

Electronic Supplementary Information:

Photo-induced hybrid nanopatterning of titanium dioxide via direct imprint lithography

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X-ray diffraction spectra of UV-irradiated TiO₂ films:

A UV-irradiated film on a quartz substrate was investigated by XRD and found to be amorphous, as shown in Fig. S01. Three other similar UV-irradiated films on quartz substrates were annealed at 300, 400 and 500 °C for 1 h, respectively, and examined by XRD to investigate the effects of annealing on the film crystallinity. As shown in Fig. S01, the film annealed at 300 °C remained amorphous, whereas anatase TiO₂ crystalline phase appeared in the films annealed at 400 and 500 °C with a [101] preferred orientation. An annealing temperature of 400 °C is therefore sufficient to convert the UV-irradiated films from amorphous to anatase phase. The diffraction intensities showed a distribution similar to that of anatase TiO₂ powder,¹ and the quartz substrate was found not to influence the growth orientation of the TiO₂ films.

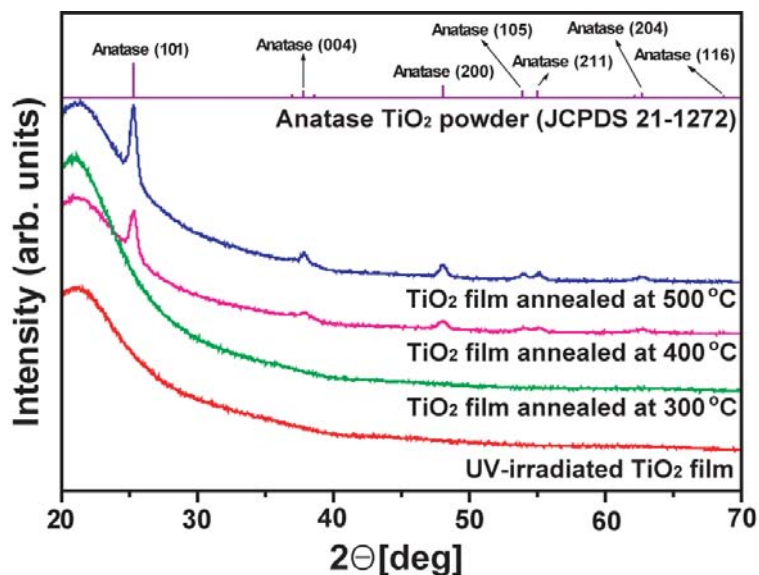


Fig. S1 XRD spectra of the UV-irradiated TiO₂ film and the films annealed at 300, 400, and 500 °C for 1 h, respectively. The sharp line shows the major peak positions and intensities for anatase TiO₂ powder (Joint Committee on Powder Diffraction Standards (JCPDS) 21-1272).

Reference

- 1 A. Jaroenworuluck, T. Panyathanmaporn, B. Soontornworajit, S. Supothina, *Surf. Interface Anal.*, 2006, **38**, 76