

# Multifunctional hierarchical nano/micro-structured silicon surface with omnidirectional antireflection and superhydrophilicity via anodic aluminum oxide etch mask

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## Supporting Information

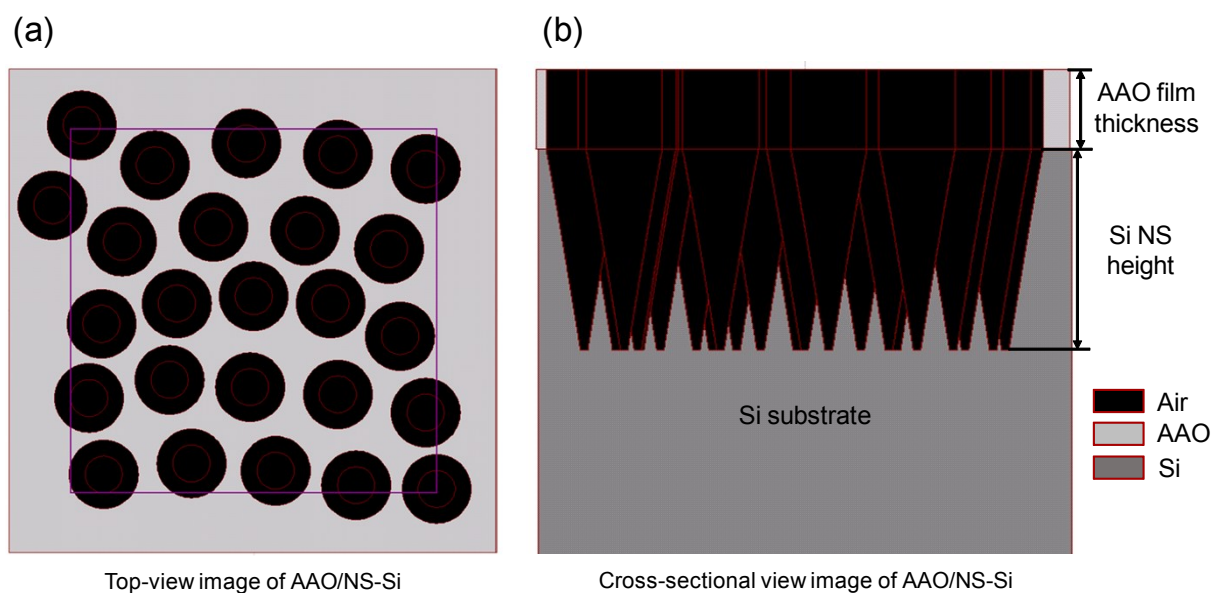


Figure S1. (a) Top- and (b) cross-sectional view images of RCWA simulation model for AAO/NS-Si.

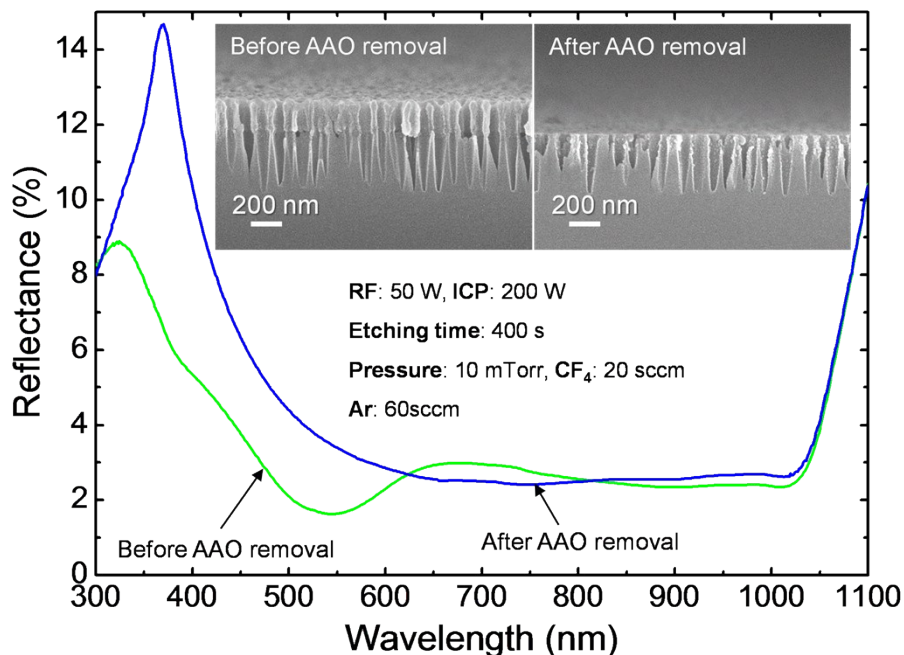


Figure S2. Measured reflectance spectra of the optimized AAO/NS-Si (Ar : 60 sccm) before and after removal of AAO film. The insets show the SEM images of the corresponding samples.

Fig. S2 shows the measured reflectance spectra of the optimized AAO/NS-Si (Ar : 60 sccm) before and after removal of AAO film. The insets show the SEM images of the corresponding samples. Here, after etching, the remained AAO film on the NS-Si was removed by dipping in the mixture solution of 6 wt%  $\text{H}_3\text{PO}_4$  and 1.5 wt%  $\text{CrO}_3$  at  $60^\circ\text{C}$  for 10 min. From Fig. S2, it can be observed that the reflectivity of NS-Si without the AAO film is relatively higher than that of the AAO/NS-Si in the whole wavelength range of 300-1100 nm, especially at short wavelengths of 300-600 nm, showing the larger average reflectance ( $R_{\text{avg}}$ ) of  $\sim 4.6\%$  (i.e.,  $R_{\text{avg}} \sim 3.4\%$  for the AAO/NS-Si). From these results, therefore, it is noted that the AAO film can be also utilized to further reduce the reflectivity of NS-Si.