# Electronic supplementary information

# A novel polymerization of ultrathin sensitive imprinted film on surface plasmon resonance sensor

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## Contents:



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## The principle of SPR sensor detection molecules

SPR is an optoelectronic phenomenon occurring at a thin gold surface during total internal reflection of light. At a specific angle of incidence (resonance angle), the polarized light can interact with the delocalized electrons (surface plasmons) of the metal film, resulting in minimum reflected light intensity. The resonance angle strongly depends on the local refractive index of the medium in close proximity to the metal surface, which makes it possible to measure accurately the adsorption of molecules onto the metal surface and their eventual interactions with specific ligands. The schematic diagram of SPR response to MG is shown as follow;

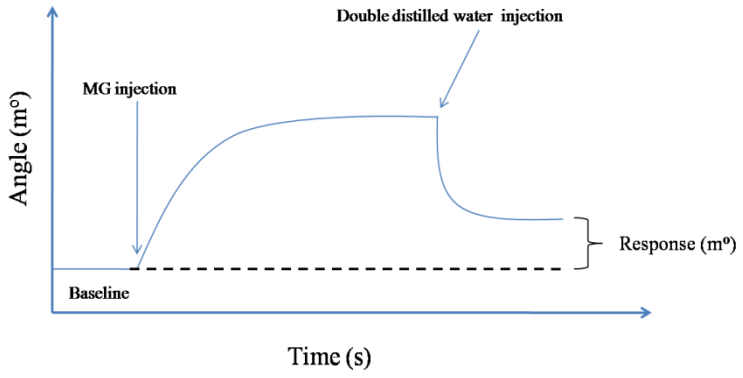



**Fig. S1 The schematic diagram of SPR response to MG**

**Table S1**

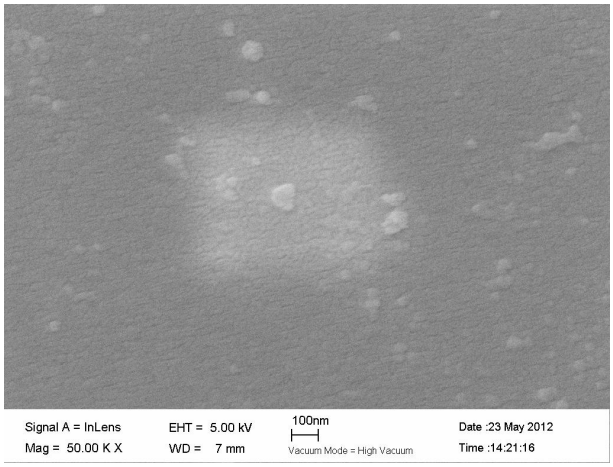
Photoresist spinner operation parameters

| Parameter | Setting |
|---|---|
| P 17(the first rotation speed) | 235 r $min^{-1}$ |
| P 18(the second rotation speed) | 1271 r $min^{-1}$ |
| P 81(the first rotation time) | 2 s |
| P 82(the second rotation time) | 30 s |

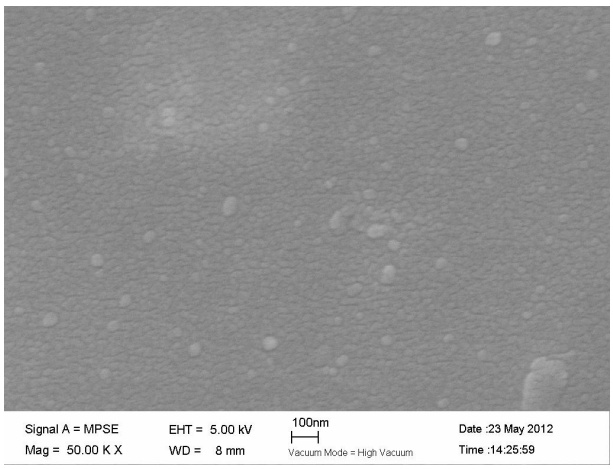
**Table S2**

SPR operation parameters

| Parameter | Setting |
|---|---|
| Baseline time | 120 s |
| Association time | 900 s |
| Dissociation time | 200 s |
| Regeneration time | 600 s |
| Sample volume | 50 μL |




(A)




(B)

**Fig. S2 The SEM image of paste-grafted MIP film and self-assembly grafted MIP film. (A) paste-grafted MIP film; (B) self-assembly grafted MIP film**

The paste-grafted MIP film has a larger adsorption quantity to MG than the self-assembly grafted one. The thickness of the MIP film may be assumed to play an important role in the adsorption quantity of the sensor chip to the template molecule (MG). But it is not necessarily the only factor. The differences in surface area would be a contributing factor to the differences in responses, even though the difference between the surface morphology of two polymers cannot be observed by scanning electron microscopy.