

Supporting information

Magnetic field responsive microspheres with tunable structural colors by controlled assembly of nanoparticles

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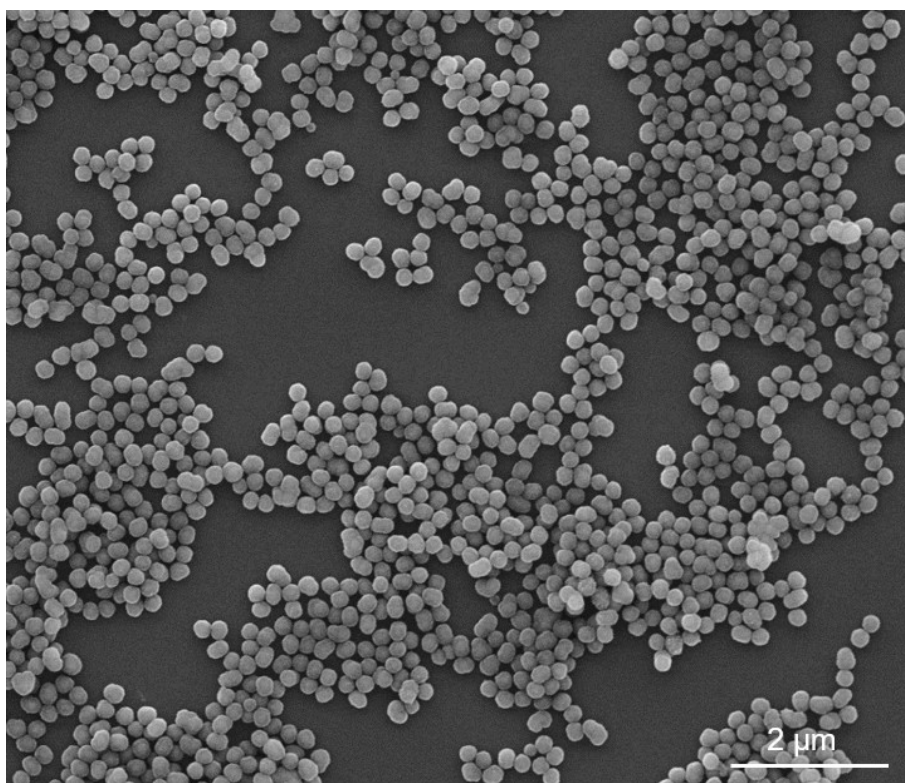


Figure S1 SEM image of $\text{Fe}_3\text{O}_4@\text{C}$ nanoparticles.

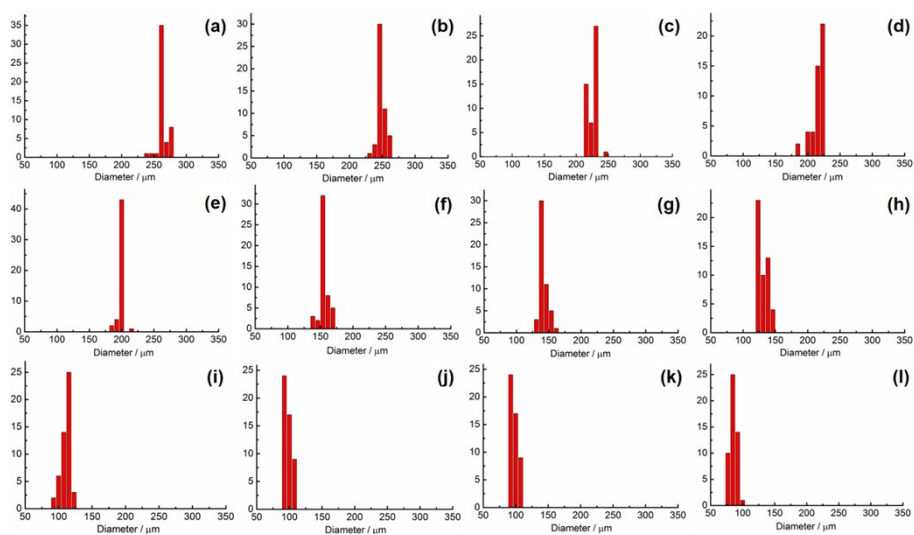


Figure S2 Size distributions of the microspheres fabricated at the flow rates of (a) 300 $\mu\text{L/h}$, (b) 250 $\mu\text{L/h}$, (c) 200 $\mu\text{L/h}$, (d) 150 $\mu\text{L/h}$, (e) 100 $\mu\text{L/h}$, (f) 90 $\mu\text{L/h}$, (g) 80 $\mu\text{L/h}$, (h) 70 $\mu\text{L/h}$, (i) 60 $\mu\text{L/h}$, (j) 50 $\mu\text{L/h}$ (k) 40 $\mu\text{L/h}$, (l) 30 $\mu\text{L/h}$.

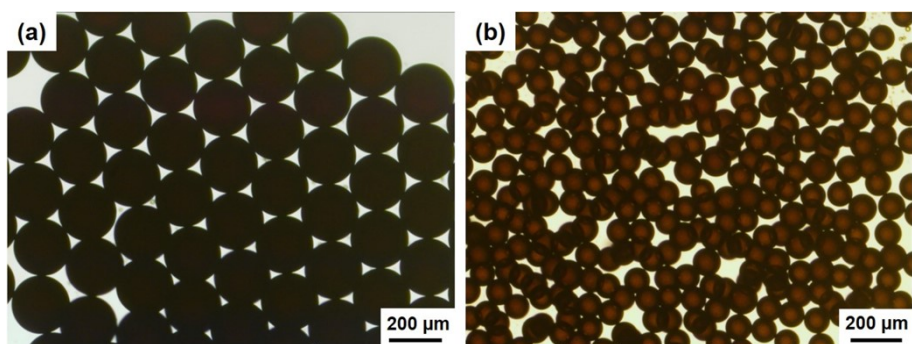


Figure S3 Optical macroscope image of the microspheres fabricated at the flow rates of (a) 200 $\mu\text{L/h}$, (b) 50 $\mu\text{L/h}$, the average diameters of the spheres are 231 μm (a) and 100 μm (b).

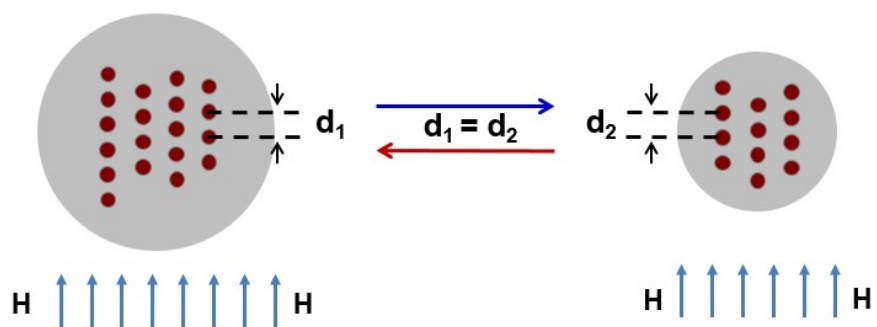


Figure S4 The mechanism of the microspheres with different sizes display color.

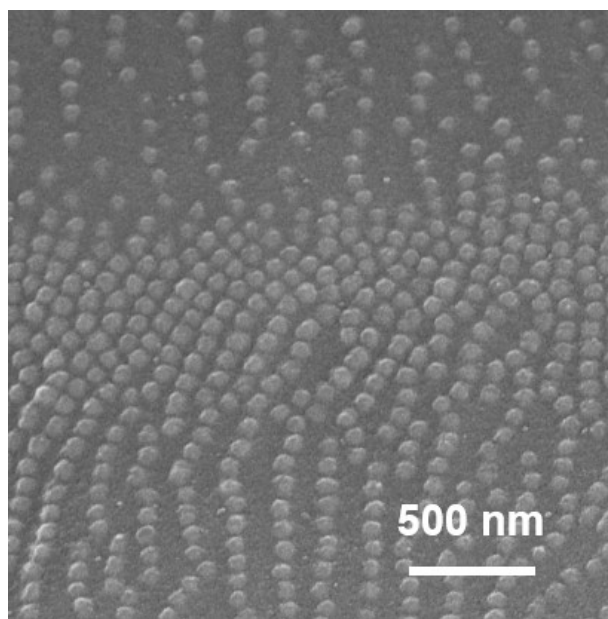


Figure S5 Cross-sectional SEM image of microspheres polymerized under magnetic field.

Video S1 A video of the dynamic color changing of PVA film under a magnet.