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Supporting Information

Versatile Thiol-Based Reactions for Micrometer- and Nanometer-Scale Photopatterning of Polymers and Biomolecules

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1.) Photochemical Oxidation of Surface Bound Thiol Groups

The change in surface chemistry was also followed by contact angle measurements. The pristine film exhibits a water contact angle of 38°, which decreases rapidly during UV exposure as shown in Figure S*1* (left). A value of 18° was reached after an exposure of 20 min, consistent with the formation of polar sulfonic acid groups.

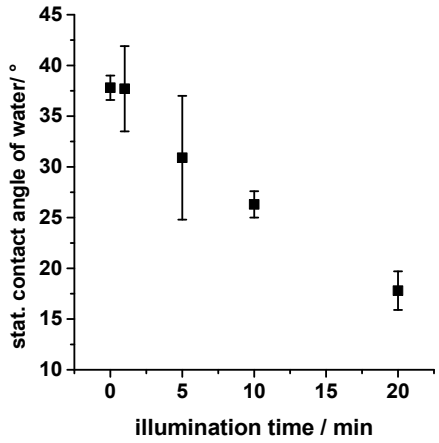

Figure S1: left: Water contact angle following continuous UV irradiation of MPMS films.

2.) Derivatization of sulfonic acid groups

XPS Wide scan spectrum (Figure S2) and elemental surface composition (Table S1) after derivatization with heptadecafluoroundecylamine.

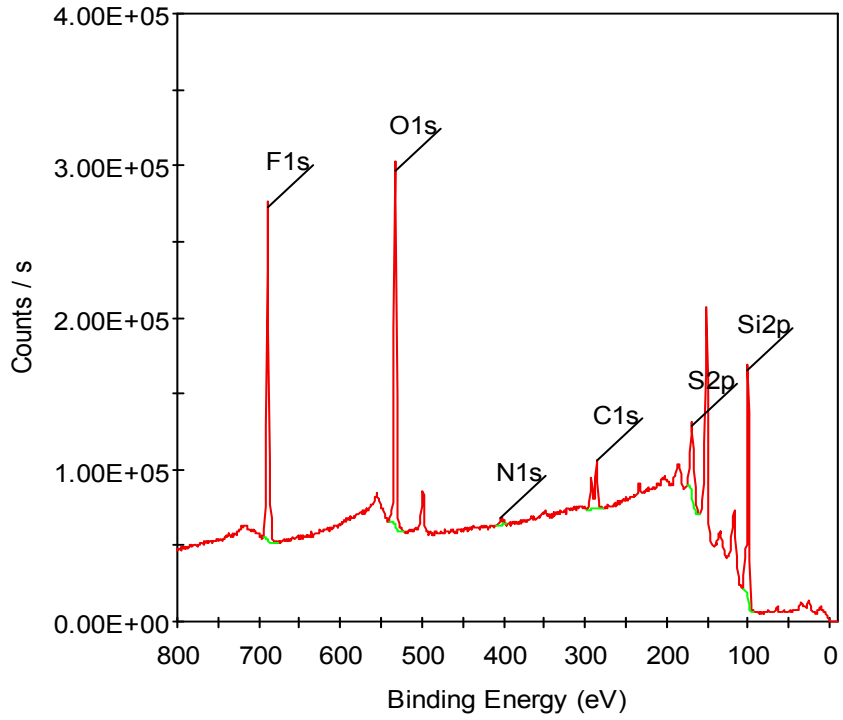

Figure S2: XPS Wide scan spectrum

Table S1: Elemental surface composition

peaks	atomic %
O1s	21.47
F1s	14.36
Si2p	38.36
S2p	10.55
C1s	14.31
N1s	0.96

3.) GPC experiments

In control experiments 4 µl of OEGMA solutions (50 V%, 70 V% and 100 V% OEGMA in 1,4-Dioxan) were deposited on non-modified Si-wafer (1x1 cm) and were subsequently covered with a glass slide. After UV illumination (E=5 J cm^{-2}) the sample was immersed in THF. Afterwards the THF was

evaporated and the residue was analyzed by means of GPC. The obtained molecular weight distributions (including Mw and Mn) for each OEGMA concentration are depicted in Figure S*3*.

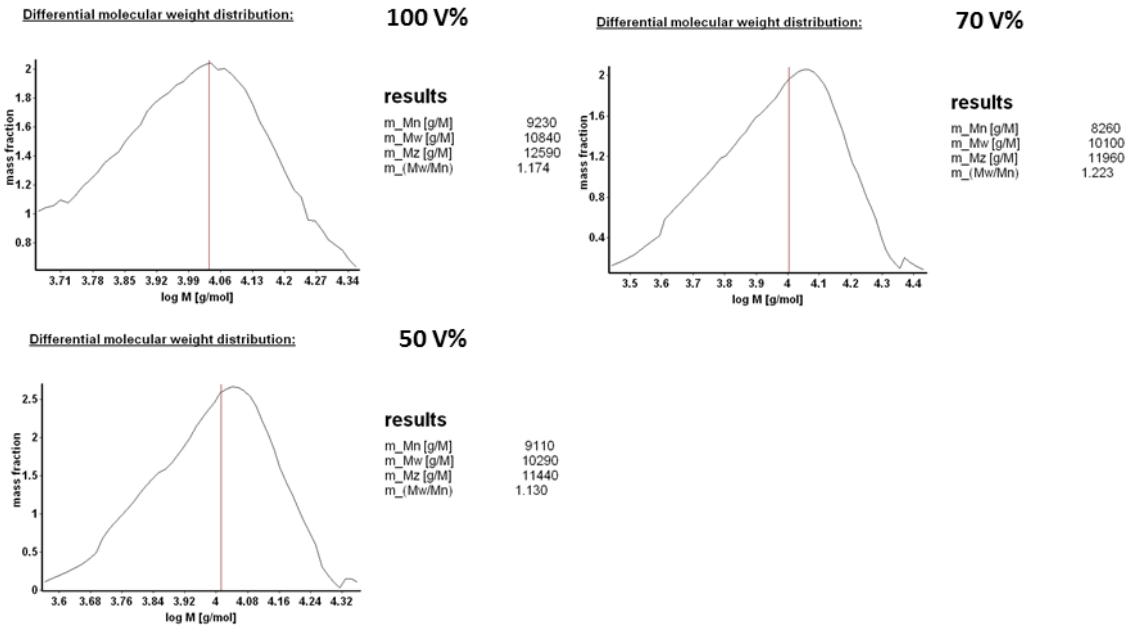

Figure S3: GPC chromatograms for each OEGMA concentration

4.) Brush formation on pre-structured surfaces

Patterned brush growth was obtained after selective photo-oxidation of thiol groups (44.4 J/cm^2) and subsequent flood illumination of the pre-structured surface in OEGMA (cross section see Figure S4).

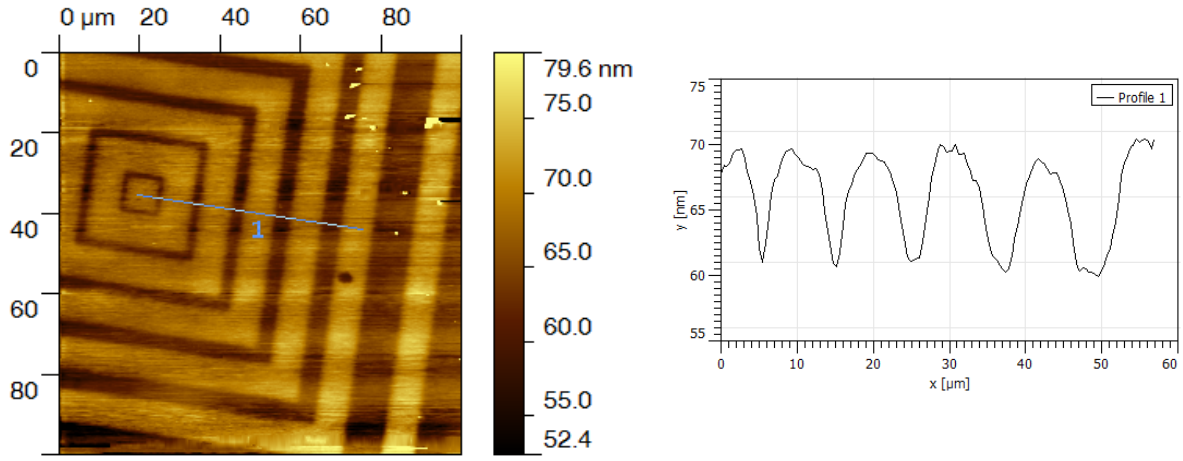

Figure S4: Atomic force microscopy image (left) and cross-section of the obtained polymer brushes (right).