

Electronic supplementary information (ESI)

## **Panoscopic organization of anisotropic inorganic colloidal structures from photofunctional nanosheet liquid crystals**

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Fig. S1

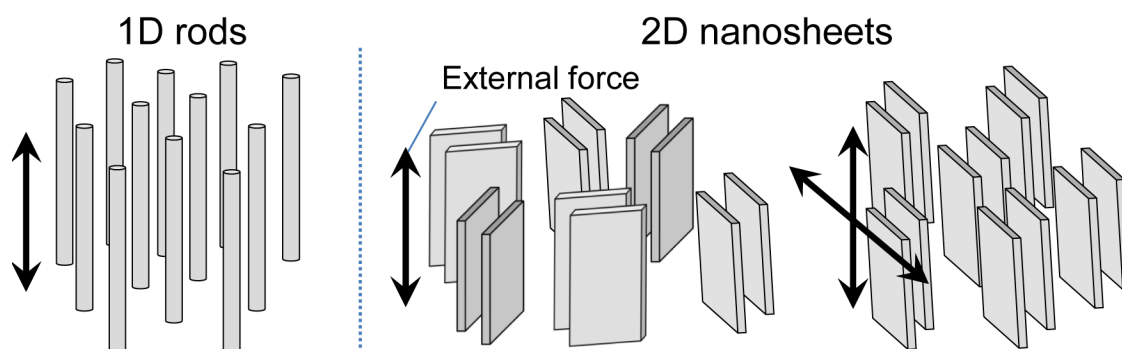


Fig. S1. Schematic representation of the effects of external forces on the alignment of the colloidal liquid crystals. Whereas colloidal rods can be unidirectionally aligned with a single external force, colloidal nanosheets require dual external forces from different direction for strictly regulated alignments.

Fig. S2

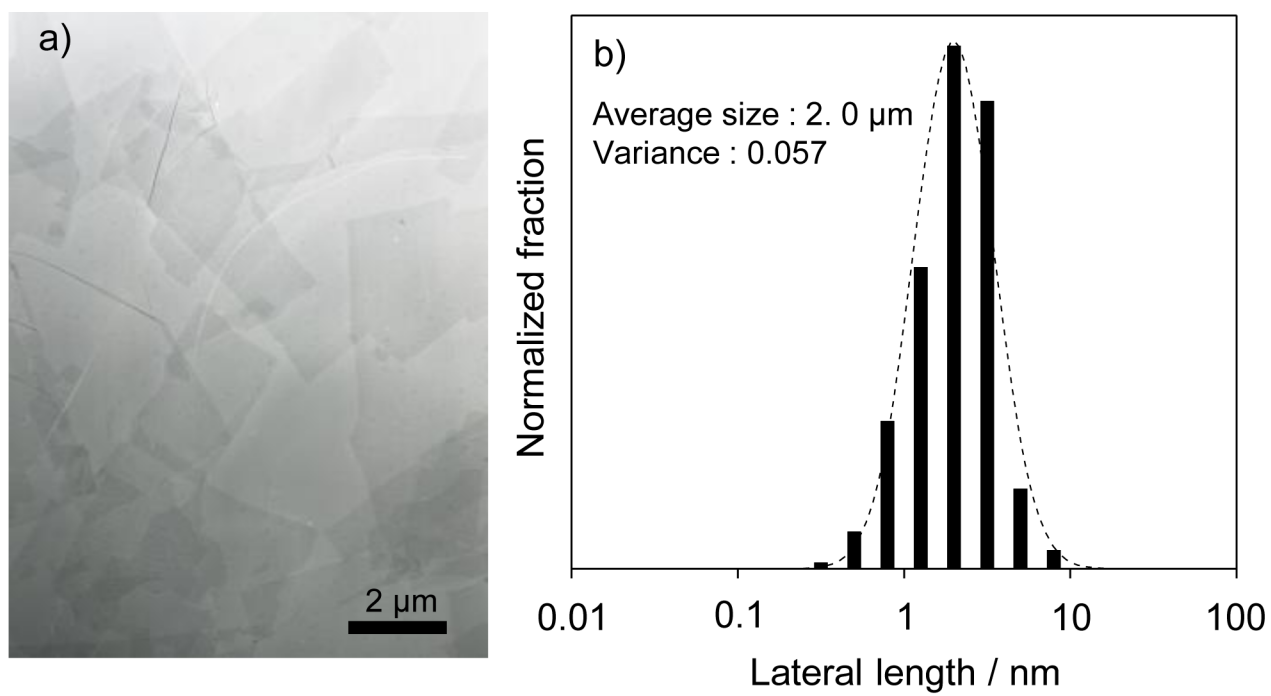


Fig. S2. (a) Typical TEM image and (b) lateral size distribution of the niobate nanosheets.

Fig. S3

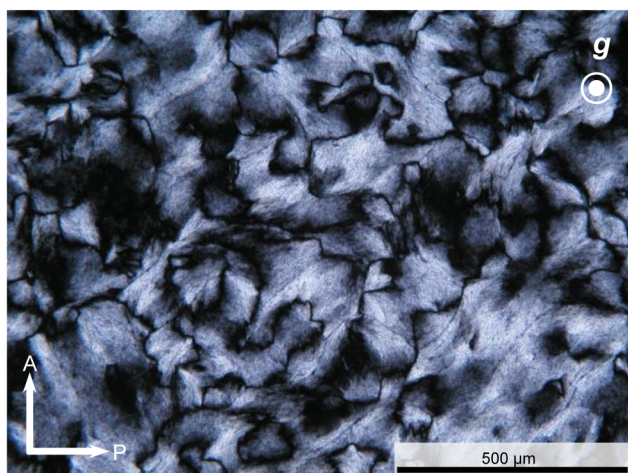


Fig. S3. Typical POM image of the niobate NSLC ( $5 \text{ g L}^{-1}$ ) in a flat capillary (thickness: 0.4 mm). A and P indicate analyzer and polarizer, respectively.

Fig. S4

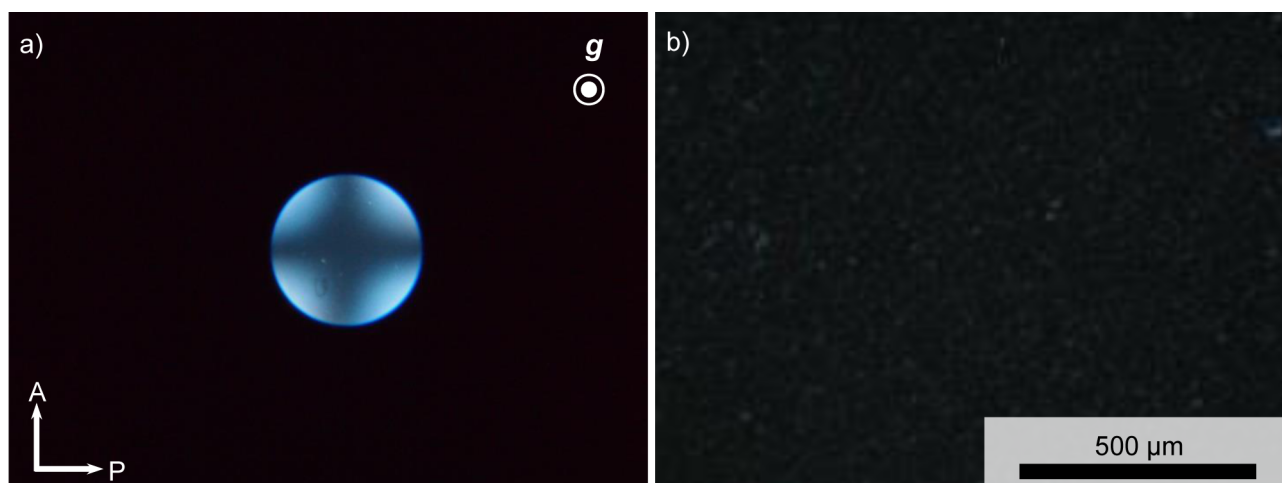


Fig. S4. (a) Conoscopic and (b) orthoscopic POM images of the niobate NSLC ( $5 \text{ g L}^{-1}$ ) just after the injection into the LC cell. Image (b) is shown as Fig. 1a in the text, but reproduced here for comparison purpose. A and P indicate the directions of analyzer and polarizer, respectively.

Fig. S5

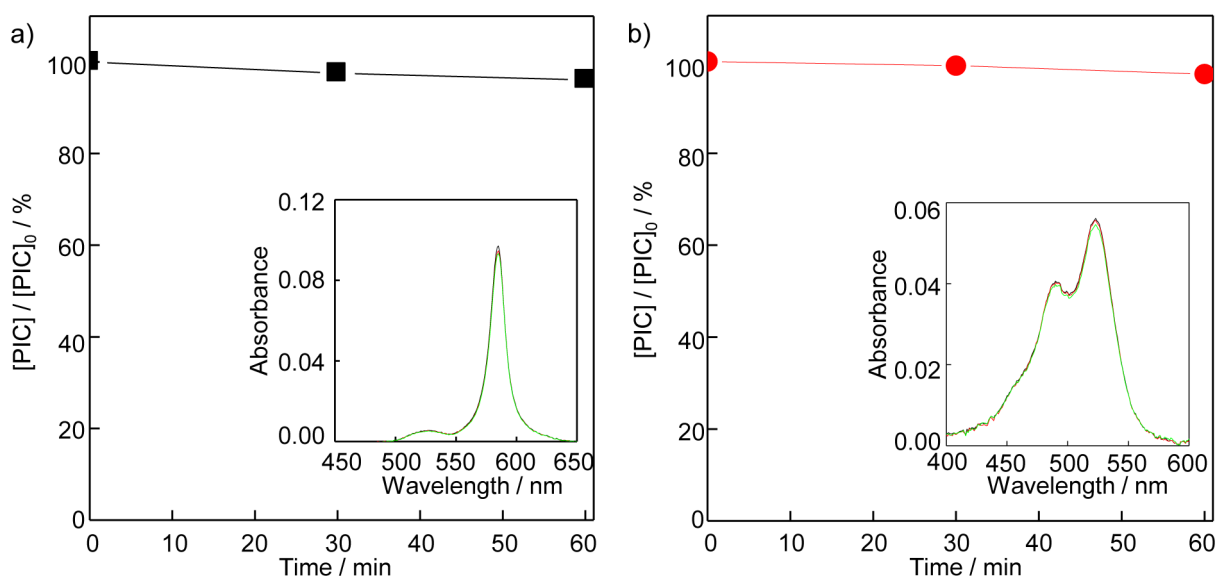


Fig. S5. (a) Time courses of the photocatalytic decomposition of the PIC dye added to the niobate NSLC array ( $[niobate] = 5 \text{ g L}^{-1}$ ,  $[PIC] = 0.1 \text{ mmol L}^{-1}$ ) with the array structure of Fig. 4b upon no irradiation of UV light. (c) Time courses of the photocatalytic decomposition of the PIC dye in aqueous solution ( $[PIC] = 0.1 \text{ mmol L}^{-1}$ ) upon irradiation of UV light parallel to the gravity. Insets are spectral changes of PIC in each experiment.

Fig. S6

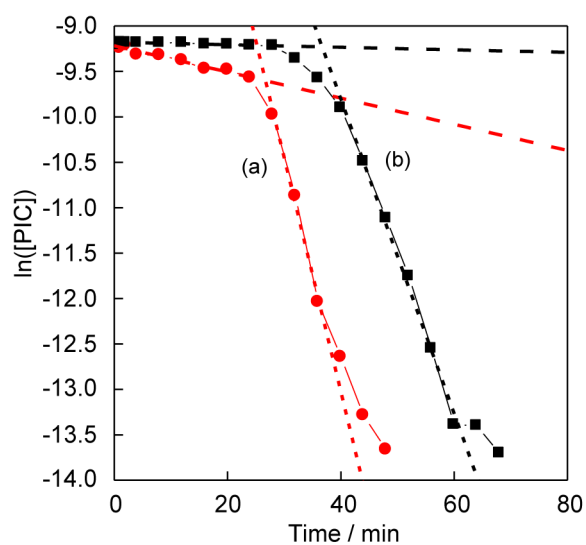


Fig. S6. Logarithmic plots and their fitted curves of time course of photocatalytic decomposition of the PIC dye added to the stripe niobate NSLC array ( $[niobate] = 5 \text{ g L}^{-1}$ ,  $[PIC] = 0.1 \text{ mmol L}^{-1}$ ) upon the irradiation of polarized UV light with the (a) parallel and (b) orthogonal geometries.