Electronic Supplementary Material (ESI) for Nanoscale Advances.

Electronic Supporting Information for

Panther Chameleon-Inspired, Continuously-regulated, High-saturation Structural Color of Reflective Grating on Nano-patterned Surface of Shape Memory Polymer

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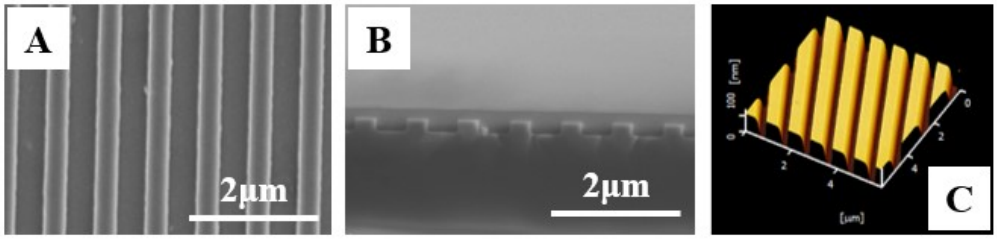

Fig. S1 SEM (A and B) and AFM (C) images of silicon template.

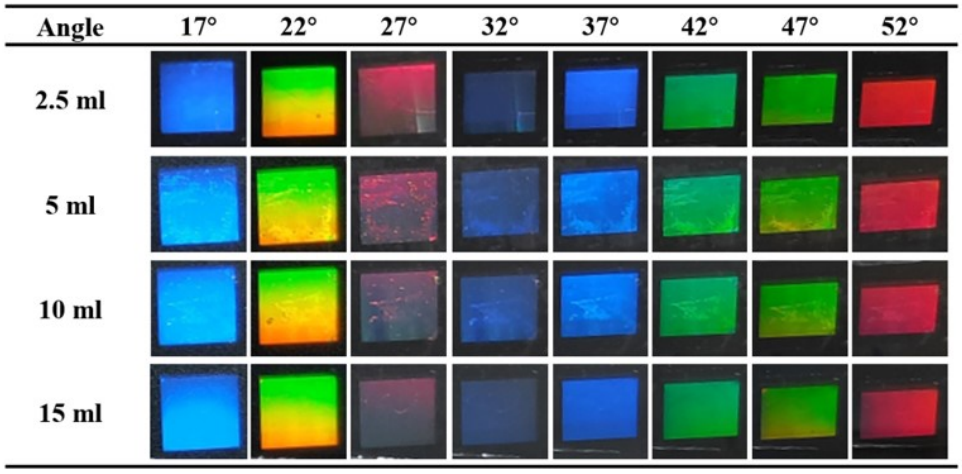

Fig. S2 Optical photographs of as-prepared PLLA film with different casting liquid volume. Different casting liquid volume but same structural color, so the structural color is independent of the h_1.

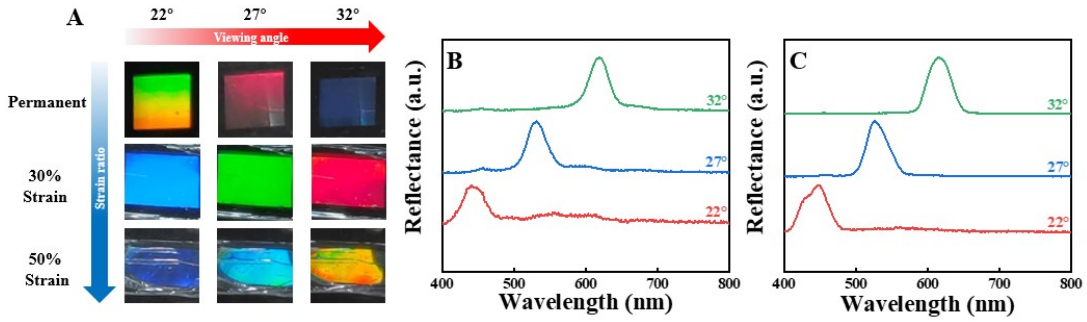

Fig. S3 The evolution of structural colors during uniaxial tension along direction A with various angle (A). (B-C) show the reflection spectrum of PLLA membranes with various strain rations. (B) Strain-30, (C) Strain-50.

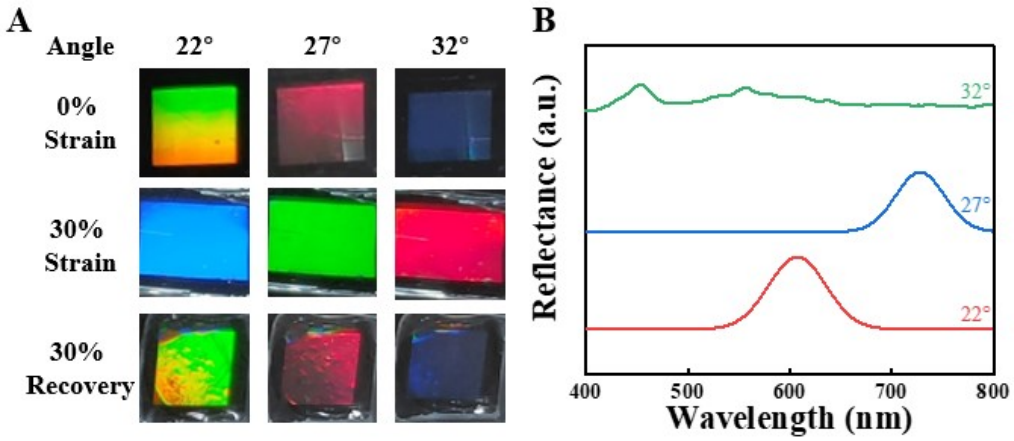

Fig. S4 (A) Optical photographs of recovered PLLA film. (B) shows the reflection spectrum of the recovered PLLA membranes.

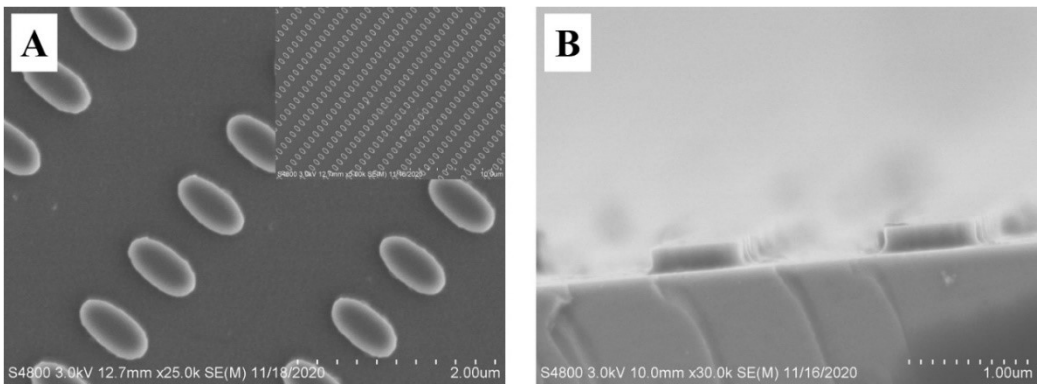

Fig. S5 SEM images of L-S silicon template from top view (A) and side view (B).

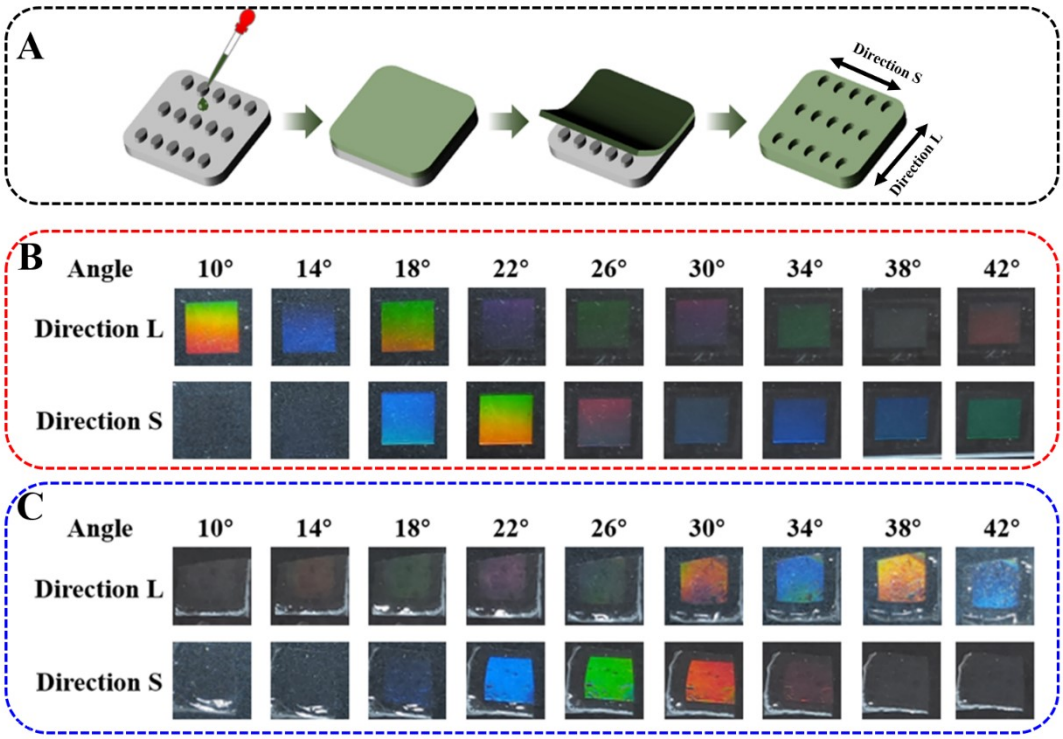

Fig. S6 Fabrication of nano-patterned shape memory PLLA on S-L silicon template (A). Optical photographs of as-prepared PLLA film (B) and 10% strain PLLA film (C).

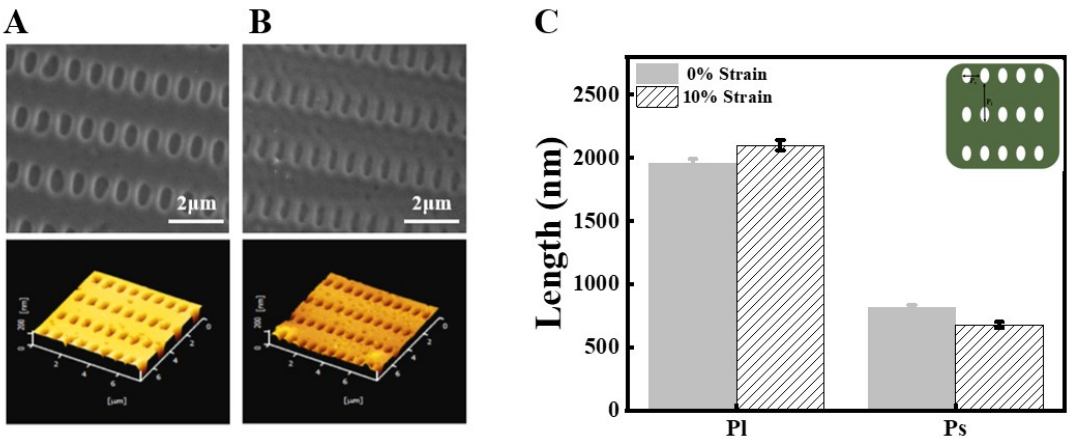

Fig. S7 SEM (up) and AFM (down) images of PLLA membranes with various draw ratios. (A) Strain-0, (B) Strain-10. (C) the period of nanostructures on PLLA films.

Fig. S8 Schematical illustration of product code prepared in this work.

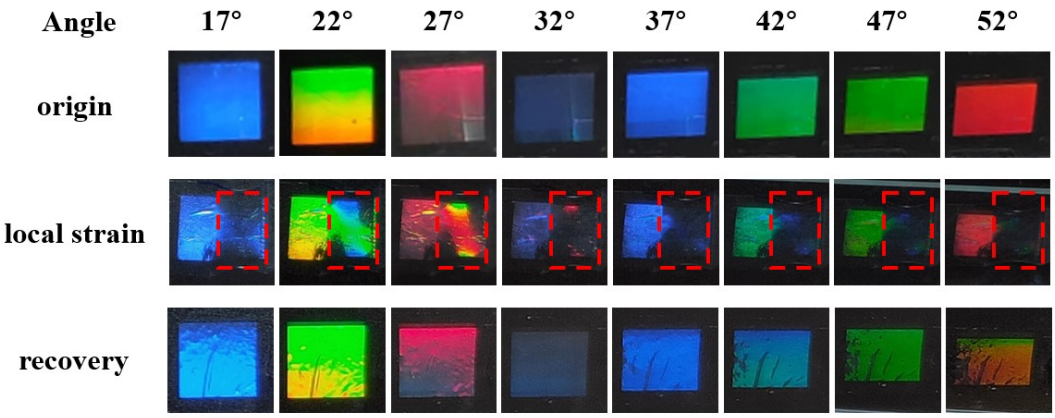

Fig. S9 Optical photographs of PLLA film with local strain and recovery. The red rectangle is the stretched area.

Movies 1-2 display the PLLA film at different viewing angles. The movies are shown at playing speed *2.