

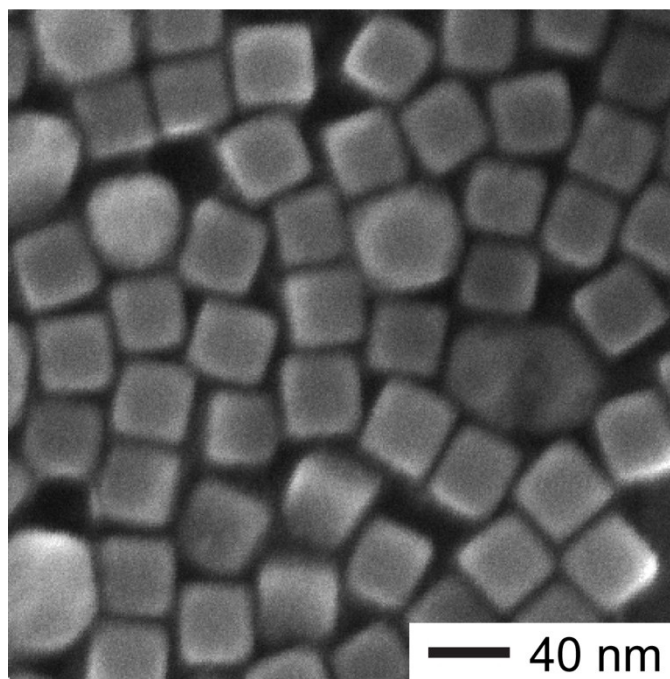
# **Orthogonal Deposition of Au on Different Facets of Ag Cuboctahedra for the Fabrication of Nanoboxes with Complementary Surfaces**

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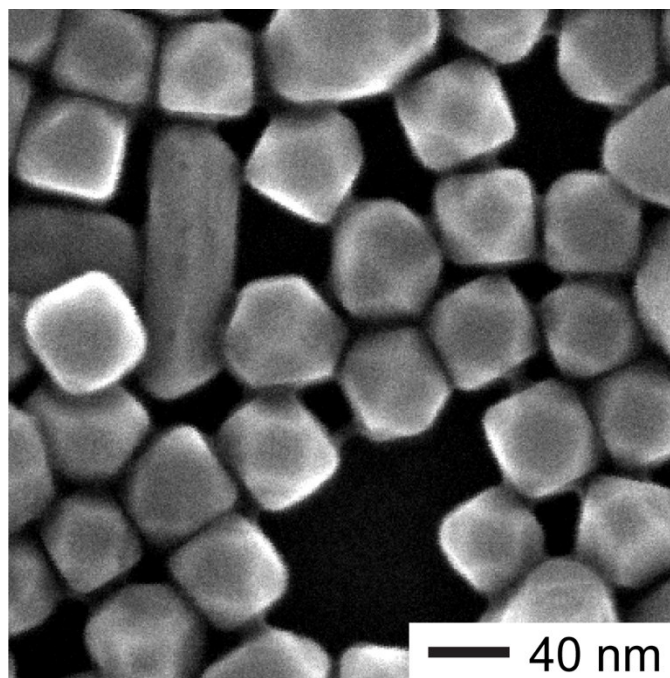
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**Figure S1.** SEM images of Ag nanocubes with an average edge length of  $38.1 \pm 2.0$  nm.



**Figure S2.** SEM images of Ag cuboctahedra with an average edge length of an average edge length of  $47.2 \pm 2.2$  nm.

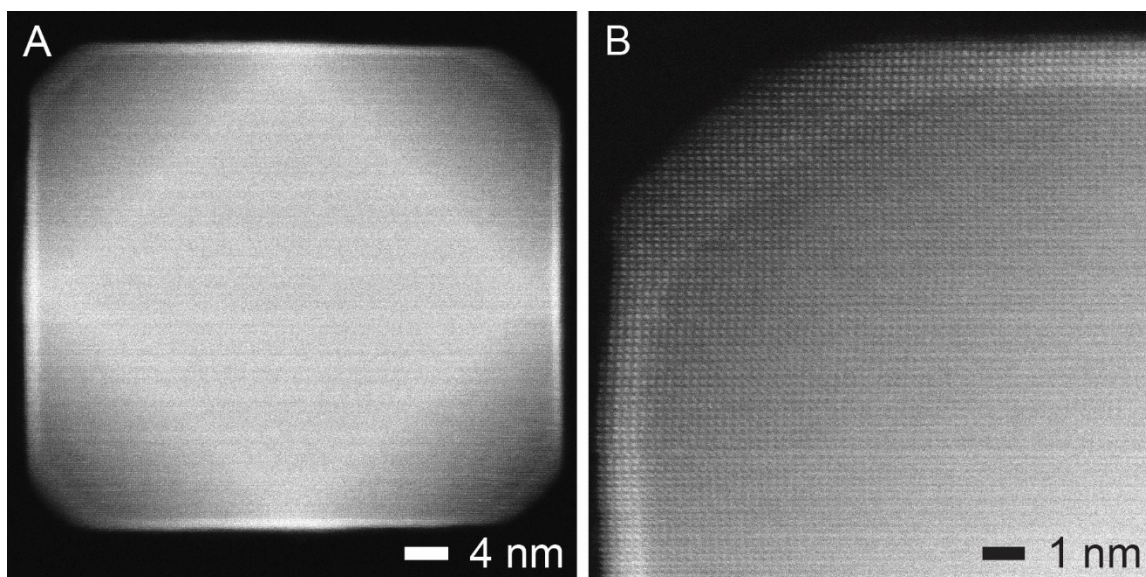


Figure S3. Two atomic-resolution HAADF-STEM images of the as-prepared  $\text{Ag}@\text{Au}_{\{100\}}$  cuboctahedron taken at different magnifications.

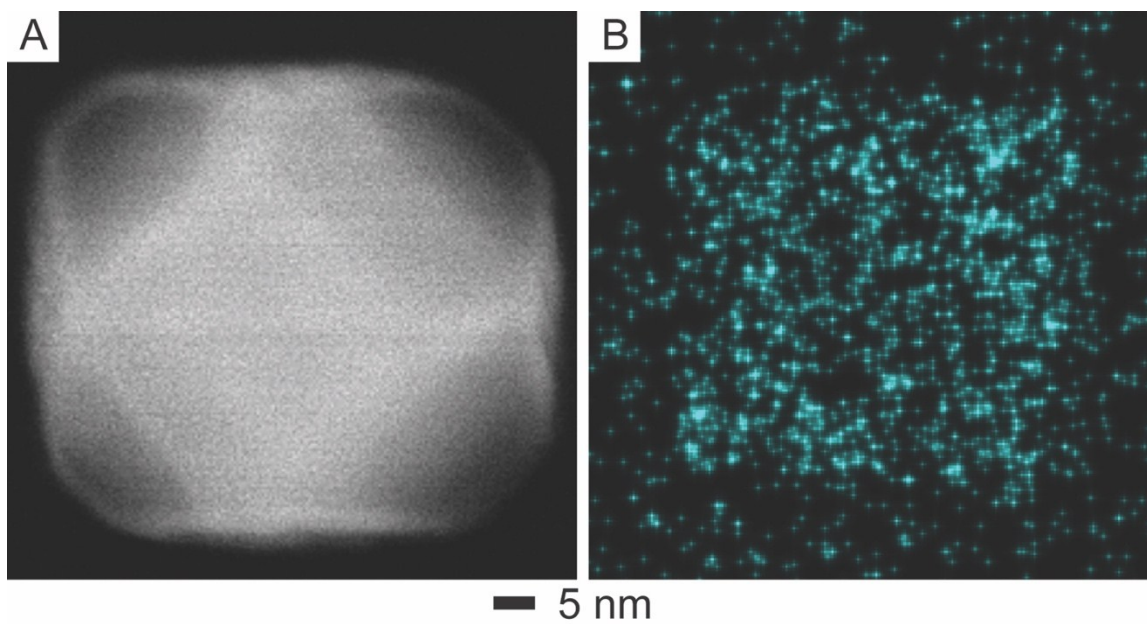
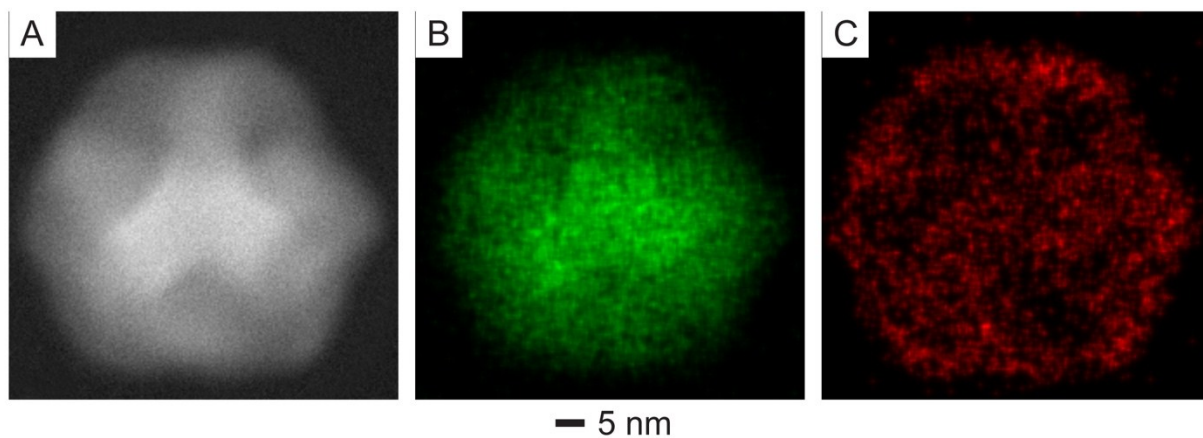


Figure S4. (A) HAADF-STEM image of one  $\text{Ag@Au}_{\{100\}}$  cuboctahedron that was orientated along the  $\langle 001 \rangle$  zone axis. (B) EDS mapping of oxygen from the nanocrystal in (A).



**Figure S5.** (A) HAADF-STEM image of one  $\text{Ag@Ag-Au}_{\{111\}}$  concave cuboctahedron that was orientated along the  $\langle 111 \rangle$  zone axis. (B, C) the EDS mapping of the same concave cuboctahedron (green: Ag; red: Au).