

Supporting Information for

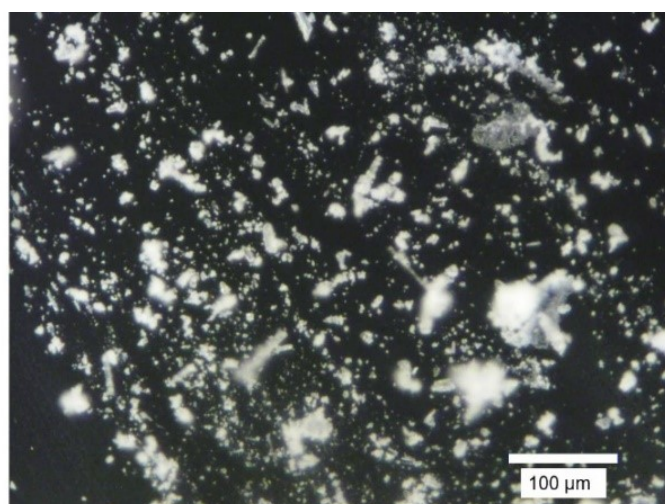
# Photochromic behavior of diarylbenzene nanoparticles prepared by top-down and bottom- up approaches

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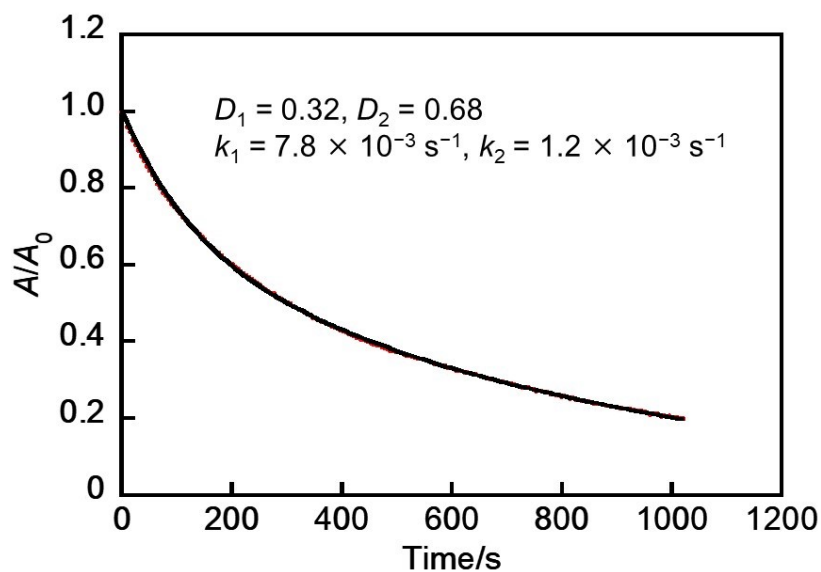
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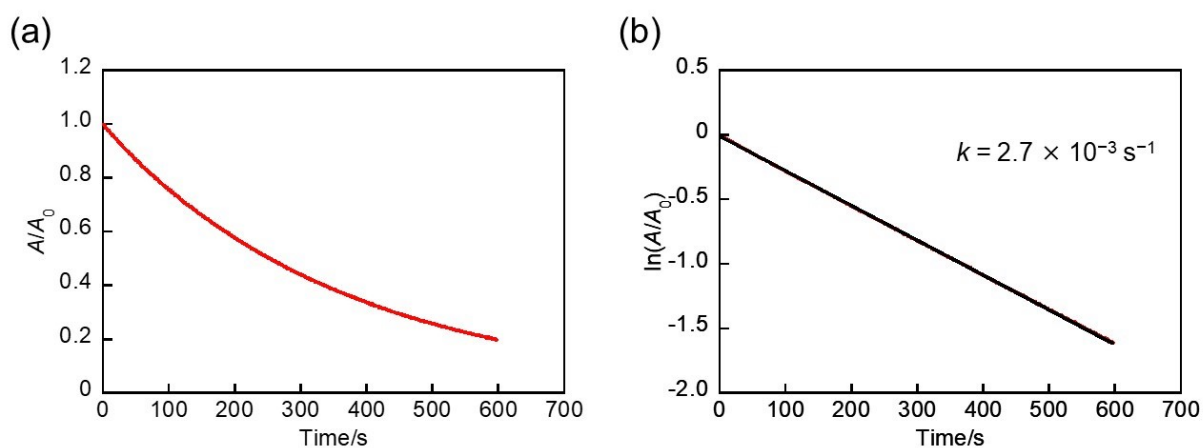
**Fig. S1** The photograph of a convenient ball-milling method used in this work.



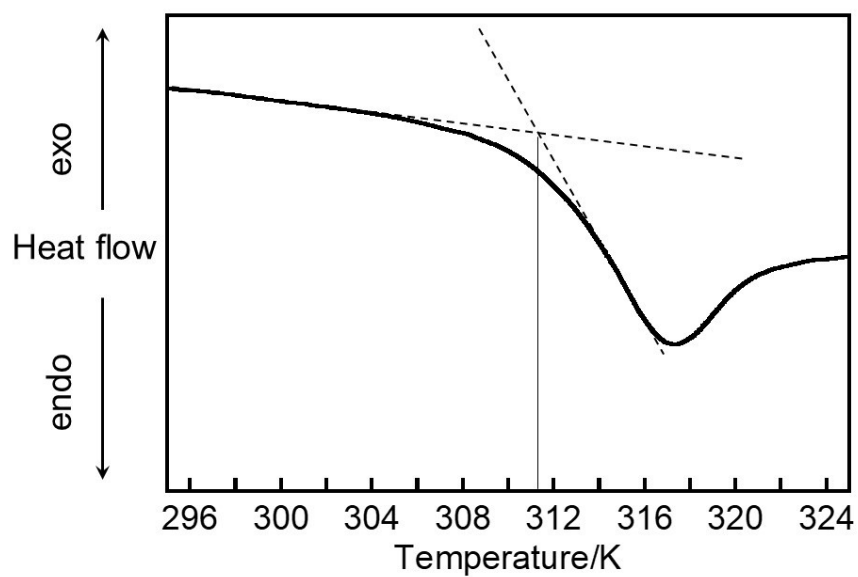
**Fig. S2** The optical microphotograph of powder crystals of **1a**.



**Fig. S3** Absorption decay curves at  $\lambda_{\text{max}}$  for PIBMA film at 298 K. Red plots indicate experimental values. Black solid lines indicate the theoretical curves of the fitting using the biexponential equation.



**Fig. S4** (a) Absorption decay curve and (b) first-order kinetic profile at  $\lambda_{\text{max}}$  for PBA film at 298 K.



**Fig. S5** DSC trace of the amorphous solid of **1a** at a heating rate of  $5\text{ °C min}^{-1}$ .

**Caption of Videos.**

**Video S1.** Photochromic behavior of **NP-ball**.

**Video S2.** Photochromic behavior of **NP-rep**.