

Supplementary Information:

Photoinduced micropatterning by polymorphic crystallization of a photochromic diarylethene in a polymer film

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Fig. S2. ORTEP drawings of **1a- γ** showing 50% probability displacement ellipsoids. a, Top view. b, Side view. Two molecules are crystallographically independent. The fluorine atoms are disordered.

Fig. S3. Powder X-ray diffraction patterns. a, Microcrystal **1a- α** . b, Microcrystal **1a- γ** . c, **1a**/PMMA film heated for 2 min at 130 °C.

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Table S1. X-ray crystallographic data of **1a- γ** .

Video S1. The movie shows the crystal growth of **1a- γ** from the transparent film of the mixture containing PMMA/1a (1:5 wt ratio). The stage was heated at 130 °C. The movie is fast-forwarded as much as 8 times.

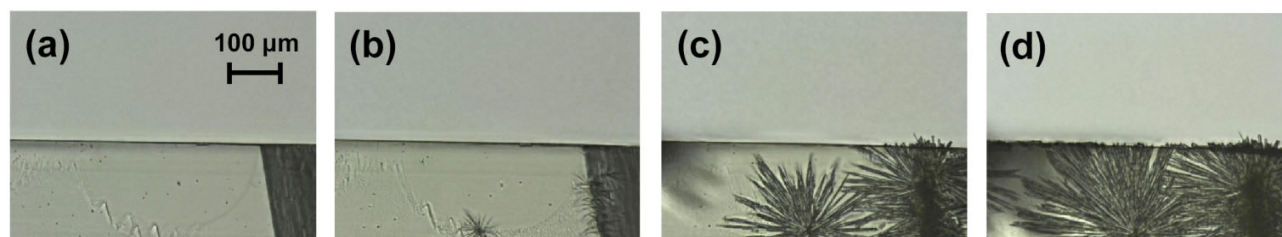


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a, At room temperature. b, After heated for 1 min at 190 °C. c, After heated for 3 min at 190 °C.
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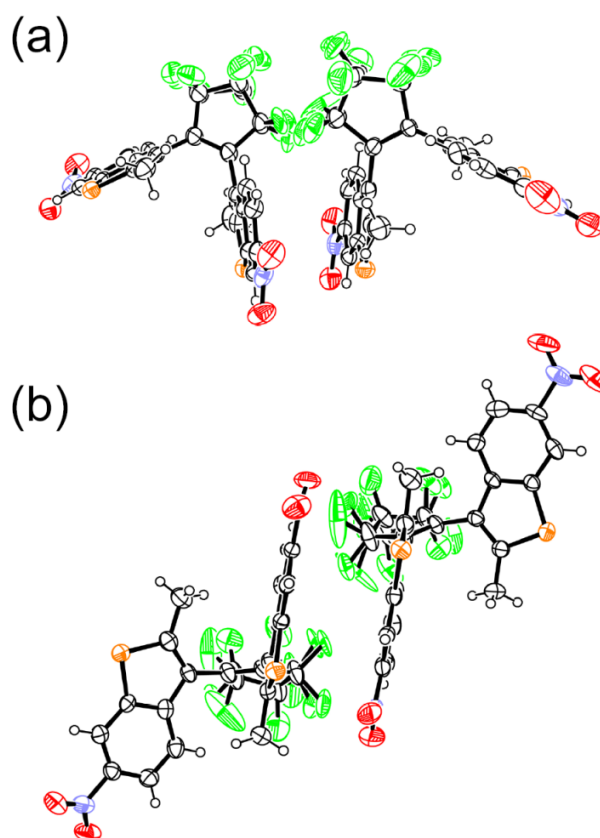


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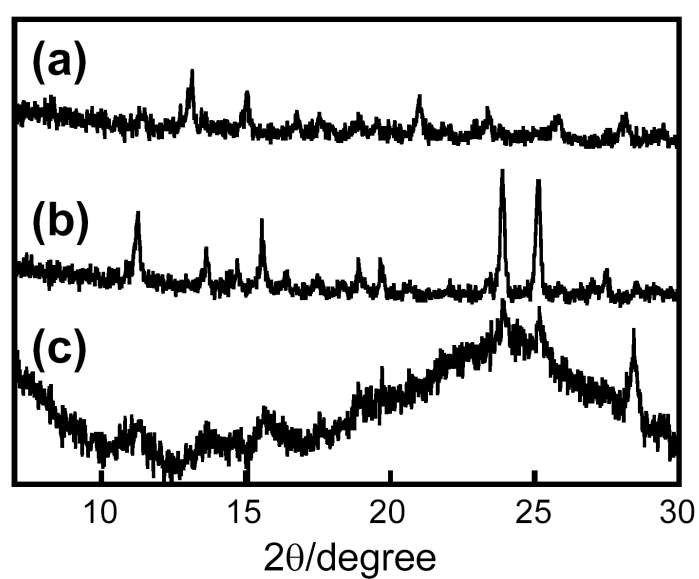


Fig. S3. Powder X-ray diffraction patterns. a, Microcrystal **1a- α** . b, Microcrystal **1a- γ** . c, **1a/PMMA** film heated for 2 min at 130 °C.

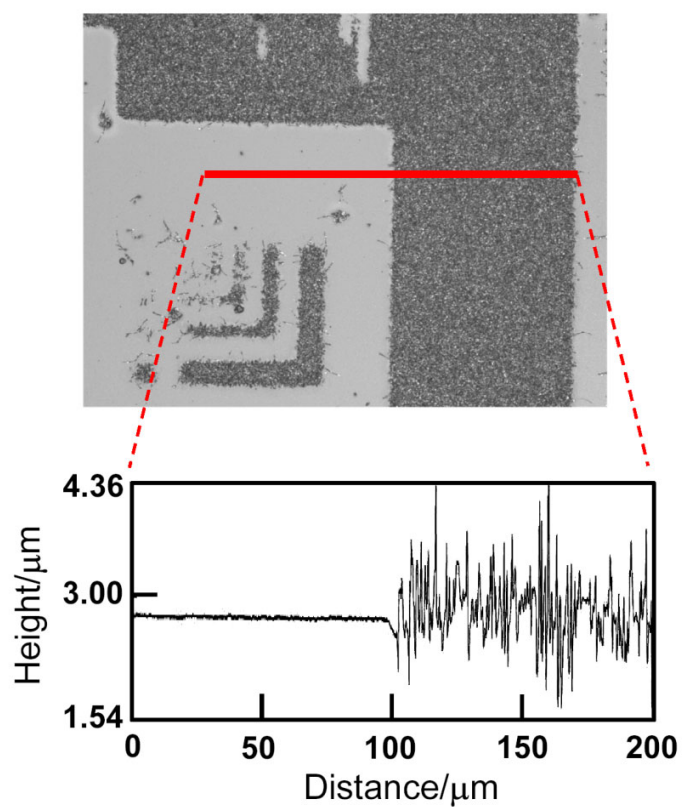


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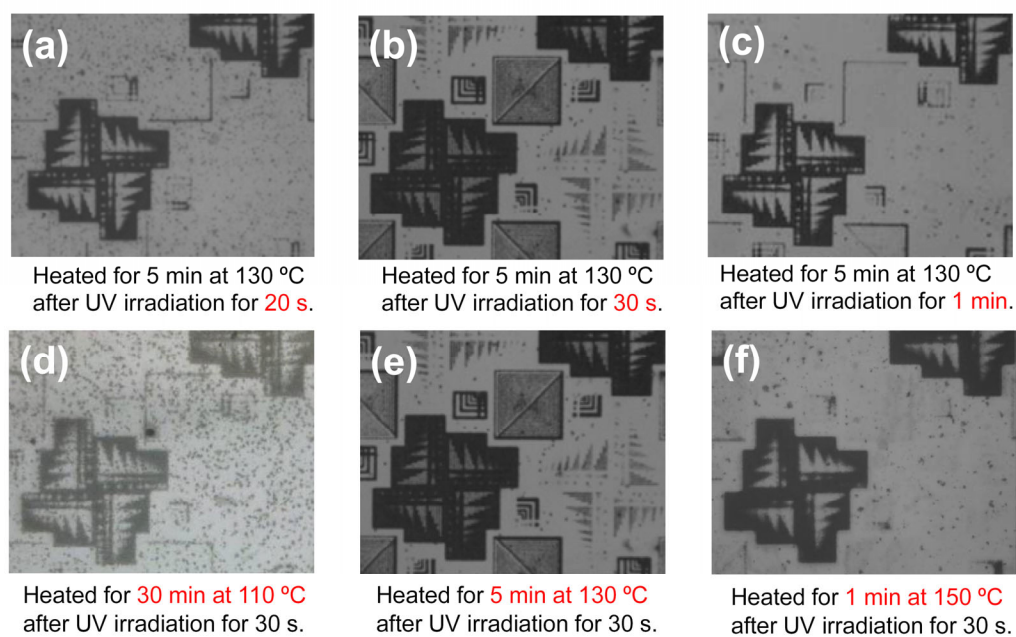


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Table S1. X-ray crystallographic data of **1a- γ** .

	1a-γ
Formula	C ₂₃ H ₁₂ F ₆ N ₂ O ₄ S ₂
Formula weight	558.7
Temperature	190.(2) K
Crystal system	trigonal
Space group	R3(h)
Unit cell dimensions	$a = 32.1473(15) \text{ \AA}$ $b = 32.1473(15) \text{ \AA}$ $c = 11.6175(8) \text{ \AA}$ $\alpha = 90^\circ$ $\beta = 90^\circ$ $\gamma = 120^\circ$
Volume	10397.6(10) \AA^3
<i>Z</i>	18
Density	1.605 g/cm ³
Goodness-of-fit on F^2	1.104
$R(I > 2\sigma(I))$	$R1 = 0.0692$
$R(\text{all data})$	$wR2 = 0.1208$
χ	0.12(7)