Supplementary Information for

Osmotic-Pressure-Mediated Control of Structural Colors of Photonic Capsules

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S1. Supplementary Figures

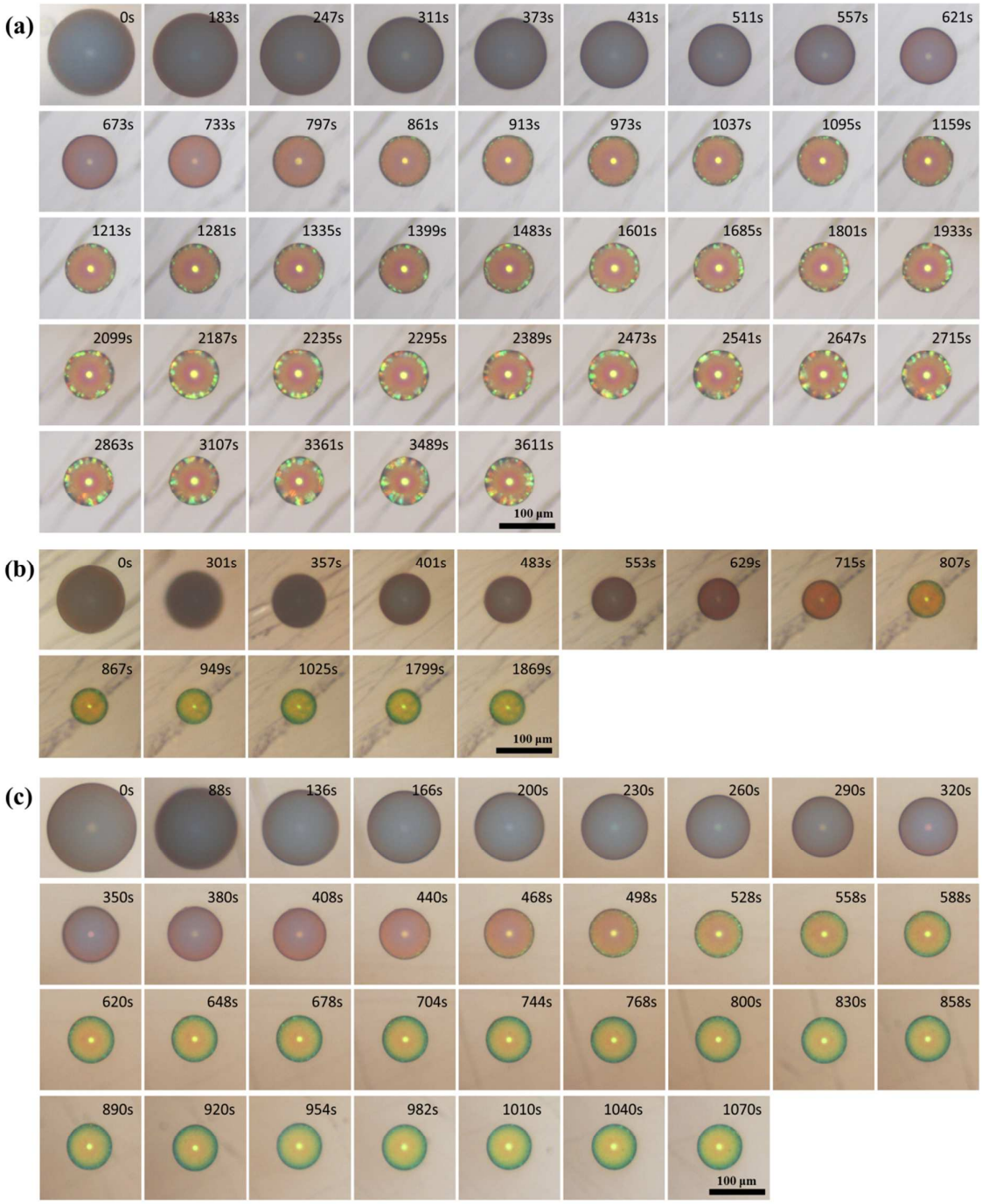

Figure S1. Time series of optical microscope images showing the shrinkage of double-emulsion droplets which are incubated at aqueous solutions with osmolarities of (a) 180 $mOsml^{-1}$, (b) 300 $mOsml^{-1}$, and (c) 440 $mOsml^{-1}$. The incubation time is denoted at each image.

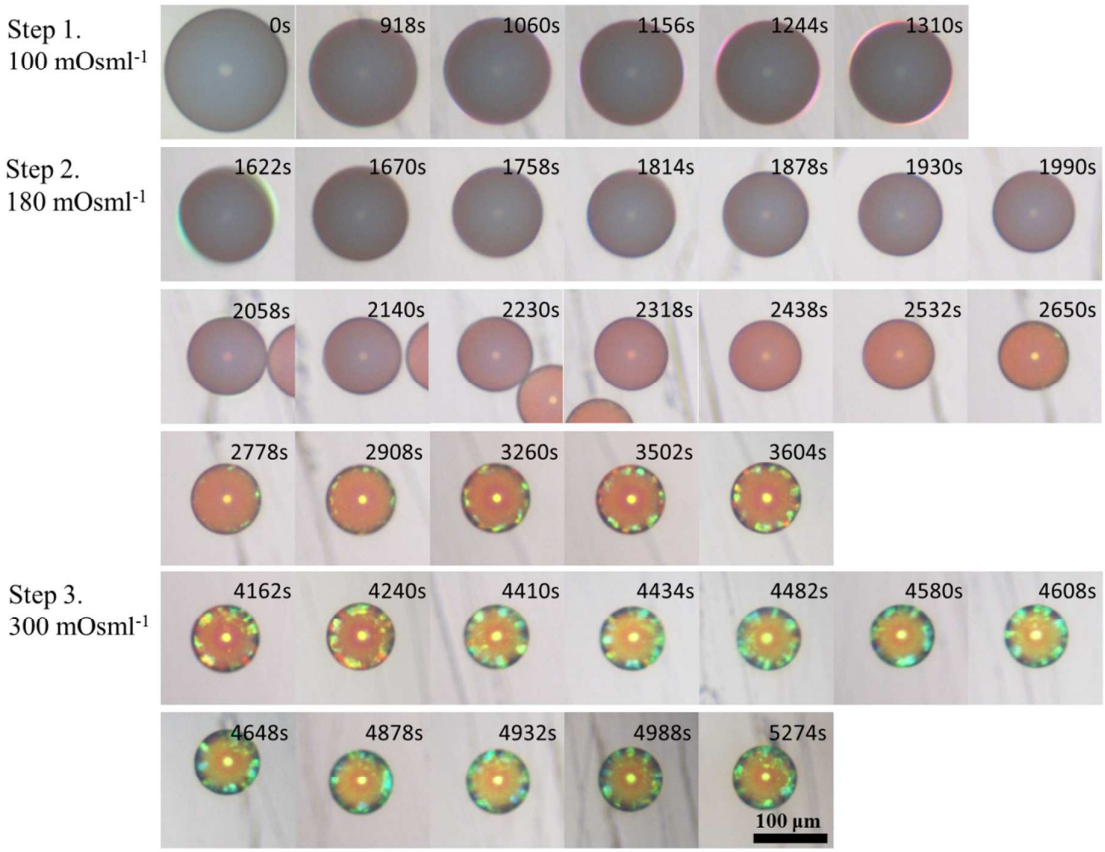

Figure S2. Time series of optical microscope images showing the shrinkage of a double-emulsion droplet which is incubated step by step at three different osmotic pressure conditions: Initially at 100 $mOsml^{-1}$ for 20 minutes (step 1), then at 180 $mOsml^{-1}$ for 40 minutes (step 2), and finally at 300 $mOsml^{-1}$ for 30 minutes (step 3). The incubation time is denoted at each image.

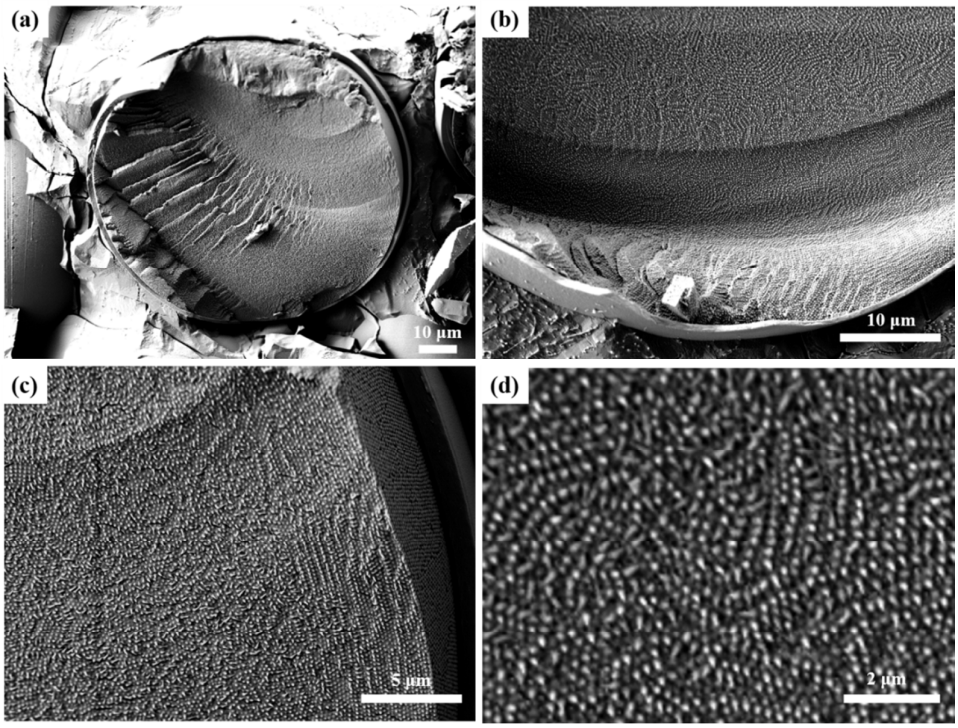

Figure S3. (a-d) Cryo-Scanning electron microscope (Cryo-SEM) images showing internal structures of photonic capsules prepared by single-step concentration.

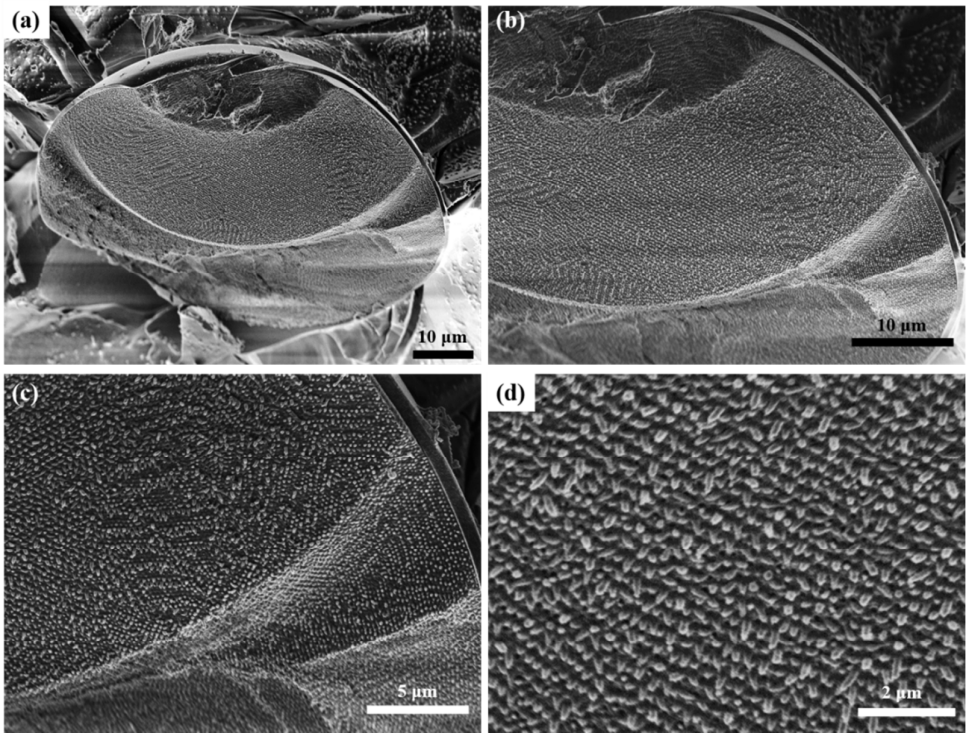

Figure S4. (a-d) Cryo-SEM images showing internal structures of photonic capsules prepared by stepwise concentration.

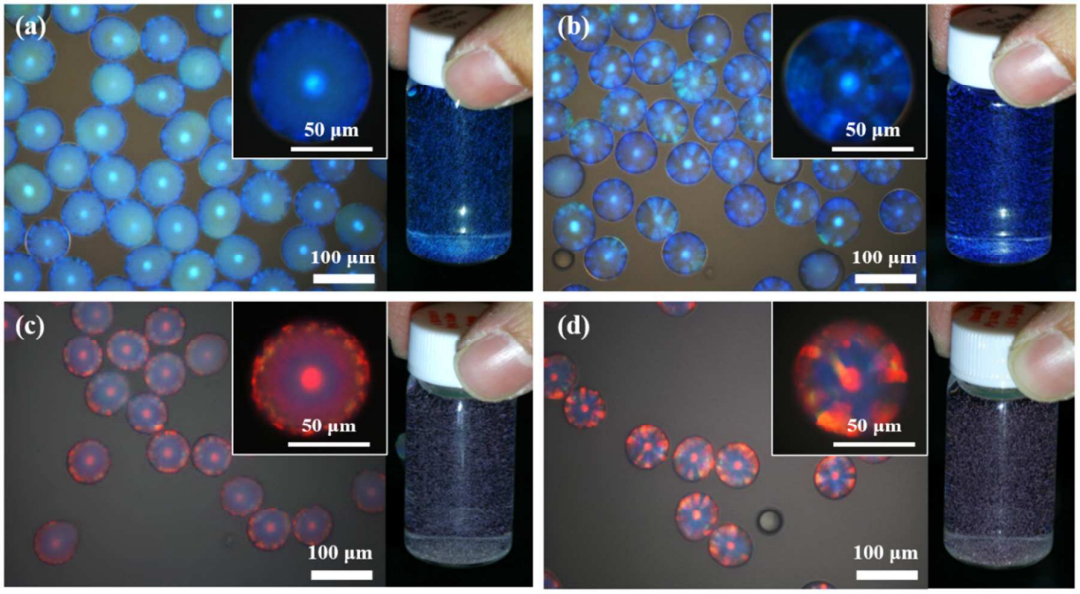

Figure S5. Sets of optical microscope images and photographs of aqueous suspension of photonic capsules composed of PS particles with diameters of (a, b) 156 nm and (c, d) 222 nm, where the capsules in (a, c) and (b, d) are prepared by single-step and stepwise concentration, respectively.

S2. Description of Supporting Movies

Movie S1 shows the generation of double-emulsion drops composed of aqueous core of colloidal suspension and oil shell of photocurable monomers in a capillary microfluidic device. Volumetric flow rates of innermost suspension, middle oil, and continuous phases are set to be 300 μlh^{-1}, 200 μlh^{-1}, and 2200 μlh^{-1}, respectively. This move is taken at 1000 Hz by high speed camera and played at 30 frames per second: 33 × slower than real time motion.

Movie S2 shows the evolution of double-emulsion drops under two different hypertonic conditions; osmolarity of incubation solution is set to be 180 $mOsml^{-1}$ (first part) and 440 $mOsml^{-1}$ (second part). The incubation time is denoted at each frame.

Movie S3 shows the evolution of double-emulsion drops undergoing two different paths; a drop incubated at 300 $mOsml^{-1}$ is shown in the first part and a drop sequentially incubated at 100 $mOsml^{-1}$ for 20 minutes (step 1), then at 180 $mOsml^{-1}$ for 40 minutes (step 2), and finally at 300 $mOsml^{-1}$ for 30 minutes (step 3) is shown in the second part. The incubation time is denoted at each frame.