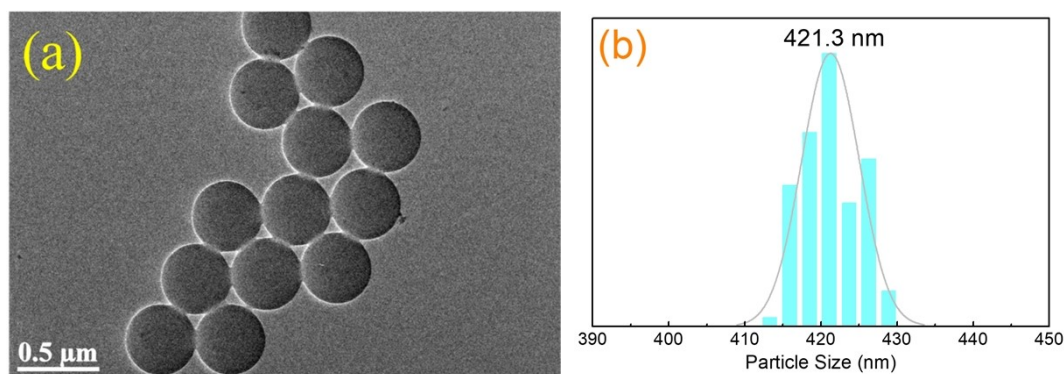


## Electronic Supplementary Information (ESI)

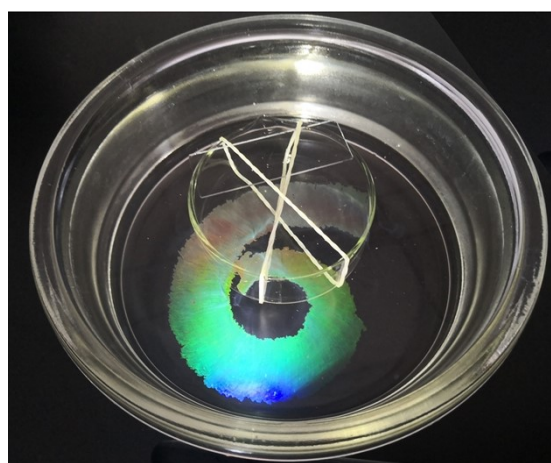
### Assembly of Bimetallic (Au-Ag)FON Composite Film at Liquid/Solid Interfaces and Their Tunable Optical Properties

Xinyu Zhao, Mingzhen Wang\*, Yingxue Wang, Jinqi Li, Dongqing He, Yongjin Zou, Ying Zhang\*

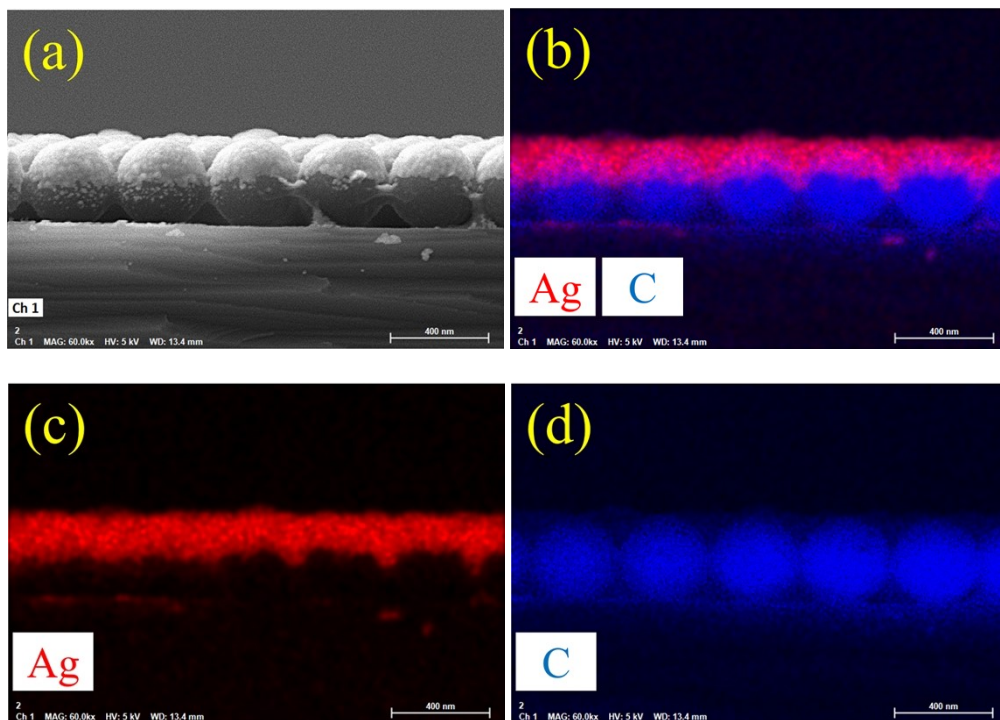
Key Laboratory of Applied Surface and Colloid Chemistry, Ministry of Education;  
School of Chemistry and Chemical Engineering, Shaanxi Normal University, Xi'an  
710119, China



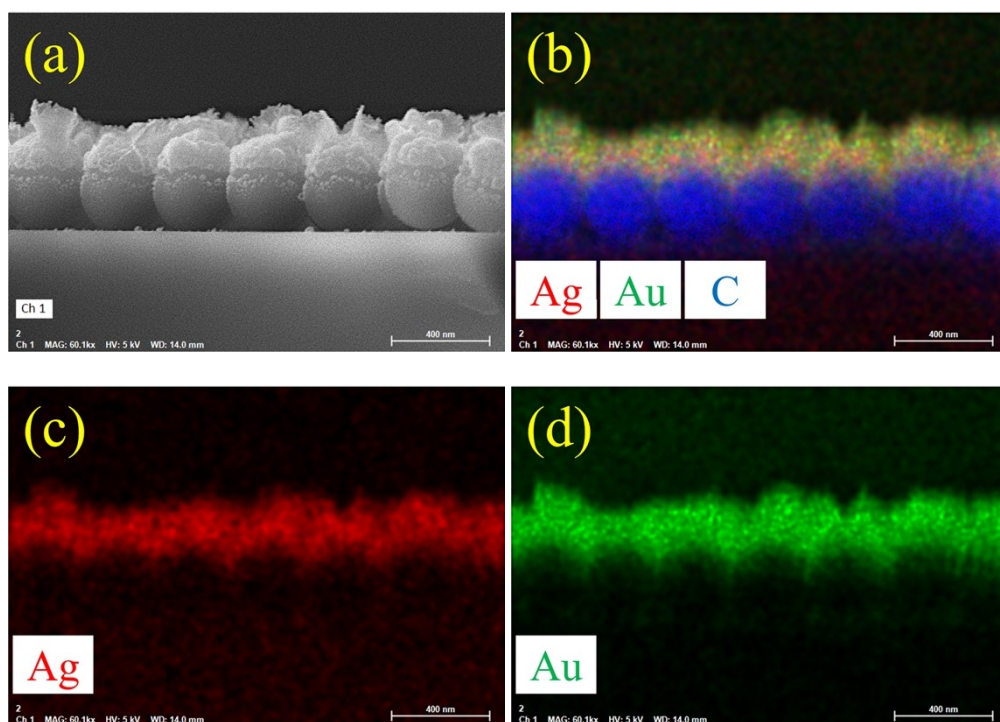
**Fig. S1** (a) TEM image of PS@PAA particles and (b) their particle-size distribution.



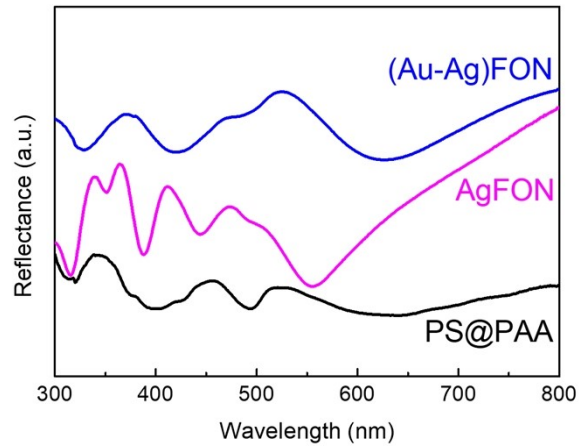
**Fig. S2** Photograph of the PS@PAA 2D colloidal crystal film formed on a water surface.



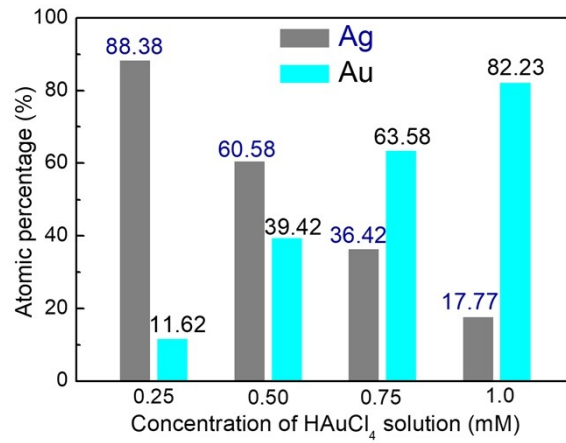
**Fig. S3** Side-view of SEM image and corresponding elemental mapping images of the AgFON composite film.



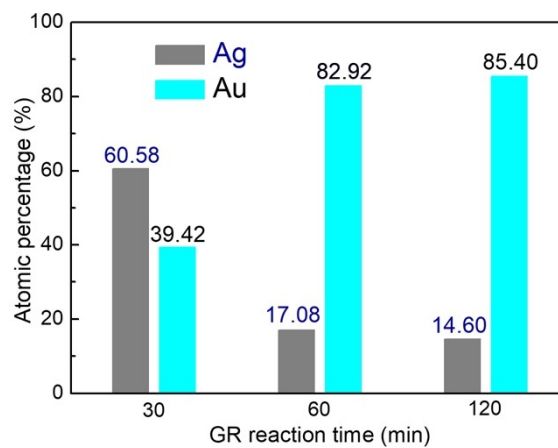
**Fig. S4** Side-view of SEM image and corresponding elemental mapping images of the bimetallic (Au-Ag)FON composite film.



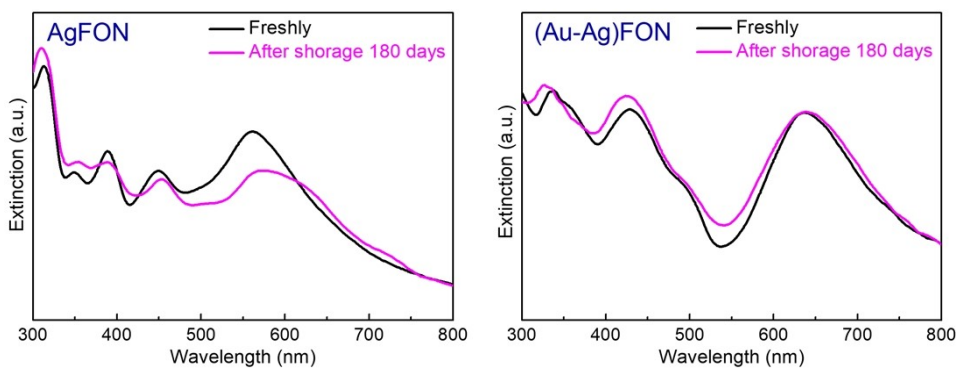
**Fig. S5** Reflectance spectra of the PS@PAA colloidal crystal film, the AgFON and (Au-Ag)FON bimetallic composite films.



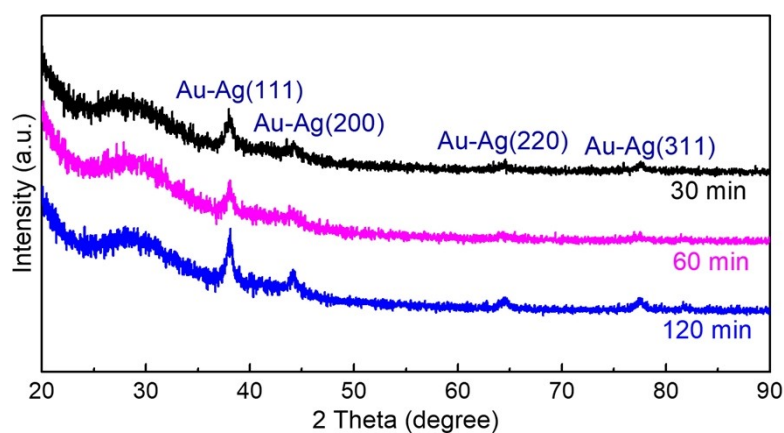
**Fig. S6** Comparison of Ag and Au atomic percentage (%) determined by EDX results for bimetallic (Au-Ag)FON composite films prepared with various HAuCl<sub>4</sub> concentration.



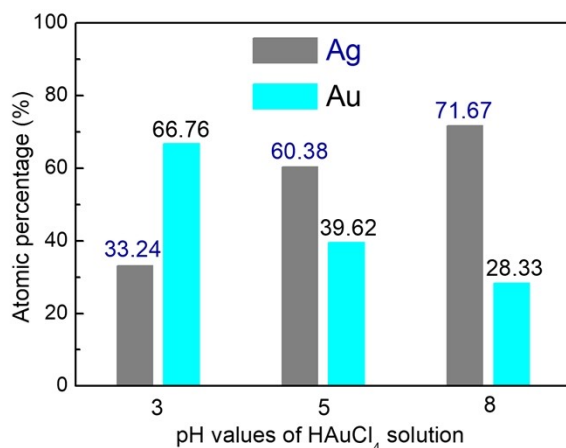
**Fig. S7** Comparison of Ag and Au atomic percentage (%) determined by EDX results for bimetallic (Au-Ag)FON composite films prepared with different GR reaction times.



**Fig. S8** UV-vis extinction spectra of AgFON and (Au-Ag)FON films (freshly prepared and after 180 days).



**Fig. S9** XRD patterns of (Au-Ag)FON bimetallic composite films prepared with different GR reaction times.



**Fig. S10** Comparison of Ag and Au atomic percentage (%) determined by EDX results for bimetallic (Au-Ag)FON composite films prepared using HAuCl<sub>4</sub> solution with different pH values.