

# ADVANCED FUNCTIONAL MATERIALS

## Supporting Information

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### **Large-Scale Fabrication of Three-Dimensional Surface Patterns Using Template-Defined Electrochemical Deposition**

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Lin Wang , Yong Lei , \* and Tony Jun Huang \**

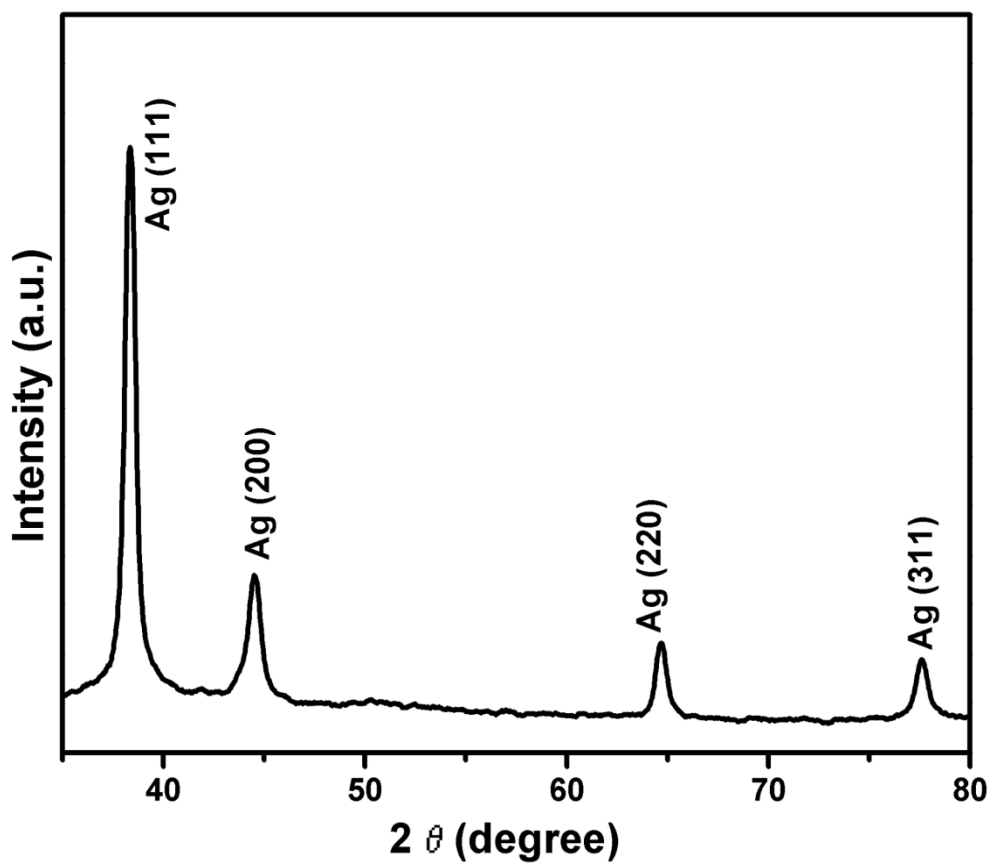
# Supporting Information for “**Large-Scale Fabrication of Three-Dimensional Surface Patterns Using Template-Defined Electrochemical Deposition**”

By *Shikuan Yang, Michael Ian Lapsley, Bingqiang Cao, Chenglong Zhao, Yanhui Zhao, Qingzhen Hao, Brian Kiraly, Jason Scott, Weizhou Li, Lin Wang, Yong Lei\** and *Tony Jun Huang\**

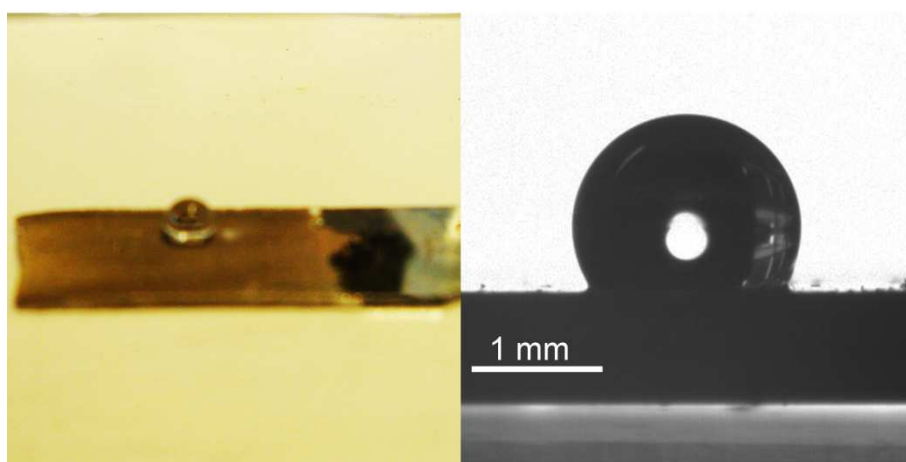
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Electrochemical deposition of Ag on the MCC template covered by a layer of gold film was verified by the XRD spectrum, showing face-centered, cubic-structured Ag (Fig. S1). The PS-Ag Janus particle arrays exhibited superhydrophobic properties (Fig. S2). After slowly immersing the PS-Ag Janus particle array into deionized water, it became detached and floated on the water surface. It was then realized that another arbitrary substrate could be used to pick up and transfer the Janus particle array (Fig. S3). By a similar method, inversion and transfer of the Janus particle arrays were achieved (Fig. S4). Copper (Fig. S5) and polyaniline (Fig. S6) 3D surface patterns could also be generated using the template-defined electrochemical deposition

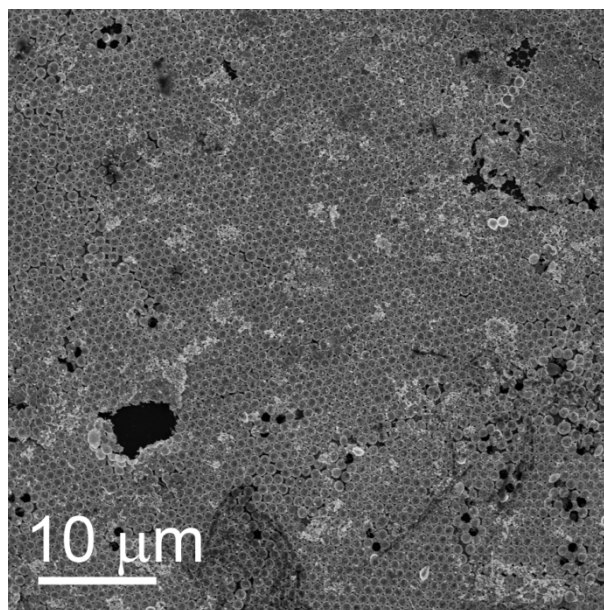
strategy.



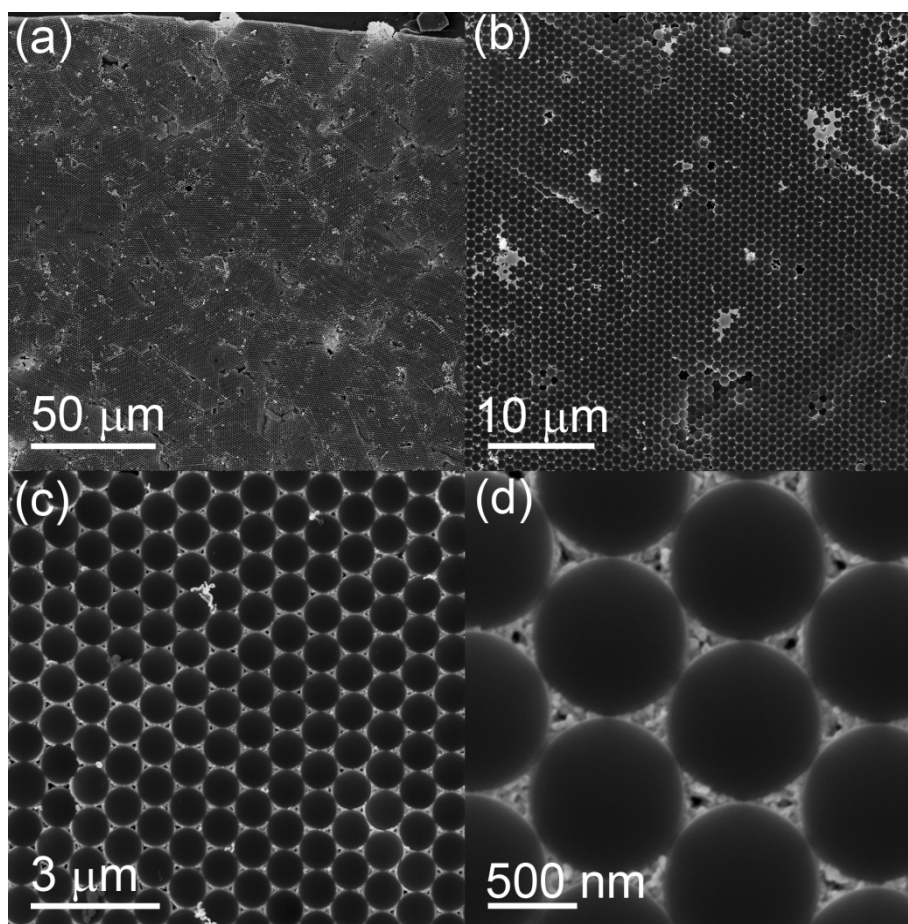
**Figure S1.** XRD pattern of the PS-Ag Janus particle array.



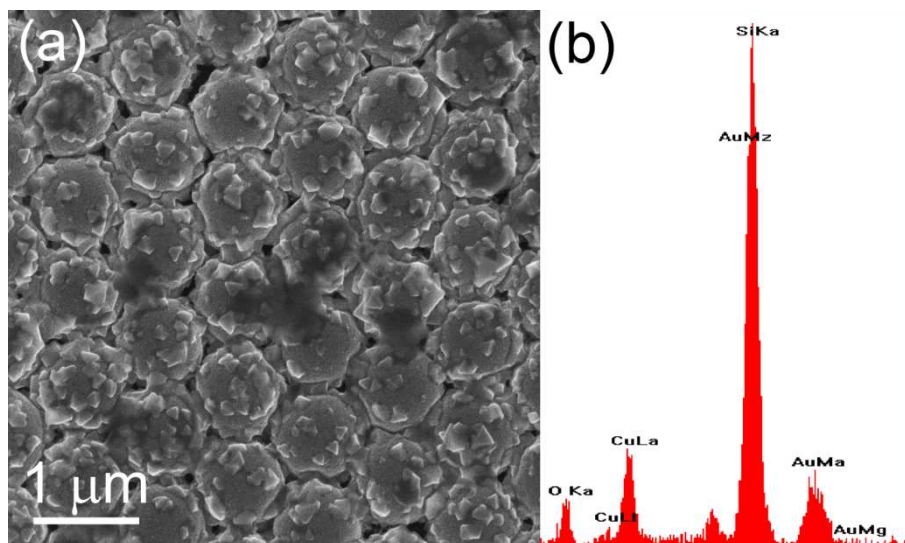
**Figure S2.** The wettability property of the as-prepared PS-Ag Janus particle arrays.



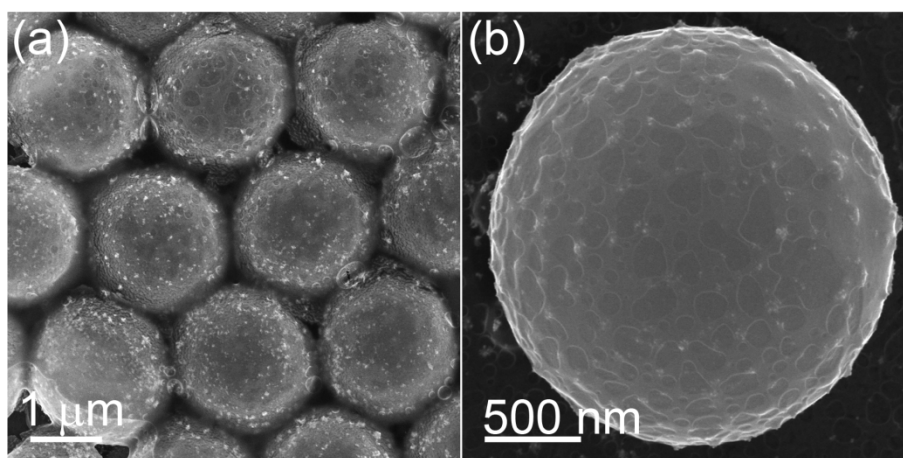
**Figure S3.** SEM image of the Ag semishell array after transferring to a glass slide.



**Figure S4.** (a-d) SEM images of the inverted PS-Ag Janus particle array with different magnifications.



**Figure S5.** (a) SEM image of Cu semishell arrays and (b) the corresponding EDX spectrum.



**Figure S6.** (a) SEM image of PANI semishell arrays. (b) Enlarged image of a single PANI semishell.