Supporting Information

Crafting Threads of Diblock Copolymer Micelles *via* Flow-Enabled Self-Assembly

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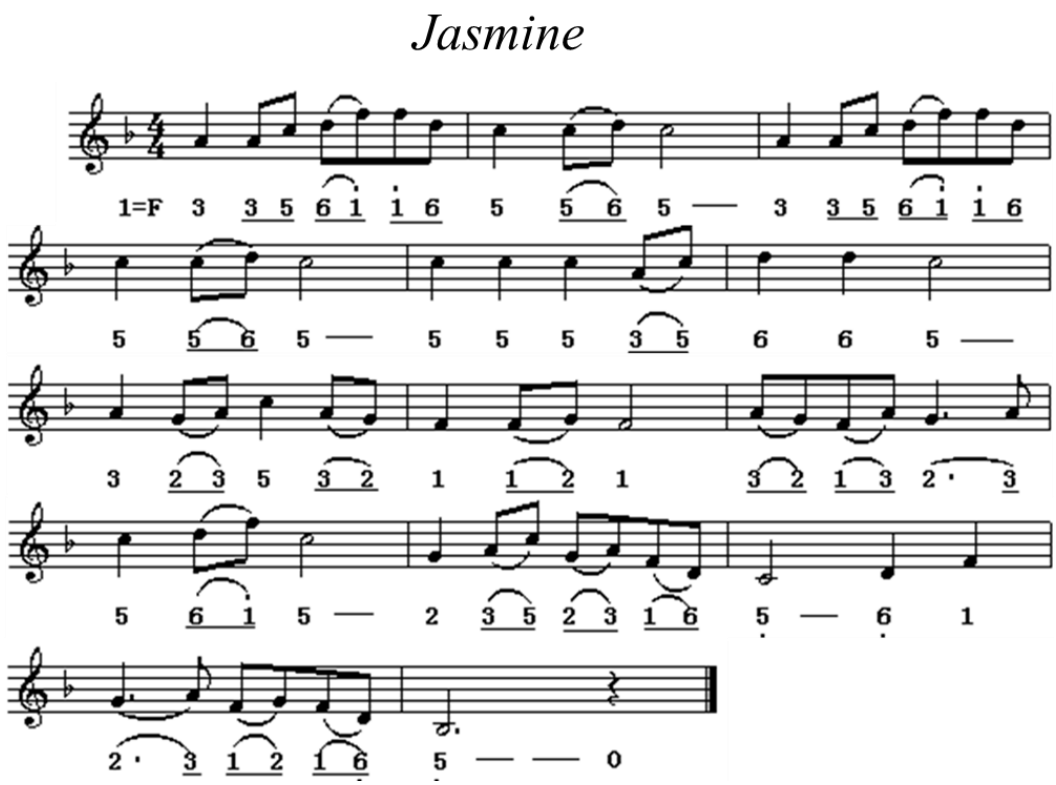

Figure S1. Musical score of the traditional Chinese song *Jasmine*.

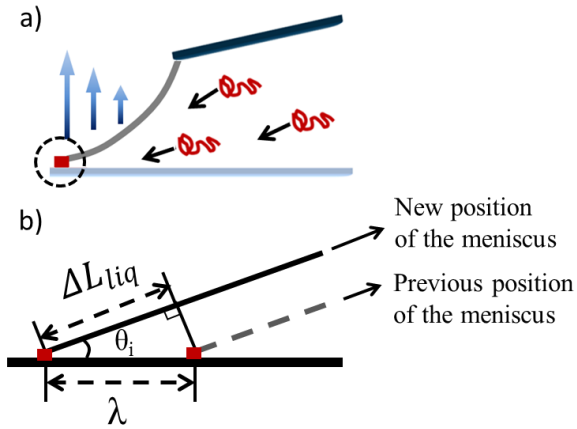

Figure S2. (a) Schematic illustration of the flow-enabled self-assembly (side view). (b) The close-up of the meniscus stretched to a new position due to the movement of the Si substrate.

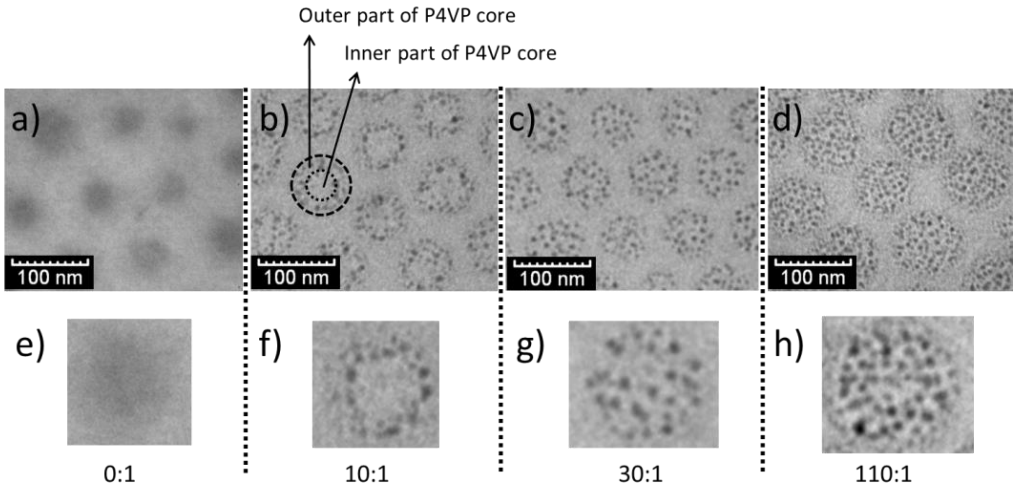

Figure S3. TEM images of PS-*b*-P4VP micelles incorporated with Au^{3+} ions within the thread at the Au^{3+} /P4VP ratios of (a) 0:1 (*i.e.*, plain PS-*b*-P4VP micelles), (b) 10:1, (c) 30:1, and (d) 110:1. (e-h) Corresponding TEM images of one single PS-*b*-P4VP micelle with the incorporation of Au^{3+} ions.

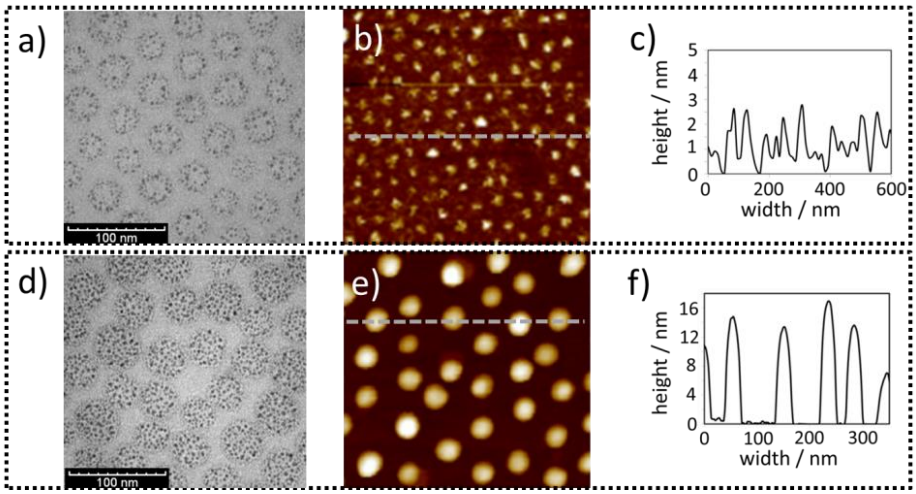

Figure S4. (a) and (d) TEM images of PS-*b*-P4VP micelles before the exposure to oxygen plasma. (b) and (e) Corresponding AFM height images, and (c) and (f) corresponding cross sectional analysis of Au nanoparticles obtained from the samples at the Au^{3+} /P4VP ratios of 10:1 and 110:1, respectively, after the exposure to oxygen plasma. The image sizes are 600 nm x 600 nm in (b), and 400 nm x 400 nm in (e).

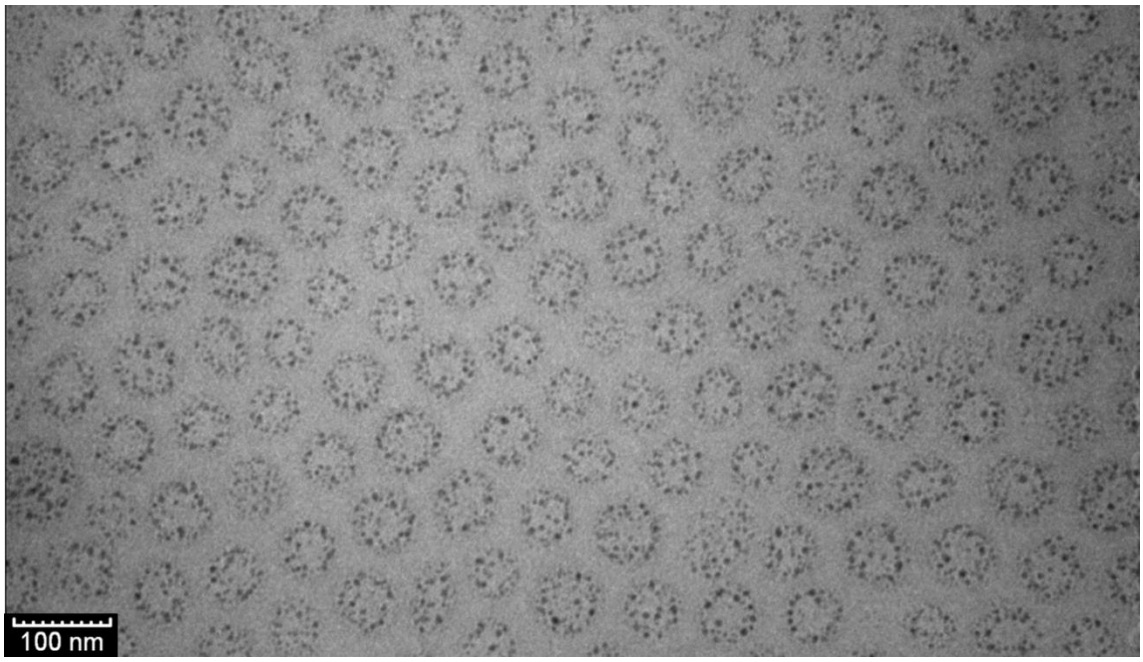

Figure S5. TEM image of PS-*b*-P4VP micelles with the incorporation of Au^{3+} at Au^{3+} /P4VP ratio of 10:1. The sample was prepared by spin-coating PS-*b*-P4VP/$HAuCl_4$ micelles at 3000 rpm/min.

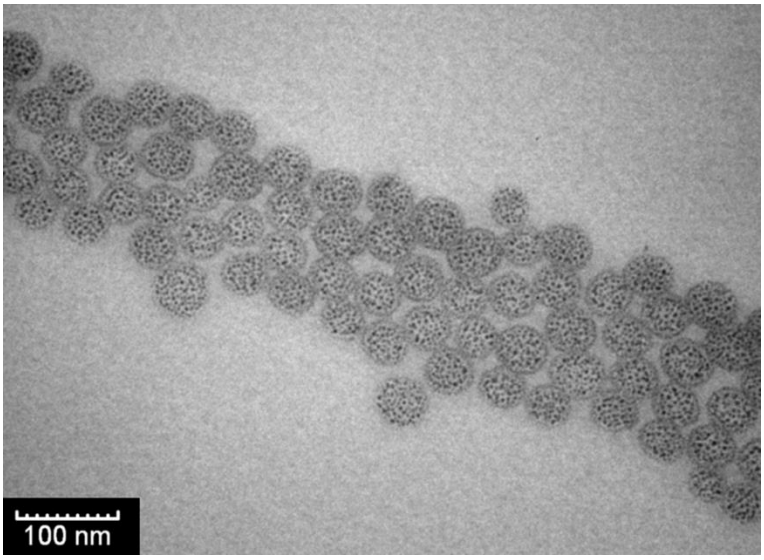

Figure S6. TEM image of a thread composed of PS-*b*-P4VP/$HAuCl_4$ micelles at the Au^{3+} /P4VP ratio of 110:1.

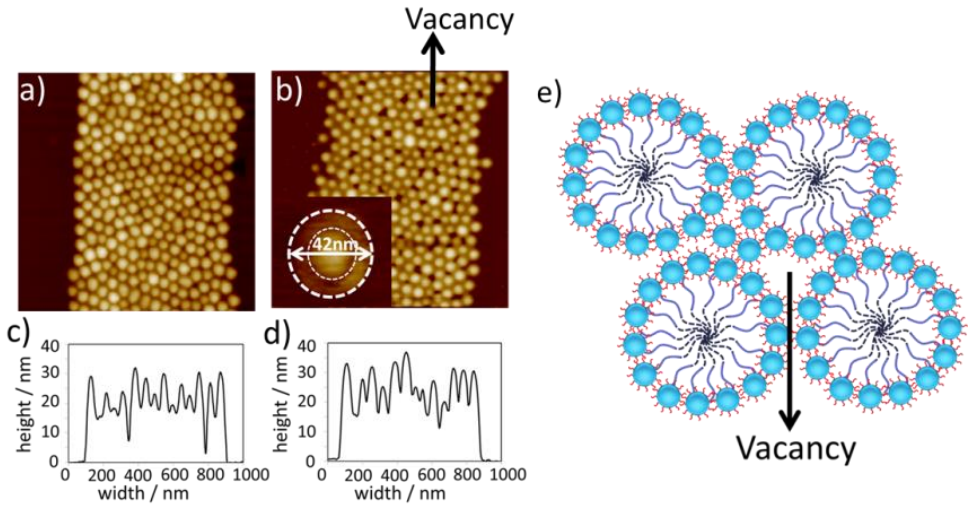

Figure S7. (a-b) AFM height images, and (c-d) the corresponding cross sectional analysis of threads composed of plain PS-*b*-P4VP micelles (a and c) and hybrid micelles of PS-*b*-P4VP/CdSe (b and d). (e) Schematic illustration of the formation of PS-*b*-P4VP micelles surrounded by a ring of CdSe nanoparticles with the presence of one vacancy. The image sizes 1.2 μm x 1.2 μm in (a) and (b).

Calculation of surface roughness

The surface roughness of a thread with closely packed micelles k [1] can be given by

$$k = \frac{A_{hwh}}{A_{hex}} \quad (1)$$

$$A_{hwh} = 2\pi r^2 - \pi r^2 + \frac{3\sqrt{3}}{2} r^2 \quad (2)$$

$$A_{hex} = \frac{3\sqrt{3}}{2} r^2 \quad (3)$$

where A_{hwh} is the surface area of the hexagon with hemisphere on the top (right panel; **Figure S8**), A_{hex} is the surface area of the hexagon (left panel; **Figure S8**), and r is the radius of the hemisphere. Based on the equations (1)-(3), k is calculated to be 1.6046.

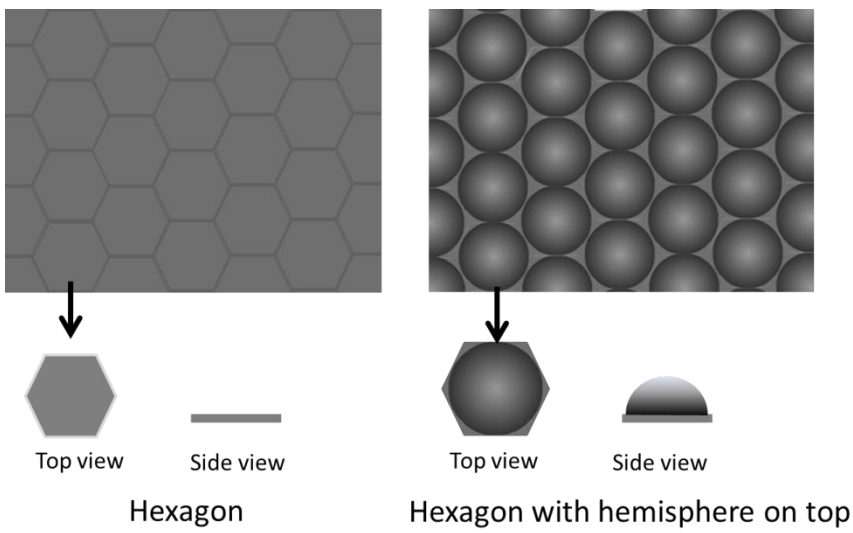

Figure S8. Schematic illustration of a flat surface (left) and a surface with the presence of closely packed spheres on the top (right).

References

1. Wenzel, R. N., Surface Roughness and Contact Angle, *J. Phys. Chem.*, **1949,** *53*, 1466-1467.