Electronic Supplementary Material (ESI) for Journal of Materials Chemistry C.

Supporting Information

Photoactive Rolled-up TiO_2 Microtubes: Fabrication, Characterization and Applications

Silvia Giudicatti,[1] Sonja M. Marz,[1] Lluís Soler,[1,2] Abbas Madani,[1] Matthew R. Jorgensen,[1]*

Samuel Sanchez,[1,2] and Oliver G. Schmidt,[1,3]*

[1] Institute for Integrative Nanosciences, IFW Dresden, Helmholtzstraße 20, 01069 Dresden, Germany
[2] Max Planck Institute for Intelligent Systems, Heisenbergstraße 3, 70569 Stuttgart, Germany
[3] Material Systems for Nanoelectronics, Chemnitz University of Technology, Reichenhainer Straße 70, 09107 Chemnitz, Germany
* E-mail: s.giudicatti@ifw-dresden.de; sanchez@is.mpg.de

Supporting figures

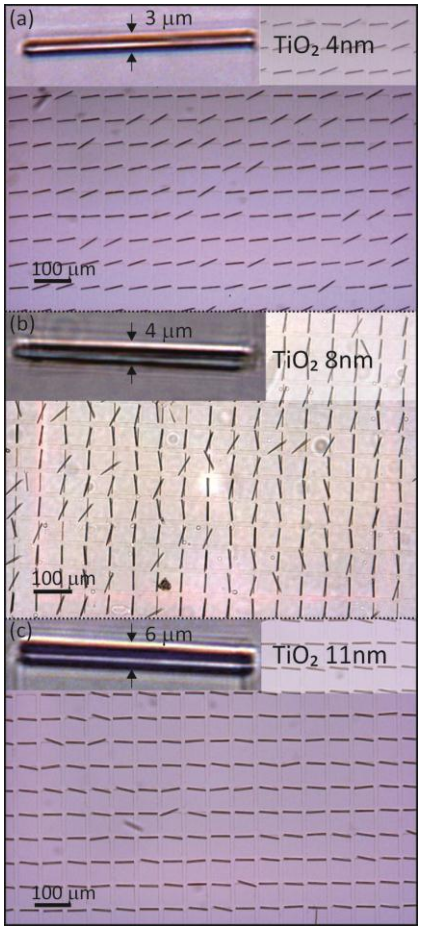

Figure S1: Optical images of arrays of rolled-up TiO_2 tubes with different outer diameters according to different thickness of TiO_2: the diameter is 3 µm in (a), 4 µm in (b) and 6 µm in (c). In all the cases, titania membranes deposited at room temperature were rolled using a photoresist sacrificial layer. Insets: zoomed view of a single tube of each array.

Supporting videos

SI Video 1: Rolling up process of TiO_2 nanomembranes (thickness 16 nm). Pattern 50x50 μm. The sacrificial photoresist layer is removed by immersing the glass wafers in dimethyl sulfoxide (DMSO). The TiO_2 nanomembranes roll up immediately into microtubes of 50μm length and about 10μm in diameter.

SI Video 2: Motion of an active TiO_2 tubular micromotor in sodium acetate-acetic acid buffer (HAc 4.79 M/NaAc 0.21 M at pH=3.6) at room temperature (23 °C) under UV light irradiation.