Supplemental Information:

Experimental

X-ray photoelectron spectroscopic (XPS) studies were used to detect the residues of linear methyl siloxanes after usage. In order to suppress the Si peak from the substrate (Si wafers), thick films of gold (~200nm) were sputtered on the Si wafers. Each sample was then put into hexamethyl siloxanes for various time lengths (5 to 100 seconds) and processed as shown in Table 1S.

Table 1S Details of each sample

Sample Name	Immersion Time	Post-Immersion Cleaning
Sample A	0	None
Sample B	5 seconds	None
Sample C	5 seconds for 20 times	None
Sample D	5 seconds	CF_4 plasma cleaning for 30 seconds

Sample C was immersed in hexamethyl siloxanes multiple times to get as much residues as possible in order to view the effects of residues using XPS. Sample D was cleaned using CF_4 to study the removability of residues.

Results and Discussion

Because Si can affect the etching step after development, the main purpose of this experiment is to study silicon-containing residues that remain on the surface after rinsing with linear methyl siloxanes. Au- and Si-Spectra of each sample are shown in Figure 1S-4S.

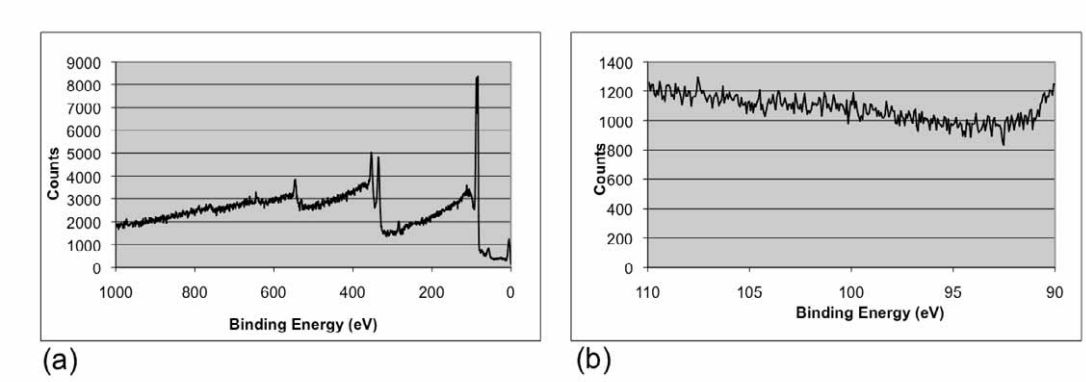

Figure 1S (a) Au spectrum (b) Si Spectrum of Sample A

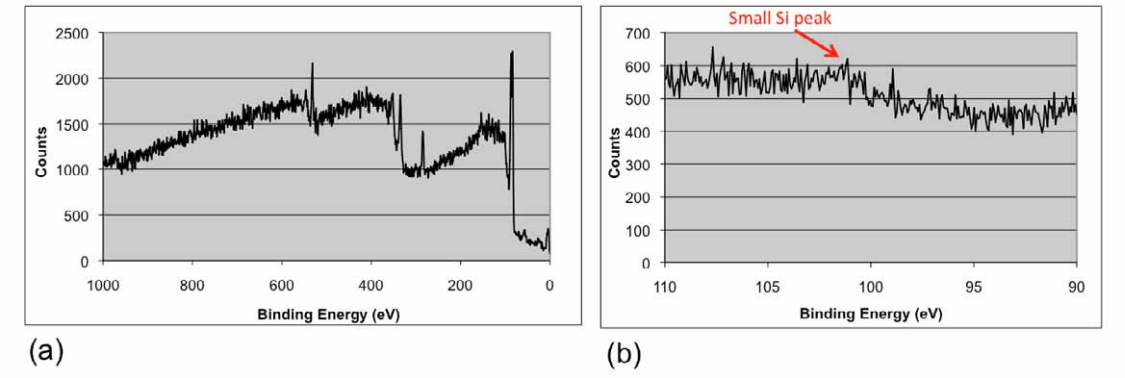

Figure 2S (a) Au spectrum (b) Si Spectrum of Sample B

From Figure 2S (a), the Au spectrum shows that there is a thin layer of material on top of the substrate when compared to Figure 1S (a). A very weak Si peak may be seen in Figure 2S (b) but it can also be attributed from the background noise. A stronger Si peak can be observed in Figure 3 S (b) but it still shows that the trace is negligible.

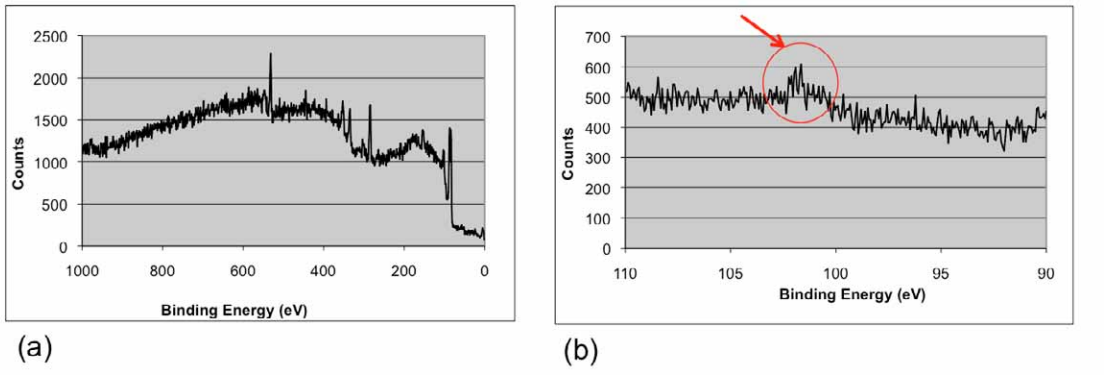

Figure 3S (a) Au spectrum (b) Si spectrum of Sample C

From Figure 4S, it can be shown that after a short CF_4 plasma cleaning, both the Au spectrum and the Si spectrum are almost identical (except for the F peak in Figure 4S(a)) to the spectra of bare substrate (Figure 1S), which shows that it is very easy to remove the residues.

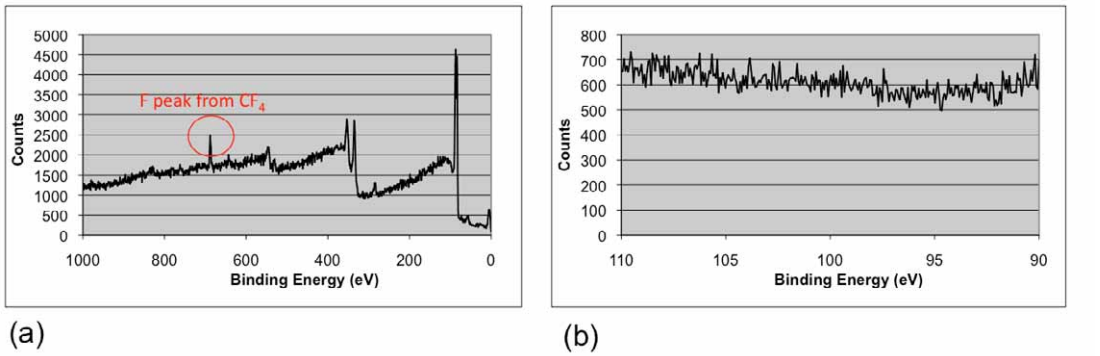

Figure 4S (a) Au spectrum (b) Si spectrum of Sample D

From Figure 2S and Figure 4S, it can be concluded that the residue amount from linear methyl siloxanes is negligible as the Si peak is very weak. In addition, the residue can be easily removed by plasma cleaning as Figure 4S has spectra that are identical to Figure 1S.