### **Supporting Information**

#### for

## Wetting Behavior of Porous Silicon Surfaces Functionalized with a Fulleropyrrolidine

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### FIGURE S1



HPLC analysis of derivative **1** was performed on a Thermo Separation Spectra System P2000, with a Spectra system UV6000LP detector at 340 nm. The analysis was performed with a Phenomenex Luna column ( $250 \times 4.6$  mm, SiO<sub>2</sub>, 5µm) using toluene/ethyl acetate 8:2 as eluent, at 1ml/min.

## **FIGURE S2** (<sup>1</sup>H NMR of 1, CDCl<sub>3</sub>/CS<sub>2</sub>).



## FIGURE S3 (<sup>13</sup>C NMR of 1, CDCl<sub>3</sub>/CS<sub>2</sub>)



### FIGURE S4 (ESI-MS of 1)

# Display Report - All Windows Selected Analysis

Analysis Name:	DD350001.D	Instrument:	LC-MSD-Trap-SL	Print Date:	12/12/2005 11:41:31 AM
Method: def_	lcms.m	Operator:	Administrator	Acq. Date:	12/12/2005 11:37:26 AM
Sample Name:	DD35				
Analysis Info:	DD35 ESI(+) MeOH+0.1%	6HCOOH, FIA			



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**FIGURE S5**. SEM image of porous silicon after chemical etching with pores extending from the surface of the Si(100) wafer down into the bulk. SEM images were recorded using a XL 30 ESEM Philips instrument at 20KV and 4.7 spot; the sample was gold-sputtered prior to take the image.



**FIGURE S6.** Si2p XPS spectrum for a H-terminated PS surface. The peak has been deconvoluted into two components that correspond to silicon types present on the surface (see text for further details).



**FIGURE S7.** Si2p XPS spectrum for a functionalized PS surface with fulleropyrrolidine **1**. The peak has been deconvoluted into three components that correspond to silicon types present on the surface after thermal hydrosilylation with **1**.



**FIGURE S8.** (b) FT-IR spectrum of **1-PS** left at ambient conditions for a week. (a) FT-IR spectrum of sample (b) after treatment with 48% aq. HF/EtOH mixture (1:1, 5min). The acid solution dissolves the accessible oxidized regions leading to the disappearance of the peaks at 1068 cm<sup>-1</sup> and at 1160 cm<sup>-1</sup>. Some interstitial Si-oxide, already observed in freshly prepared PS, is still evident here at 1100 cm<sup>-1</sup>.



**FIGURE S9.** (a) FT-IR spectrum of **1-PS** within a week in air at ambient conditions. (b) FT-IR spectrum of **1-PS** after about two weeks in air at ambient conditions. Note the substantial oxidation of the surface with time (growth of the peaks at 1160 cm<sup>-1</sup>, v (Si-O-C), 1060 cm<sup>-1</sup>, v (Si-O-Si). The  $v(O_3Si-H)$  band appears at 2240 cm<sup>-1</sup>.



**FIGURE S10.** FT-IR spectrum of **1-PS** after 15 minutes of sonication in toluene. No substantial changes are evident from the IR profile.



**FIGURE S11.** FT-IR spectrum of **C12-PS** using hydrogen-terminated PS as background. The positive peaks refer to new bonds formation on the surface. Positive alkyl (2924 and 2854 cm<sup>-1</sup>) and negative silicon hydride (2110 cm<sup>-1</sup>) resonances. The negative peaks correspond to a consumption of Si-H bonds. Little or no oxidation is present.



**FIGURE S12.** (a) FT-IR spectrum of **CH3-10** (ATR liquid film) and (b) FT-IR spectrum of **CH3-10-PS** (using a hydrogen-terminated PS as background). The disappearance of the peak at 1641 cm<sup>-1</sup> indicates the consumption of the C=C double bond. At 1741 cm<sup>-1</sup> is the ester carbonyl stretching. The negative peak at 2100 cm<sup>-1</sup> is referred to the consumption of Si-H bonds. Little or no oxidation is present.



**FIGURE S13.** (a) FT-IR spectrum of **CF3-10** (ATR liquid film) and (b) FT-IR spectrum of **CF3-10-PS** (using a hydrogen-terminated PS as background). The disappearance of the peak at 1645 cm<sup>-1</sup> indicates the consumption of the C=C double bond. At 1764 cm<sup>-1</sup> is the ester carbonyl stretching. The negative peak at 2112 cm<sup>-1</sup> is referred to the consumption of Si-H bonds. Little or no oxidation is present