

Supporting Information

Template-based Preparation of Polymeric Free- Standing Nanorod Arrays on Conductive Substrates

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Fabrication of AAO templates.

High purity aluminum (99.997 %, 0.1 mm thick) purchased from Alfa Aesar was cleaned by sonification treatment in isopropanol and acetone respectively followed by an electropolishing step in a mixture of ethanol and perchloric acid (v/v 4:1) at a current density of 300-350 mA/cm⁻¹ for 1 min at 0 °C. Subsequently the samples were rinsed with deionized water, isopropanol and acetone. To obtain well-ordered porous templates, the anodization was performed in a two step process, which was developed by Masuda and Fukuda.^[S1] The anodization steps were performed in a self-build apparatus, similar to those described in the literature. Briefly, the aluminum sheets were mounted on a copper plate serving as the anode. A radial area of 2.27 cm² was exposed to an aqueous acidic solution. A platinum wire was used as the cathode. The apparatus was surrounded by a cryostatic bath to control the temperature during anodization and the electrolyte solution was rigorously stirred during anodization. The anodization current as a function of time was measured using a multimeter and recorded with an attached computer. Anodization was performed in an aqueous solution of oxalic acid (c = 0.3 mol/L) at 40.0 V and 2±1 °C. In the first step, aluminum was anodized for 6 h, followed by an etching step in aqueous solution of chromic acid (1.8 wt%) and phosphoric acid (6.0 wt%) at 60 °C for 12 h. To obtain AAO templates with a thickness below 500 nm, the second anodization was performed for a short period under the same conditions like the first anodization step. Due to temperature fluctuations, it is more precisely to control the resulting thickness of the template by controlling the total charge, which is used for the anodization. Therefore the current density is monitored by a multimeter during the anodization.

The AAO templates are cleaned by rinsing with deionized water, isopropanol and acetone and were stored in an acetone bath. Pore widening was performed in aqueous phosphoric acid (5 wt%) at 25 °C.

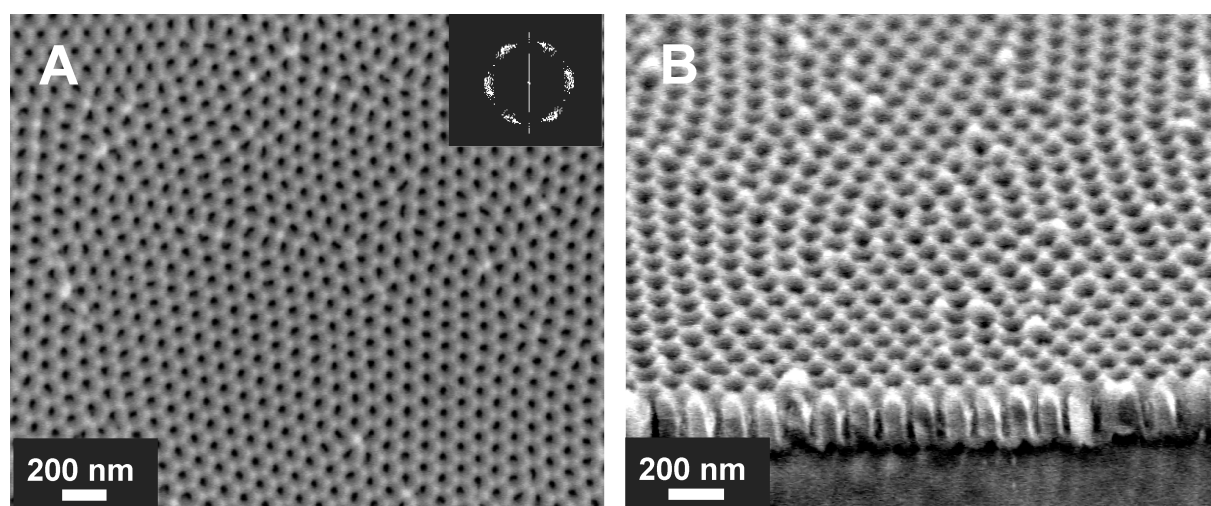


Figure S1. Top-view (A) and cross-sectional (B) SEM micrograph of a AAO template fabricated in 0.3 M oxalic acid of 2 °C at 40 V for 3.5 min (integrated total charge for anodization: 1.75 As). Pore widening was carried out in 5 wt % phosphoric acid at 25 °C for 10 min (Inset in A: Fast Fourier Transformation (FFT) of A showing the hexagonal order of the pores).

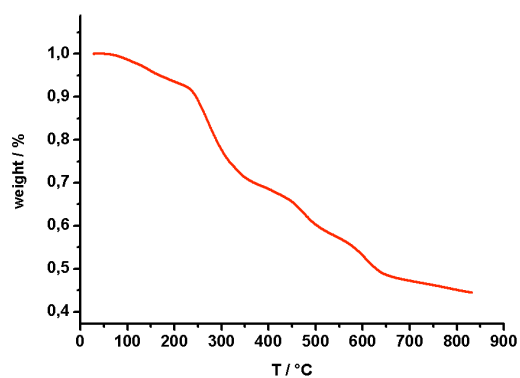


Figure S2. Thermogravimetric analysis (TGA) diagram of DTMS-TPD (10 Kmin⁻¹, nitrogen atmosphere).

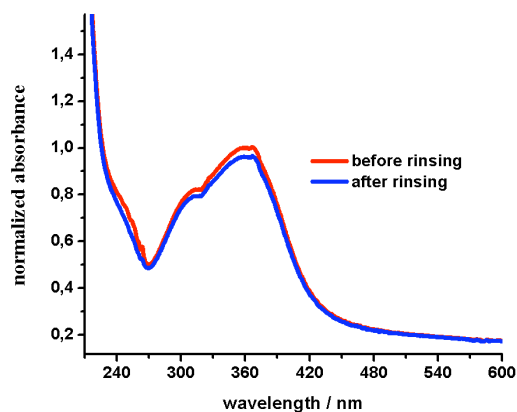


Figure S3. Absorption spectra of an DTMS-TPD film on quartz (cured at 160 °C for 4 h) before (red line) and after rinsing (blue line) by toluene.

References.

- S1. Masuda, H.; Fukuda, K., *Science* **1995**, 268, 1466-1468.