Supplementary Information

Fabrication of Large-Area Patterned Photonic Crystals by Ink-Jet Printing

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Characterization

Water contact angle (CA) was measured on an OCA20 Contact-angle System (Dataphysics, Germany) at room temperature. The ink CA was measured by similar procedure replacing H_2O with latex suspension. Optical images were obtained by an Olympus MX40 reflected light microscope (Olympus, Japan), which was coupled to a CCD camera and connected to a desktop computer. The viscosity of latex suspension was obtained by SNB-1 rotary viscometer (Shanghai, China), and the surface tension was measured by a high-sensitivity microelectromechanical balance system (Data-Physics DCAT 11, Germany).

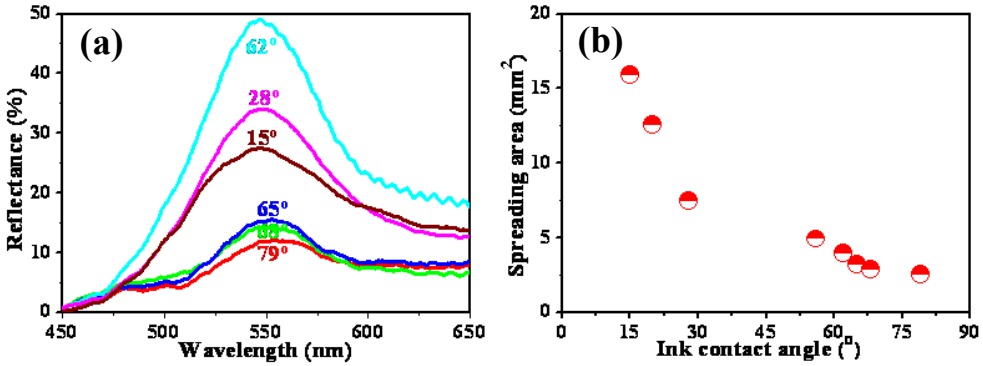

Fig. S1 (a) UV-vis spectra of as-prepared PCs on plastic substrates with different ink CA, (b) the relationship between the spreading area of latex droplet (volume: 2 μL) and ink CA of the substrates.

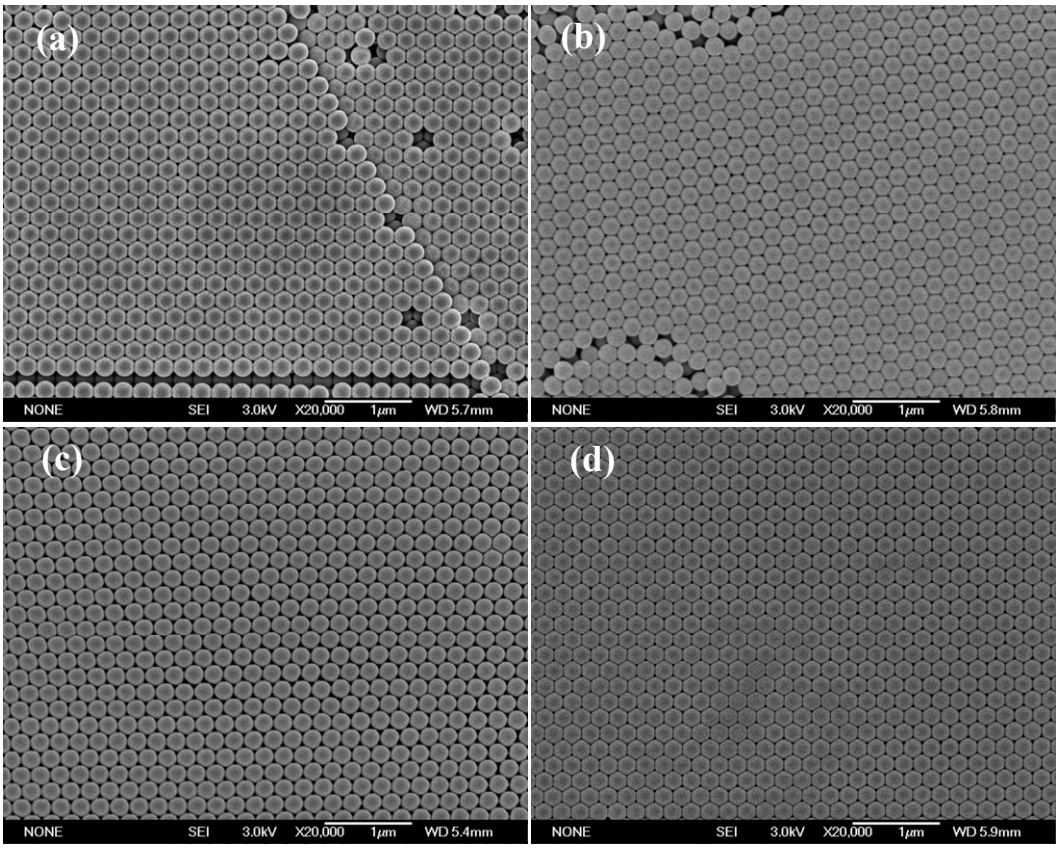

Fig. S2. Typical SEM images of the PCs on the plastic substrates with different wettability, ink CA on the plastic substrates from (a) to (d) varied from 15, 28, 62 and 65^{o}. Clearly, the assembly structure of the latex spheres got improved when increasing the ink CA of the substrates.

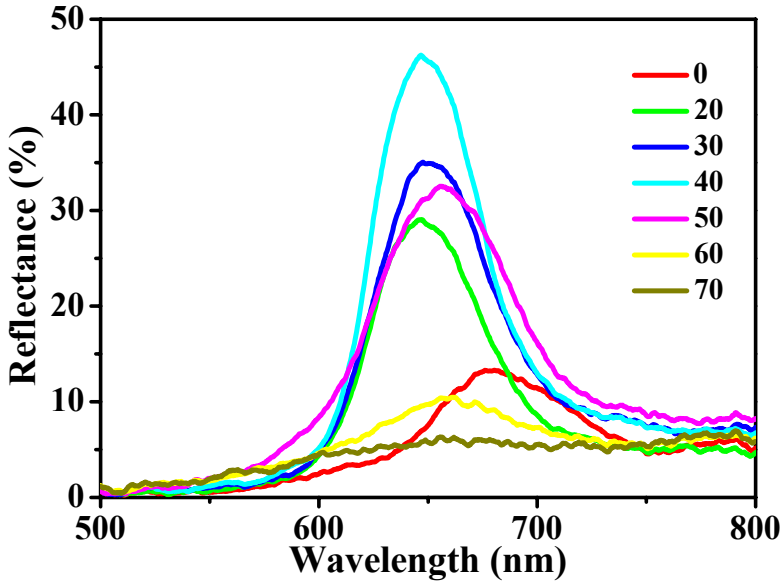

Fig. S3. UV-vis spectra of as-prepared PCs on plastic substrates with various EG content, the number inserted was the EG content (wt%).

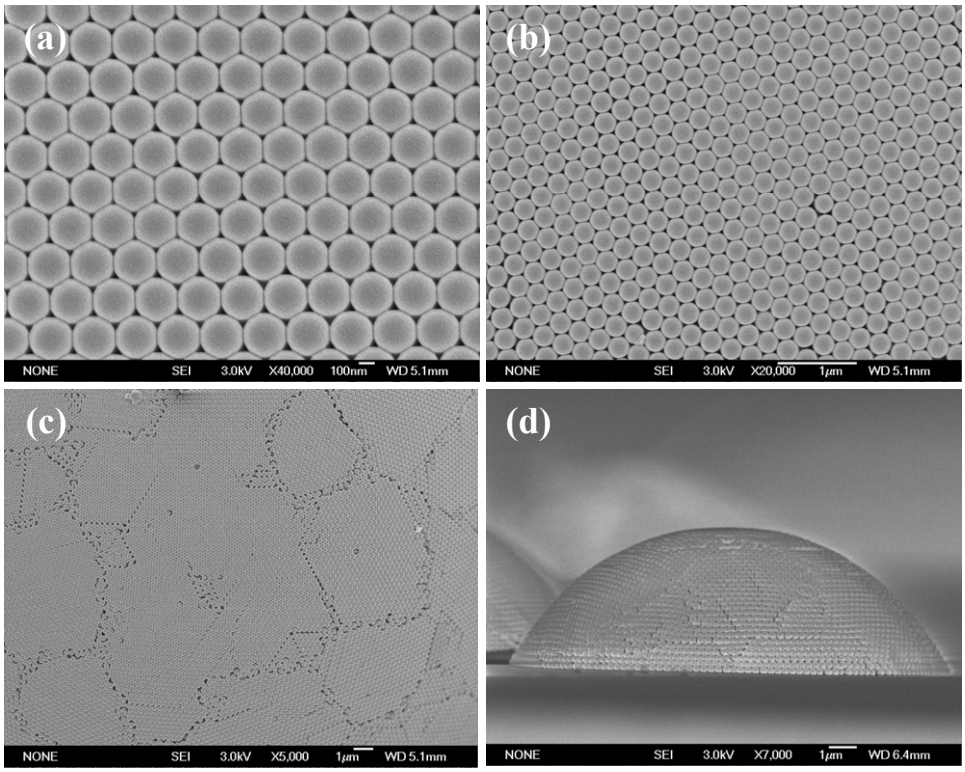

Fig. S4. Typical SEM images of as-prepared PCs by ink-jet printing on the glass substrate (with ink/water CA of 76/95°), (a)-(c) top-view, (d) side-view. The diameter of latex spheres was 280 nm. It could be clearly found that the latex spheres self-assembled in ordered fashion.

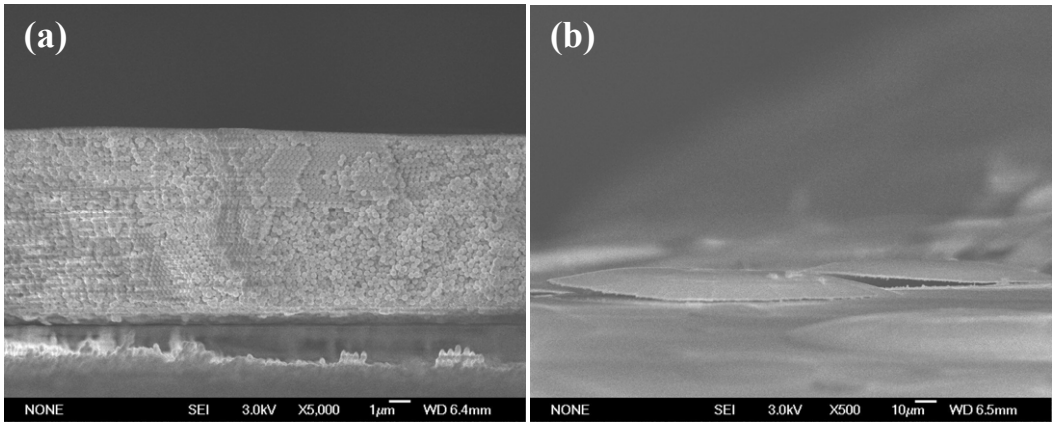

Fig. S5 Typical side-view SEM images of red-flower pattern region of as-prepared PCs with double-stopbands by ink-jet printing on the plastic substrates with ink CA of 62º.