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Supporting Information

In-situ fabricating silver-based nanostructures with electron beam

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Supplementary Note 1: Adjustment, reading, and definition of electron beam current density (EBCD)

1. Field emission gun data of GUN No.7-750 Emitter No.218236

SI. Auto adjust data of field emission gun

A1 Voltage (kV)	2.81
A2 Voltage (kV)	7.51
Bias (V)	-300
Filament Current (A)	2.233
Emission Current (μA)	152.50

2. Adjustment and read of current density (pA/cm^2)

The current density can usually be adjusted by the following components:

spot size, α selector (Alpha), condenser aperture (CL), objective aperture (OL), and lens condenser (brightness knob). The current intensity is measured by a small screen without sample that is irradiated by an electron beam. In the cases of magnified different times (spot 2, α = 3, and 200 kV), the current density can be simply adjusted by lens condenser (brightness knob), corresponding to different irradiation areas on the fluorescent screen. Meanwhile, the small screen was lifted to measure the current density for the operating parameters in BEI process.

SII. The current intensity adjustment at 40 thousand times magnification (40 k) is described as follows.

Area (about) / Reading (pA/cm^2)	Full screen (R: radius)	~1/4 screen (~R/2)	~1/9 screen (~R/3)
Large screen	54.0	59.5	60.5
Small screen	60.5	203.2	302.2

SIII. The current density for low, medium, high, and sub-high EBCD were defined roughly as follows.

Concept	Definition
low-EBCD	$\leq$ 60 pA/cm^2
medium EBCD	60-170 pA/cm^2
sub-high EBCD	170-240 pA/cm^2
high EBCD	$\geq$ 240 pA/cm^2

Supplementary Note 2: EDS-line analysis of an Ag@AgCl particle

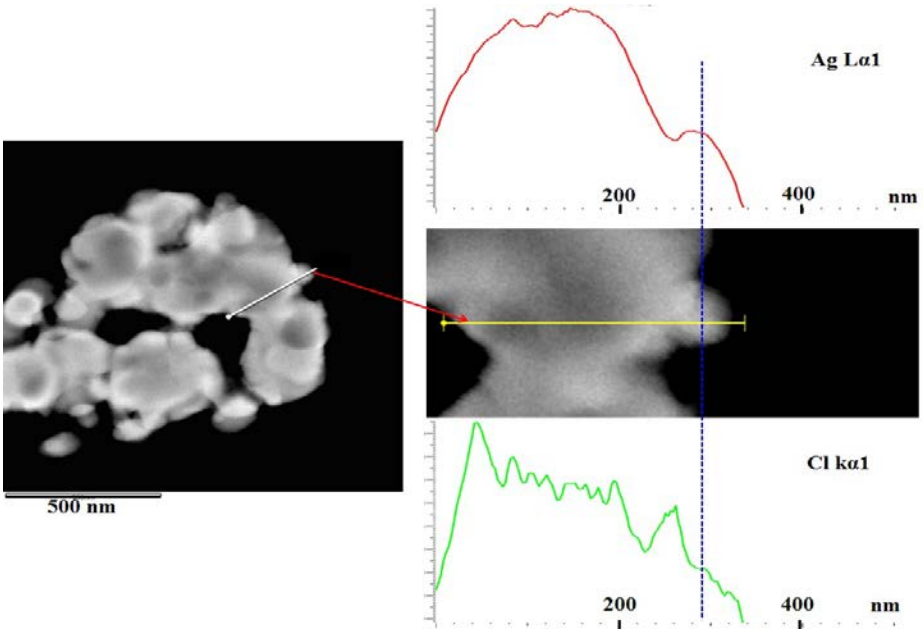

Figure S1. The EDS-line analysis of an Ag@AgCl particle.

Supplementary Note 3: The video of under moderate EBCD

This video (video-Ag.mp4) clearly showed the EBI process of AgCl particles under medium current density (80 pA/cm^2). It dynamically shows the formation and coalescence of Ag-NPs, as well the collapse of AgCl particles.

Supplementary Note 4: STEM analysis of silver nanparticles

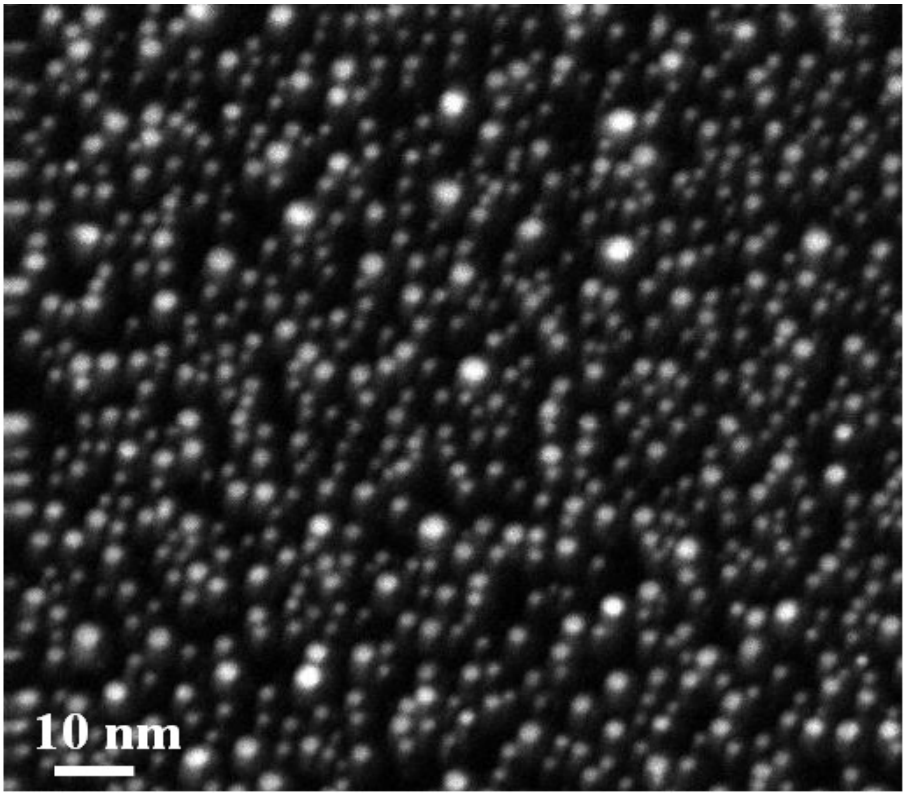

Figure S2. The STEM image of silver nanoparticles.