

Supporting Information

Synthesis of CMP-II. 1,3,5-trethynylbenzene (100 mg) and 2,6-dibromonaphthalene (286 mg), Tetrakis (triphenylphosphine) palladium(0) (50 mg), and cooper(I) iodide (15 mg) were dissolved in the mixture of toluene (5.0 ml) and Et₃N (5.0 ml). The mixture was stirred under nitrogen atmosphere for 0.5 h and then heated to 80 °C for 24h. After cooling to room temperature, the resulting polymer was washed with chloroform, acetone, water and methanol to remove any unreacted monomer or catalyst residues, followed by purification using Soxhlet extraction with methanol for 72 h. The resulting product was dried at 70 °C for overnight.

Synthesis of CMP-III. 1,4-diethynylbenzene (126 mg) and 1,5-dibromonaphthalene (286 mg), Tetrakis (triphenylphosphine) palladium(0) (62 mg) and cooper(I) iodide (20 mg) were dissolved in the mixture of toluene (5.0 ml) and Et₃N (5.0 ml). The mixture was stirred under nitrogen atmosphere for 0.5 h and then heated to 80 °C for 24h. After cooling to room temperature, the resulting polymer was washed with chloroform, acetone, water and methanol to remove any unreacted monomer or catalyst residues, followed by purification using Soxhlet extraction with methanol for 72 h. The resulting product was dried at 70 °C for overnight.

Sample preparation for SEM and TEM

The sample for SEM examination was prepared by placing a droplet of CMPs/ethanol suspension on a clean copper stage. After drying and shaking off the bigger particles, the sample was coated with a ~2 nm gold film. The operation was conducted at an accelerating voltage of 5.0 kV. The sample used for the TEM examination was suspended in ethanol and deposited on a copper specimen grid supported by a porous carbon film. The operation was conducted at an acceleration voltage was 200 kV.

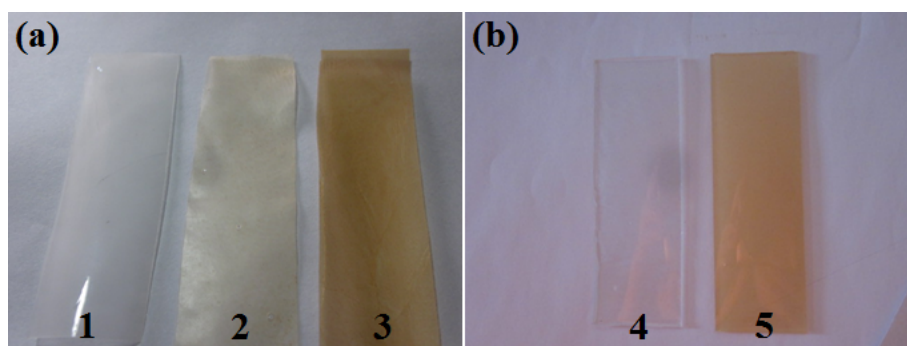


Fig. S1. Snapshots of (a) PMMA with its composites and (b) PDMS with its composite. 1, 2, 3, 4 and 5 was PMMA, PMMA/CMP-I (0.5 wt%) composite, PMMA/CMP-I (2.0 wt%) composite, PDMS and PDMS/CMP-I (0.1 wt%) composite, respectively.

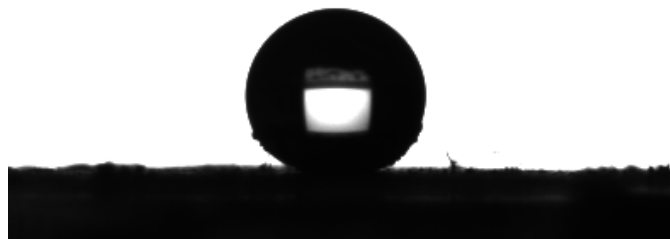


Fig. S2. Water contact angle of CMP-I.

The water contact angle measurement was performed to investigate the surface wettability of the CMP-I under room temperature. Some CMP-I powder was placed on a piece of glass slide for measurement. Water contact angle measurement was performed on a contact angle meter (DSA100, Kruss Company) by place a water droplet with 5 μL on the surface of CMP-I. The CMP-I exhibited super water repellence with a water contact angle of 151.4° , suggesting its surface superhydrophobicity.