

Supplementary material (ESI) for *J. Mater. Chem. C*

Supporting information for:

Panchromatic Plasmonic Color Patterns: from Embedded Ag Nanohole Arrays to Elevated Ag Nanohole Arrays

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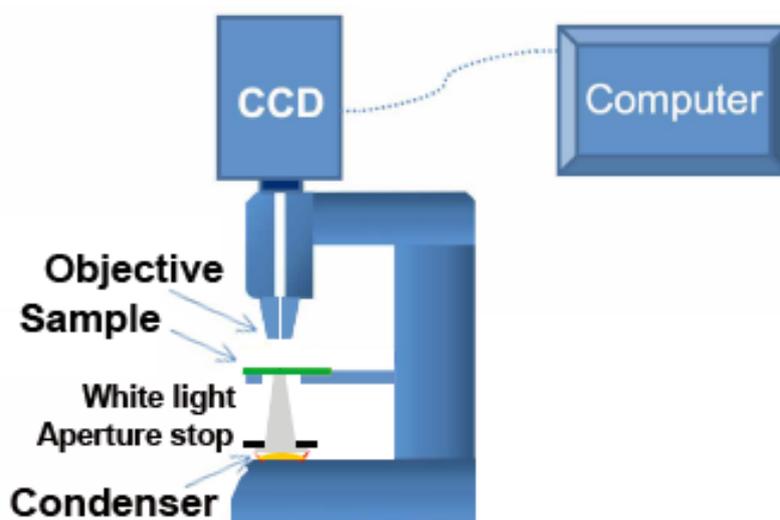


Figure S1. Experimental setup for the capturing of optical images.

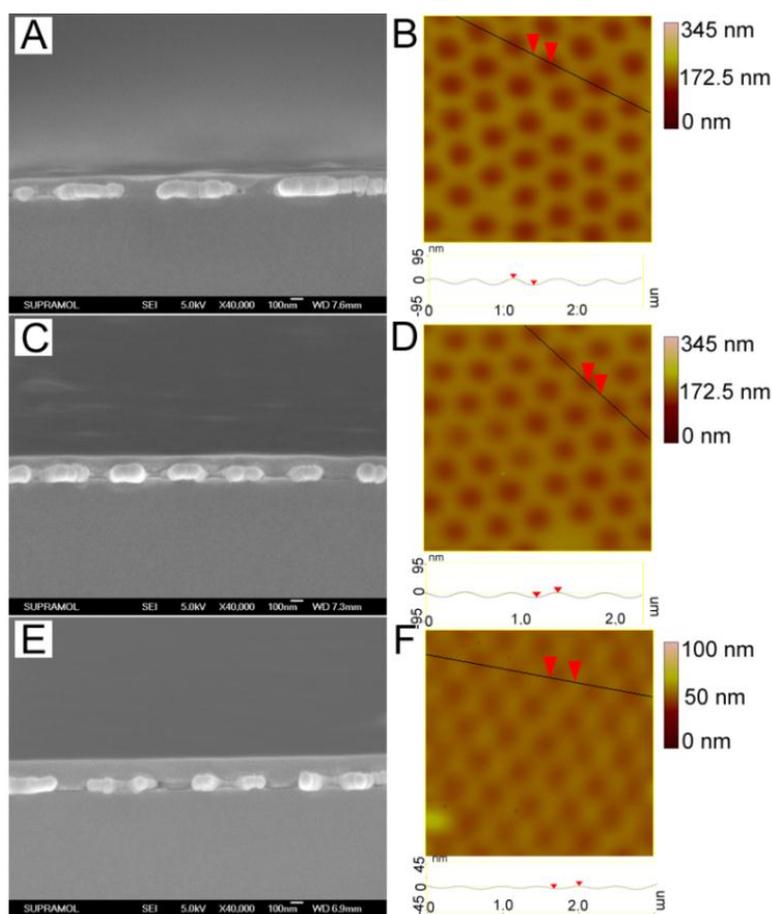


Figure S2. Cross section SEM images and AFM measurements of Ag NAs coated by various thicknesses of SiO₂. (A and B) 40 nm; (C and D) 60 nm and (E and F) 120 nm, respectively.

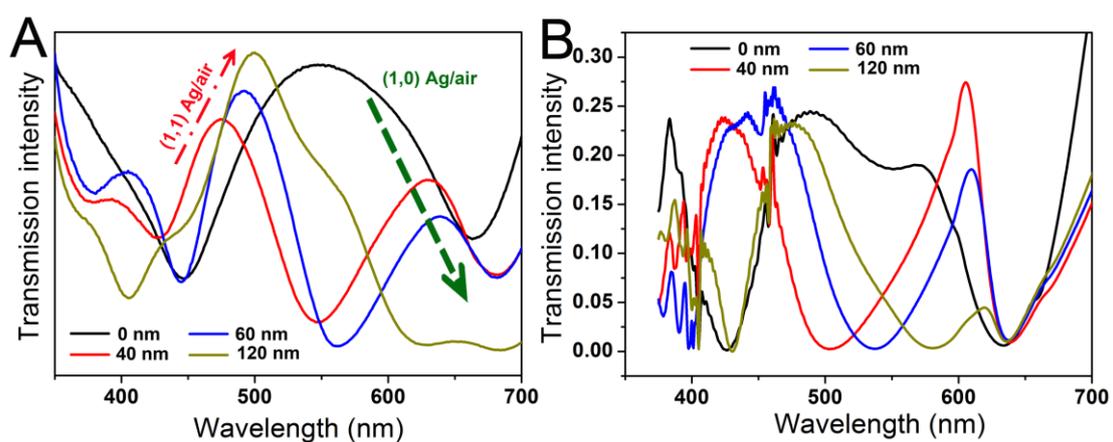


Figure S3. Experimental (A) and calculated (B) results of transmission spectrum evolution for Ag NAs upon coating silica layer of various thicknesses.

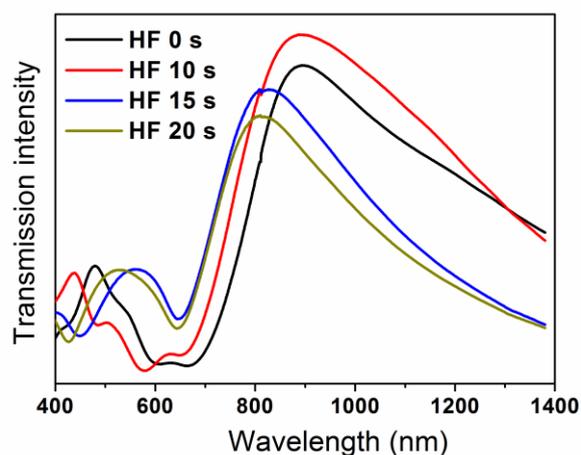
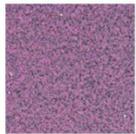
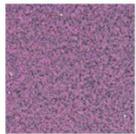


Figure S4. Transmission spectrum evolution for EMANAs with 120 nm silica coating upon different etching duration in dilute HF solution.

Table S1: Color Evolution for Two kinds of Samples upon Etching in HF Solutions

Etching Durations Samples	Colors					
						
Ag NAs (without silica coating)			0 s	~30 s	~50 s	~70-90 s
EMANAs (silica coating of 120 nm)	0 s	~10 s	~20 s	~50 s	~70 s	~90-110 s

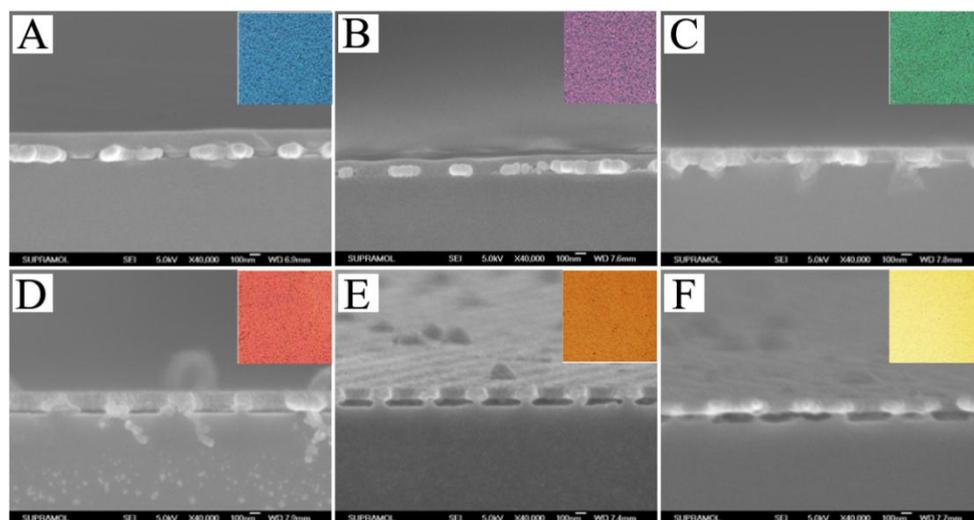


Figure S5. Cross section SEM images of EMANAs (with 120 nm silica coating) etched in HF solution for 0 s (A), 10 s (B), 20 s (C), 50 s (D), 70 s (E) and 110 s (F), respectively. Inset of images are apparent colors of corresponding samples.

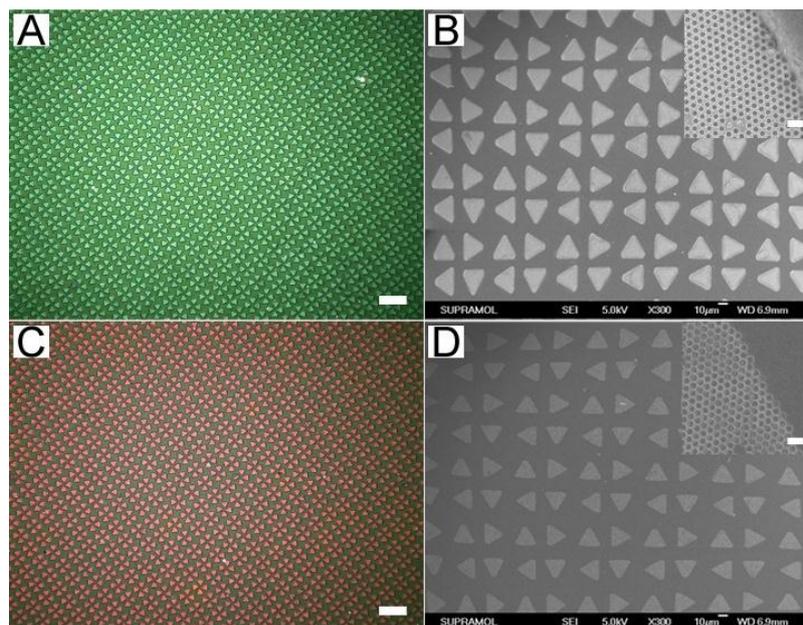


Figure S6. Transmission mode optical image (A) and SEM image (B) of Ag NAs selectively embedded in the photoresist films. (C), transmission mode optical image of corresponding samples etched in HF solution for ~30 s. (D), SEM images of nanowells formed on the glass substrate during selective HF etching process. Before taking images, photoresist films and Ag nanohole films as well as Cr adhesive layer in figure D are removed. Scale bars in (A) and (C) represent 100 μm, and those in the insets of (B) and (D) represent 1 μm.

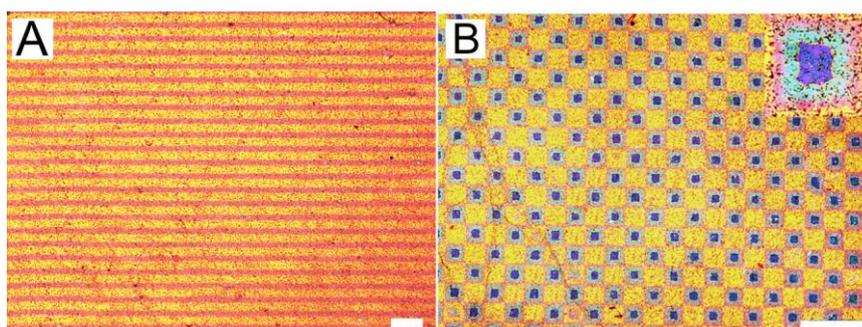


Figure S7. Transmission mode optical images of samples with complex color patterns. Scale bars represent 50 μm (A) and 100 μm (B), respectively.

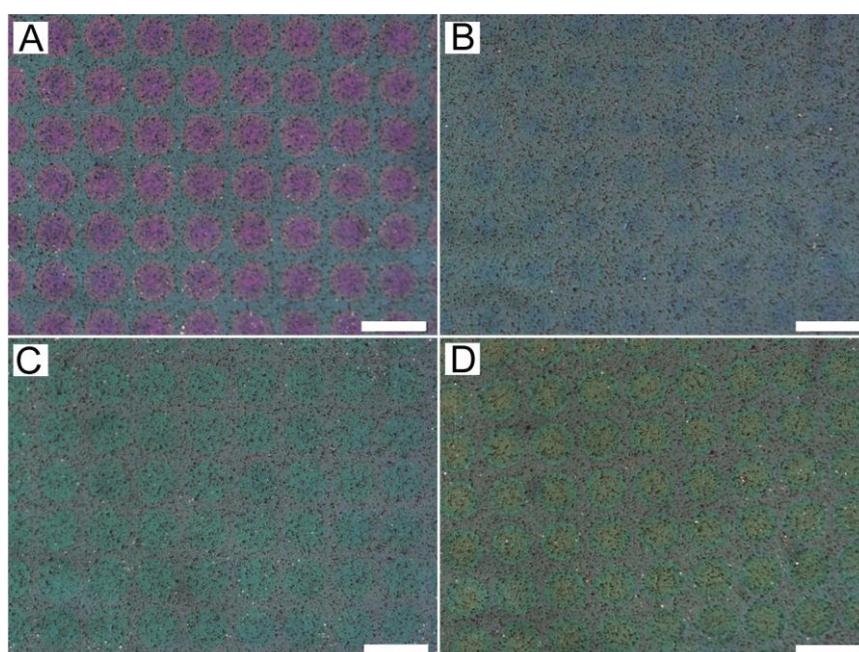


Figure S8. Color evolution of bull's eye-like color pattern in solvents of different refractive index. From A to D, the surrounding environment is methanol, chloroform, toluene, carbon bisulfide, respectively. Scale bars represent 50 μm .