Electronic supplementary information (ESI)

Improving the Characteristics of an Organic Nano Floating Gate Memory by Self-assembled Monolayer

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3-Mercaptopropyl triethoxy silane, HS-SAM

Contact angle: 71.13°

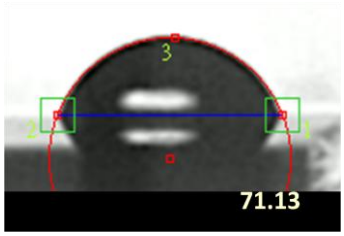


Fig. S1: Data of contact angle measurements on HS-SAM on SiO_2.

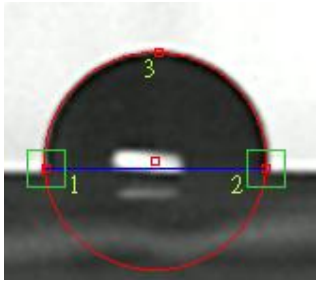
Reference:

Hin-Lap Yip, Steven K. Hau, Nam Seob Baek, Hong Ma, Alex K.-Y. Jen, *Adv. Mater*.

2008, *20*, 2376.

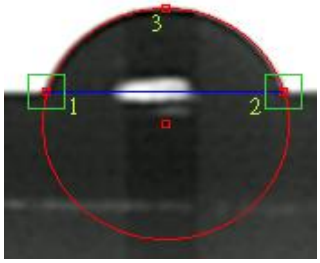
F-SAM

Contact angle: 91.13°



B-SAM

Contact angle: 73.53°



FB-SAM

Contact angle: 94.44°

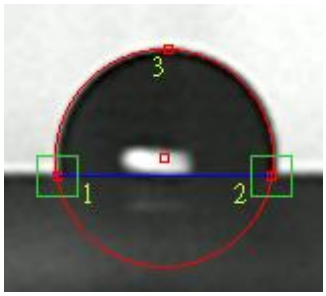


Fig. S2: Data of contact angle measurements on various SAMs on c-PVP.

Reference:

Hiroyuki Sugimura, Atsushi Hozumi, Tetsuya Kameyama and Osamu Takai, *Surf. and Interface Anal*. **2002**, *34*, 550

Hin-Lap Yip, Steven K. Hau, Nam Seob Baek, Hong Ma, Alex K.-Y. Jen, *Adv. Mater*. **2008**, *20*, 2376.

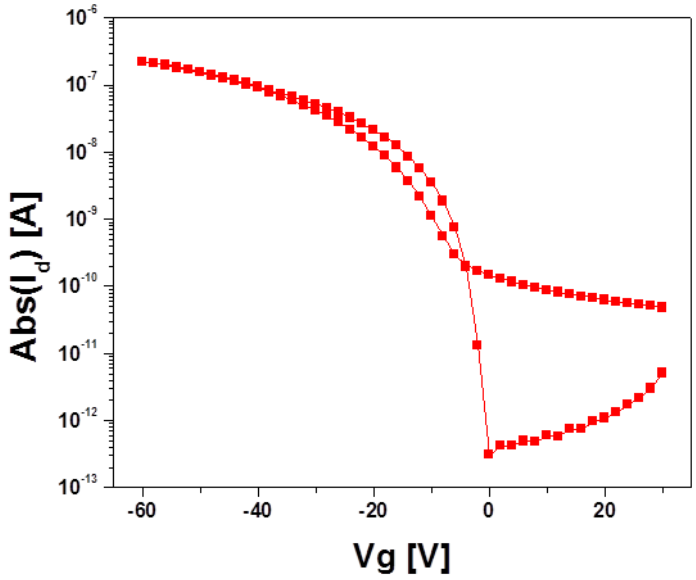


Fig. S3: Transfer characteristics of OFET without Au NPs in the gate dielectric.

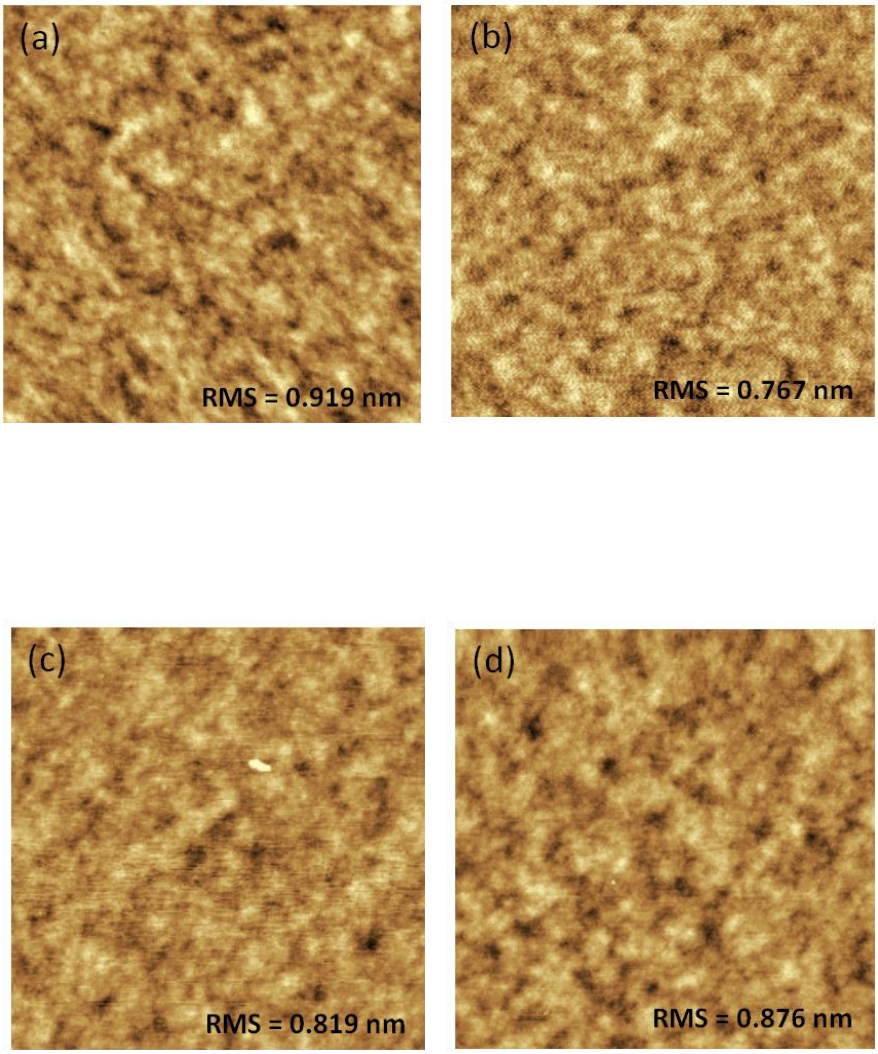


Fig. S4: AFM images of F8T2 film on different SAMs modified c-PVP.

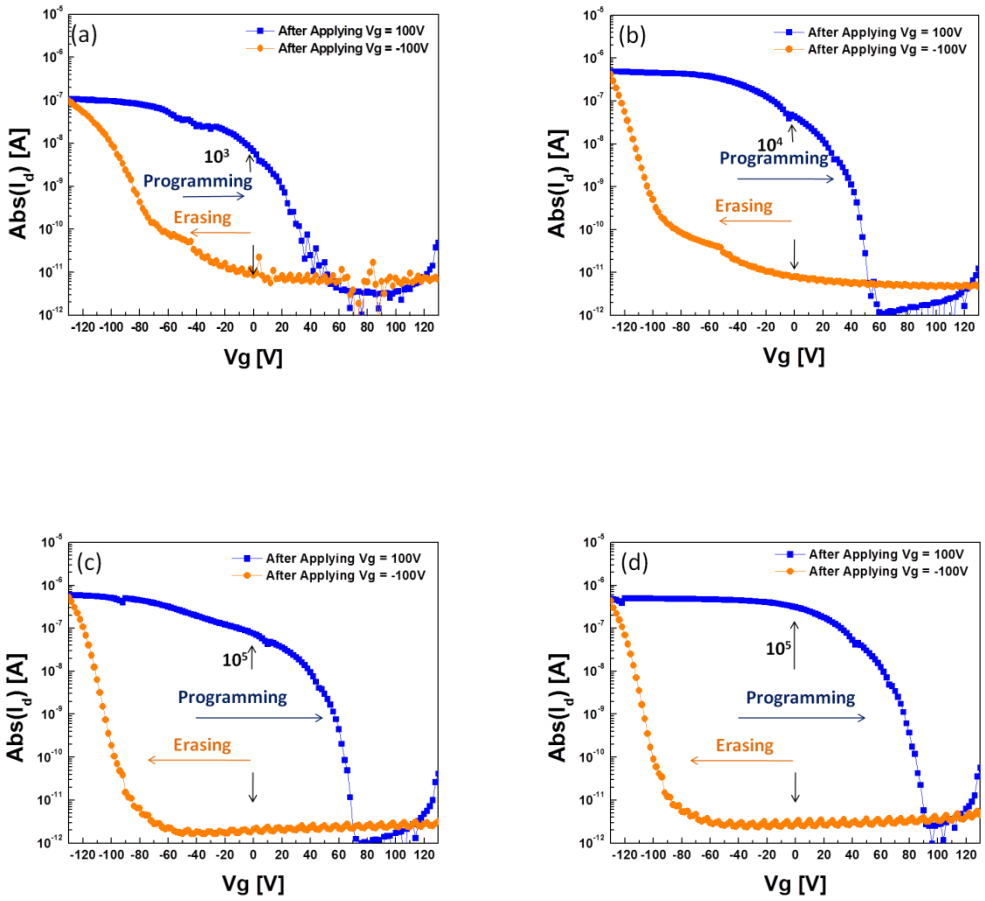


Fig. S5: Reversible shifts in transfer curves of F8T2 FET with (a) unmodified (b) F-SAM-, (c) B-SAM-, and (d) FB-SAM-modified memory devices after application of gate bias for a relatively short time of about 1 s.

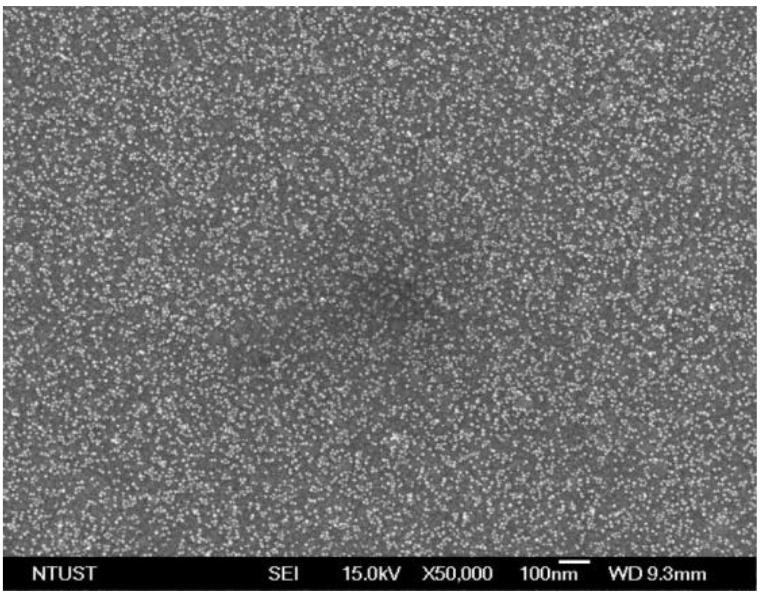


Fig. S6: SEM image of a random distribution of Au NPs.

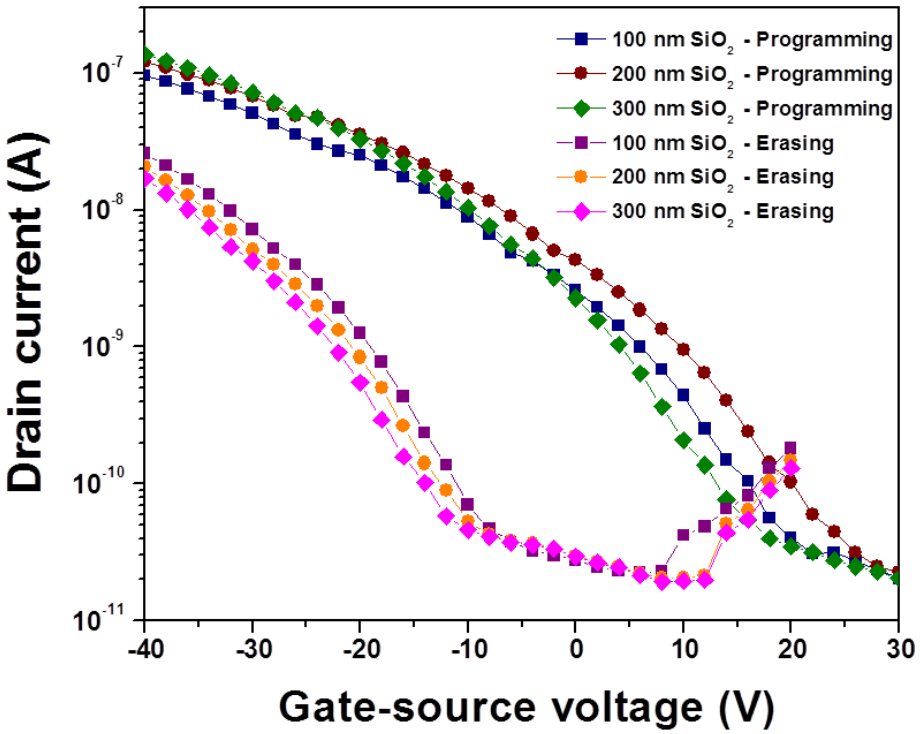


Fig. S7: The NFGM devices with FB-SAM-modified fabricated on different thickness of gate dielectric layer

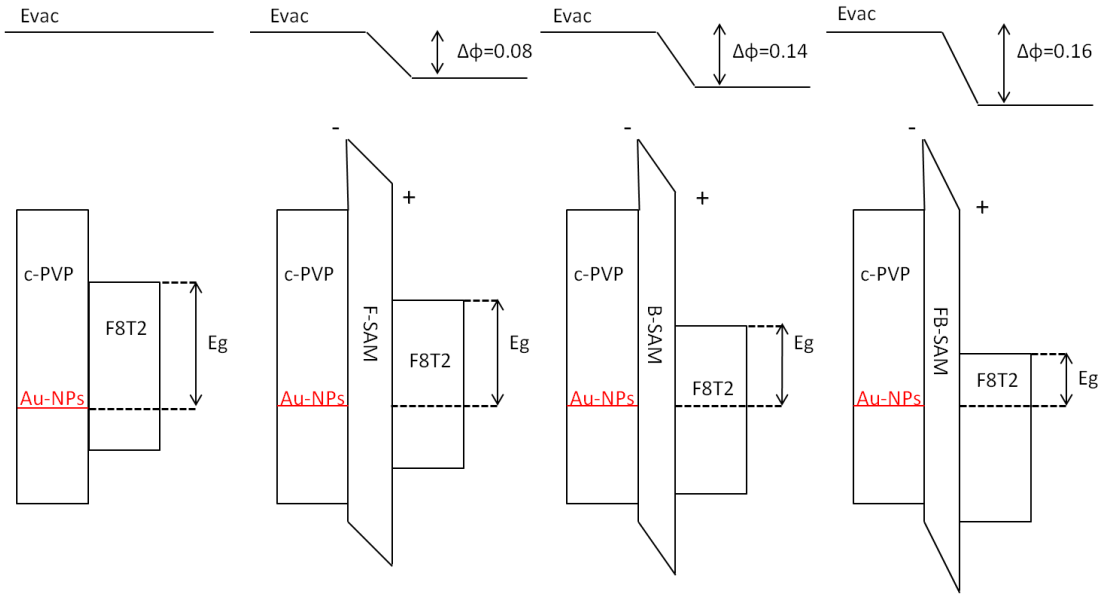


Fig. S8: Schematic different energy barrier diagrams of SAMs/ PVP + Au NPs /silica/n^+ Si.