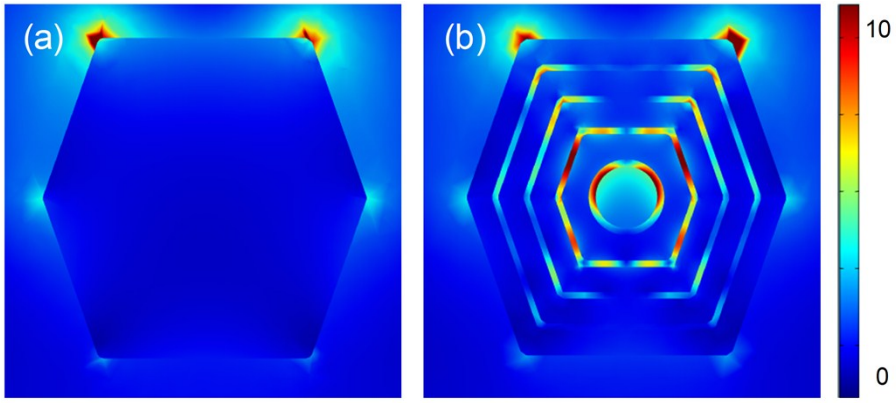

Figure S2. Calculated electric field distribution of same-sized solid Au/Ag (a) and four-gap Au/AgAu (b) hybrid.

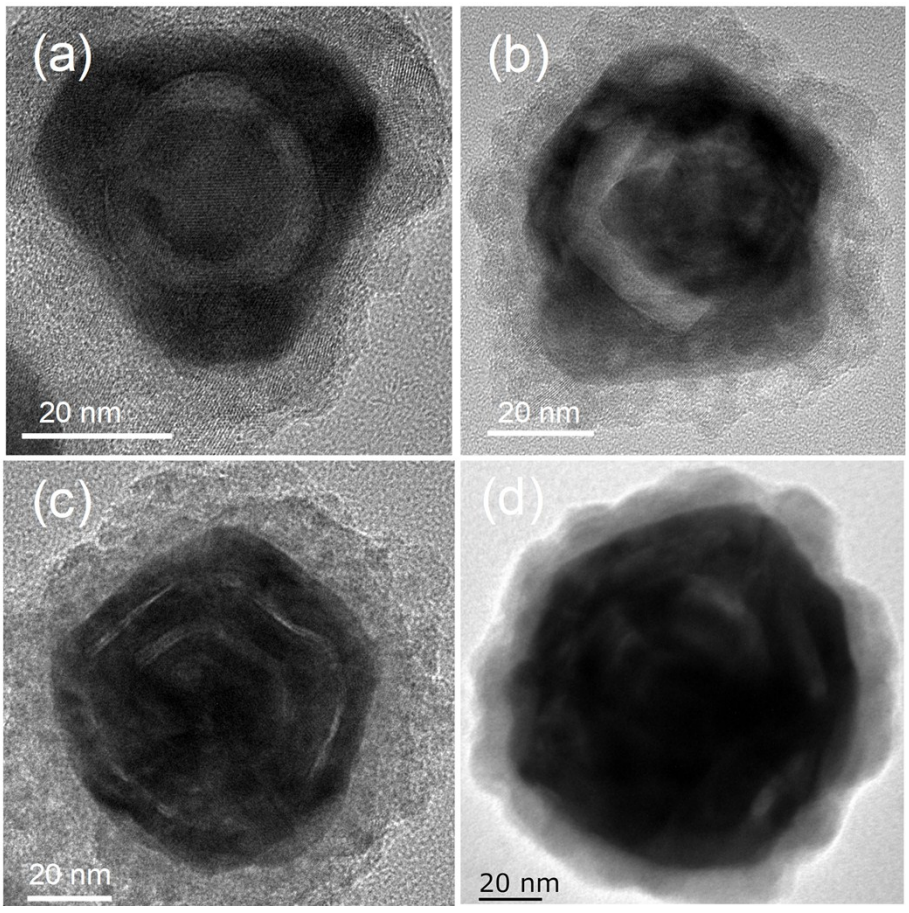

Figure S3. TEM images of single one- (a), two- (b), three- (c), and four-gap (d) (Au/AgAu)@CdS core-shell hybrids.

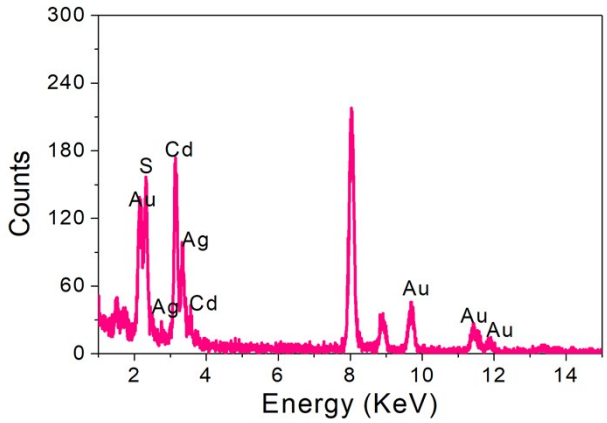

Figure S4. EDS spectrum of four-gap (Au/AgAu)@CdS core-shell hybrids. The elements of Au, Ag, Cd, and S are both observed.

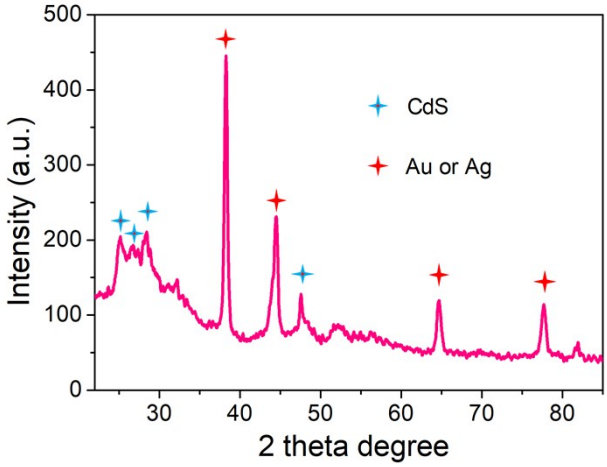

Figure S5. XRD pattern of four-gap (Au/AgAu)@CdS hybrids. The diffraction peaks (labeled with blue star) located at 24.8º, 26.4º, 28.2º, and 47.7º can be ascribed to (100), (002), (101), and (103) planes of hexagonal wurtzite CdS (PDF#41-1049). The XRD patterns of Au and Ag almost locate in the same scattering angles and could not be distinguished. The characteristic peaks (labeled with red star) at 38.3º, 44.4º, 64.2º, and 77.5º both can be assigned to the (111), (200), (220), and (311) planes of Au (PDF#04-0784) and Ag (PDF#04-0783).

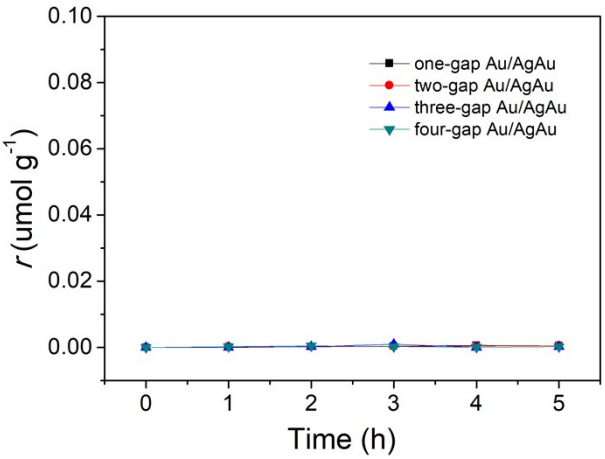

Figure S6. Photocatalytic hydrogen generation for one-, two-, three-, and four-gap Au/AgAu cores.

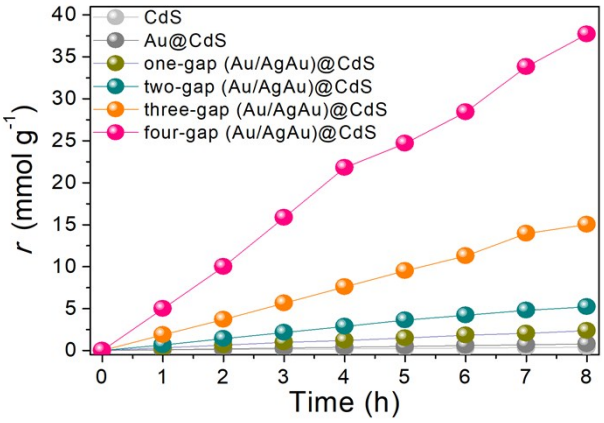

Figure S7. Photocatalytic hydrogen generation for CdS, Au@CdS, one-, two-, three-, and four-gap (Au/AgAu)@CdS hybrids.

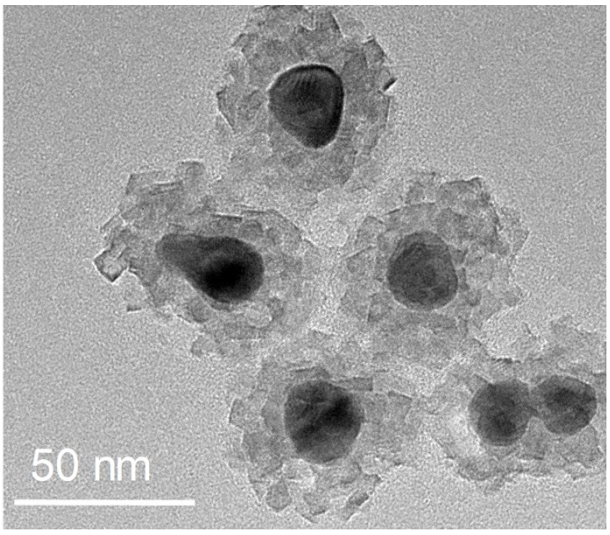

Figure S8. TEM image of Au@CdS core-shell hybrids.

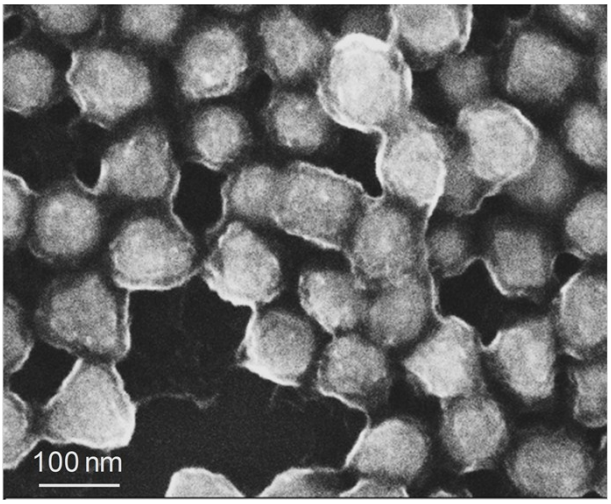

Figure S9. SEM image of four-gap (Au/AgAu)@CdS hybrids after 24 hrs of reaction.