

Supporting Information

Dynamics of a nitroxide layer grafted onto porous silicon

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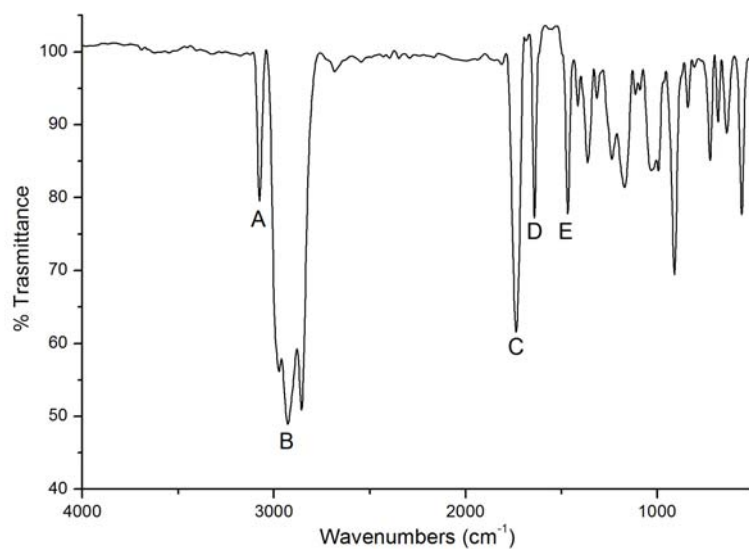


Figure S1. IR spectrum of **1**. A, 3075 cm^{-1} , $\nu(\text{H-C}=\text{C})$; B, 2977 , 2925 , 2858 cm^{-1} , $\nu(\text{Alkyl Chain})$; C, 1737 cm^{-1} $\nu(\text{C}=\text{O})$; D, 1641 cm^{-1} $\nu(\text{C}=\text{C})$; E, 1467 cm^{-1} $\nu(\text{N-O})$.

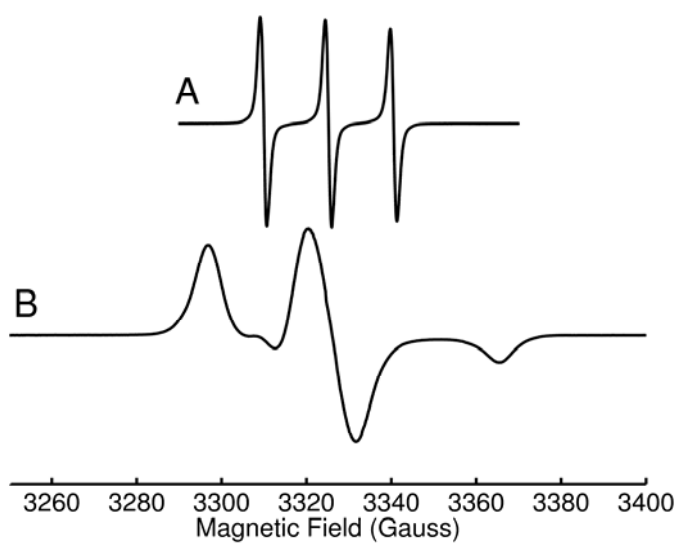


Figure S2. ESR spectra of **1** in toluene solution ($c = 1 \times 10^{-4}\text{ M}$). (**A**) room temperature; (**B**) at 110 K.

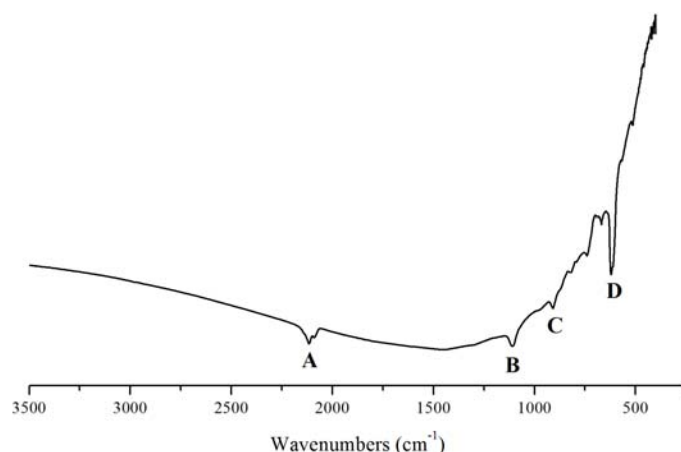


Figure S3. IR Spectrum for Porous Silicon (PS). A, 2110 cm^{-1} , $\nu(\text{Si-H}_x)$; B, 1100 cm^{-1} , $\nu(\text{Si-O})$; C, 912 cm^{-1} , $\nu(\text{Si-H}_2)$; D, 617 cm^{-1} , $\nu(\text{Si-Si})$. The broad band in the 2100 cm^{-1} region (A) is associated to the stretching modes of Si-H, Si-H₂ and Si-H₃. The band around 1100 cm^{-1} (B) indicates the presence of silicon oxides (SiO_x), most likely of interstitial nature. The peak at 912 cm^{-1} (C) is associated to a $\nu(\text{Si-H}_2)$ scissor mode absorption. The low energy part of the spectrum shows a strong adsorption at around 617 cm^{-1} (D) with a smaller shoulder at 665 cm^{-1} : the former is commonly assigned to the $\nu(\text{Si-Si})$ stretching mode and the latter to a $\nu(\text{Si-H})$ wagging mode.

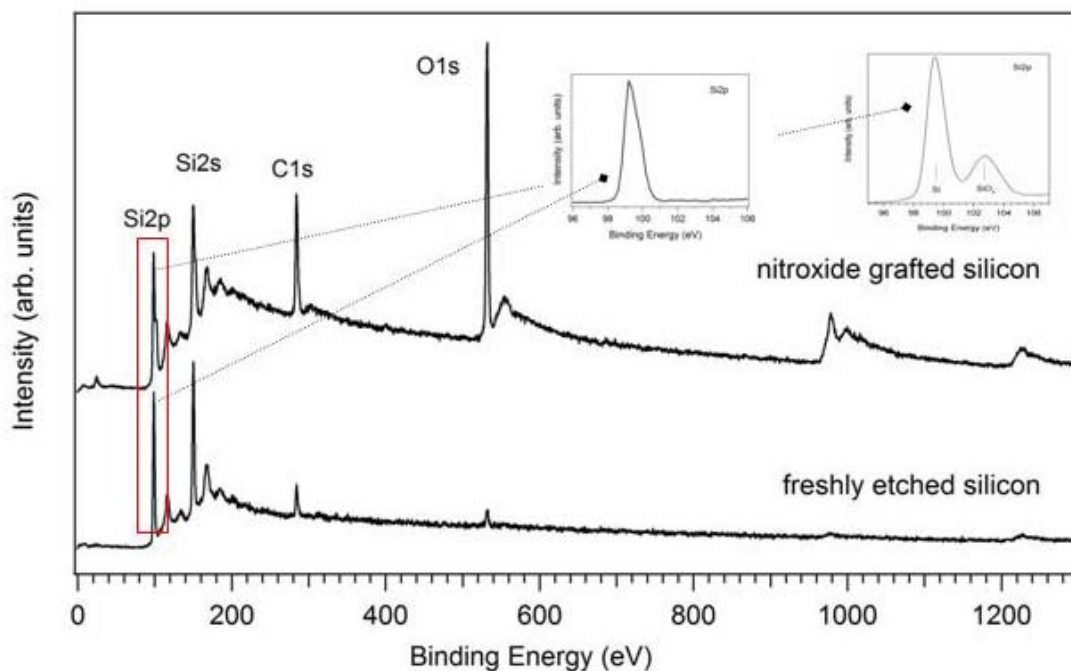


Figure S4. XPS survey scans for a freshly etched silicon substrate and for a nitroxide-grafted silicon slide. Correspondingly, the Si2p regions are also shown.

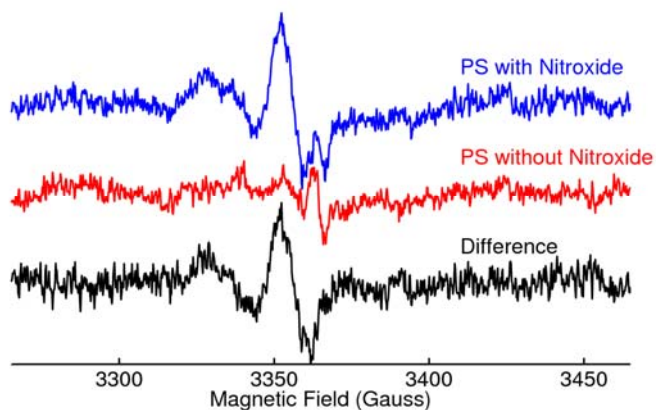


Figure S5. EPR spectra recorded on samples of **1-PS** (blue), of **PS** (red) and the spectrum difference between the two (black). The spectra are shifted vertically to improve readability.

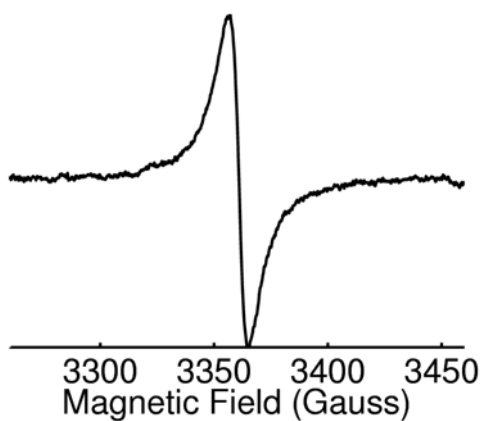


Figure S6. EPR spectrum recorded at $T = 290\text{K}$ of nitroxide **1** drop-casted on **PS**.

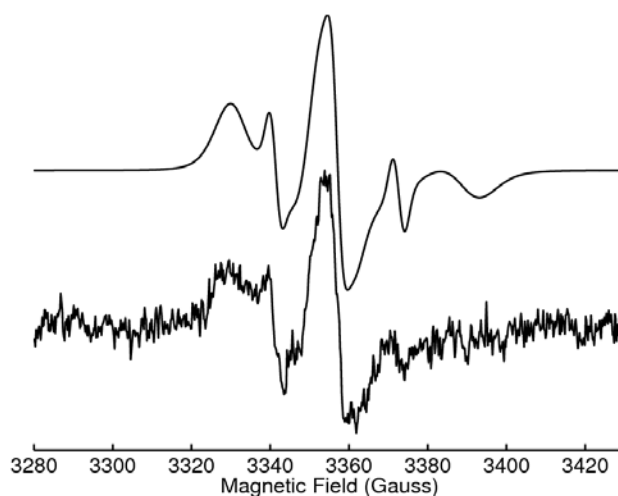


Figure S7. Calculated (upper) and experimental (lower) ESR spectra of **1-PS** recorded at $T = 300\text{ K}$