Figure SL-1. CVs indicating electrografting of C-11 alkene molecules on silicon (n^{++}) wafers at different scans. The deposition was carried out by CV at a scan rate of 0.05 V/s under N_2 atmosphere using Si wafers as the WE, Pt as the CE and Ag/AgCl as the RE, and 0.1 M Bu_4NP as the electrolyte, using the alkene (1 μM) in dry CH_2Cl_2.

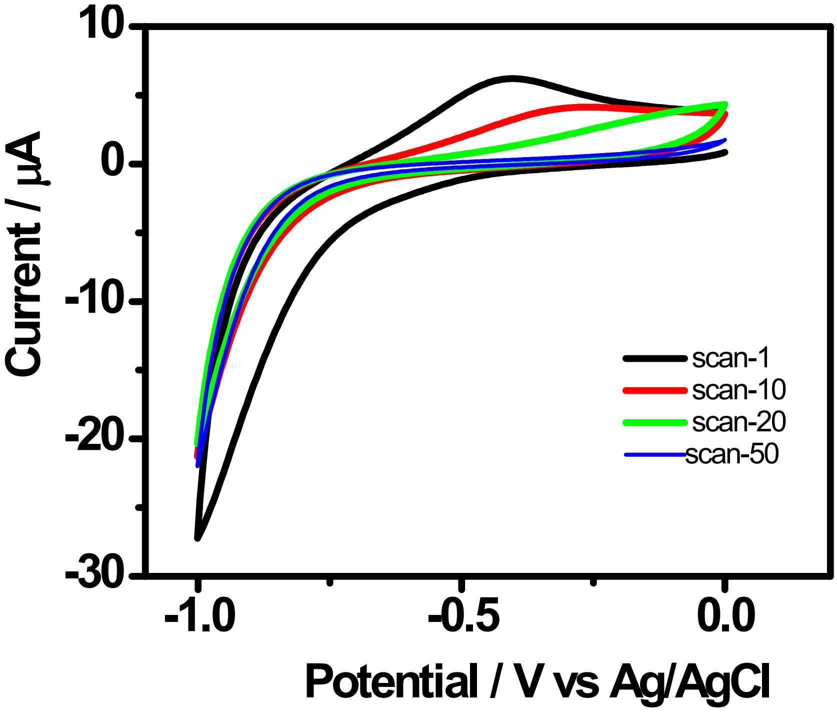


Figure SL-2. AFM images (1 µm × 1 µm) for the monolayers of (a) **3**; (b) **4a**; (c) **4b**, electro-grafted on silicon (n^{++}) wafers. data of the monolayers of (a) **3** (b) **4a** (c) **4b**, electro-grafted on silicon (n^{++}) wafers.

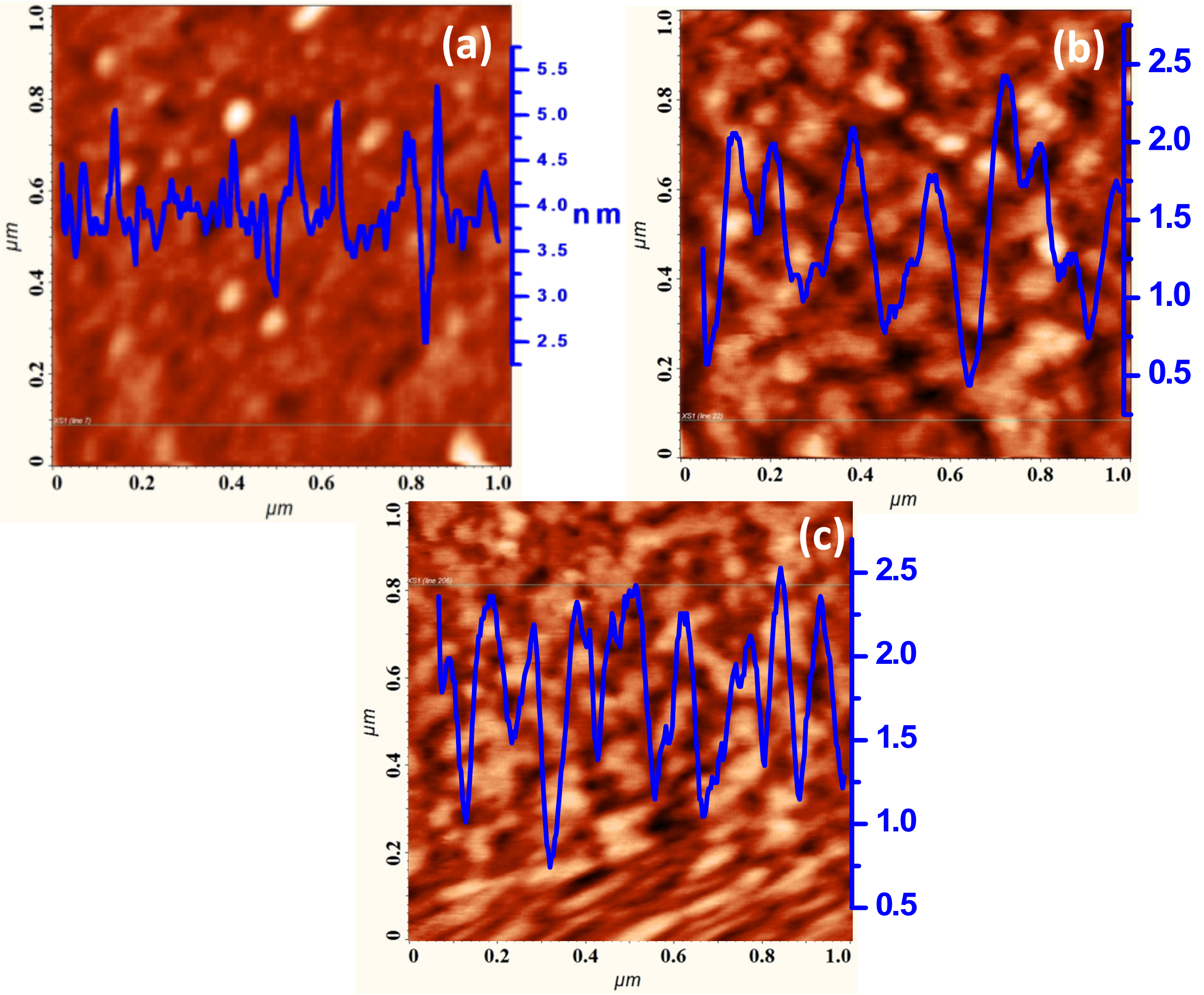
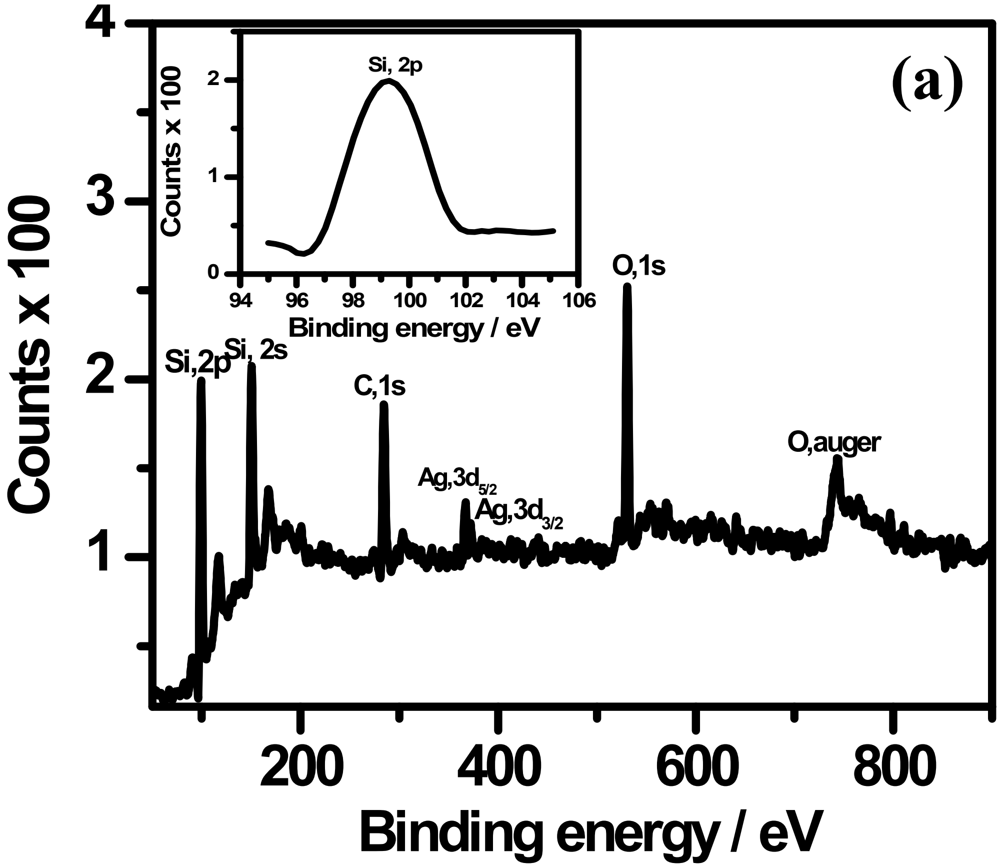
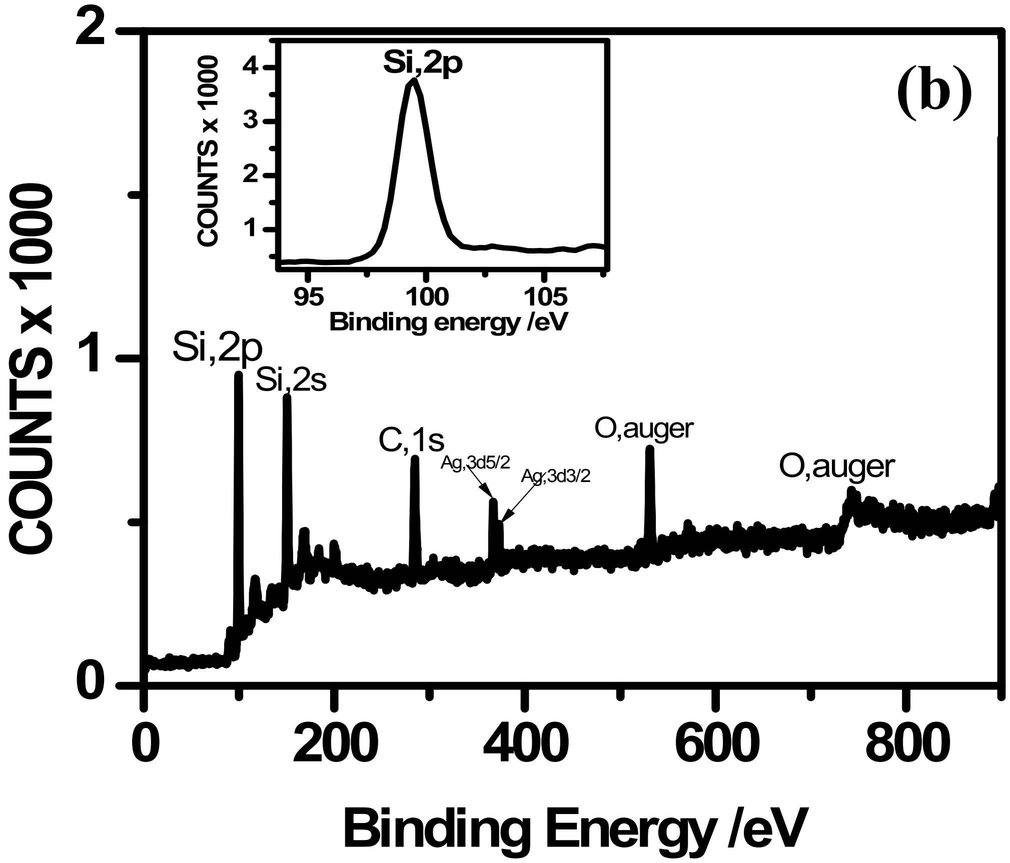
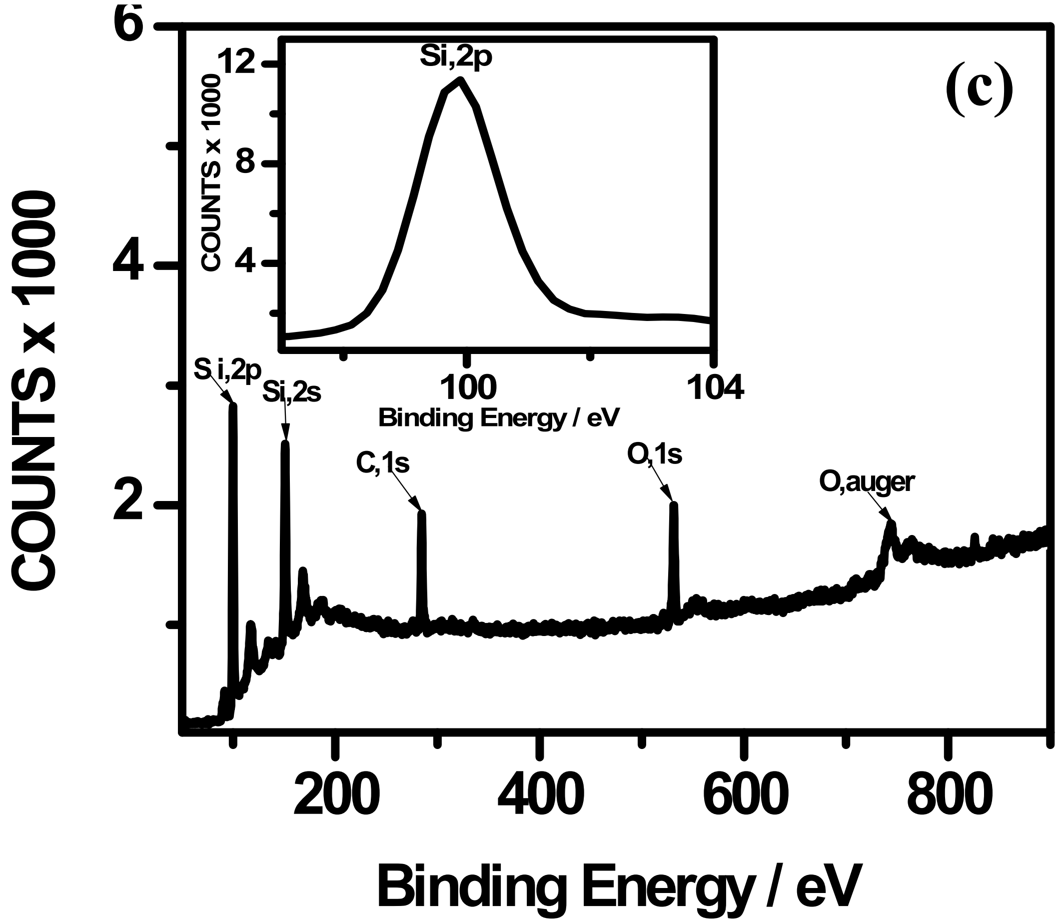


Figure SL-3. XPS data of the monolayers of (a) **3** (b) **4a** (c) **4b**, electro-grafted on silicon (n^{++}) wafers. Insets: expanded Si 2p peak.





(b)
2
1
0
COUNTS x 1000
0
200
400
600
800
Binding Energy /eV
Si,2p
Si,2s
C,1s
Ag,3d5/2
Ag,3d3/2
O,auger
O,auger
Si,2p
COUNTS x 1000
4
3
2
1
95
100
105
Binding energy /eV



(c)
6
4
2
COUNTS x 1000
200
400
600
800
Binding Energy / eV
S i,2p
Si,2s
C,1s
O,1s
O,auger
Si,2p
COUNTS x 1000
12
8
4
100
104
Binding Energy / eV

Figure SL-4. Experimental *I-V* characteristics of devices (a) Hg/ C-11alkyl monolayers/Si(n^{++}) (b) Hg/ undeposited Si(n^{++}).