## **Supplementary Information**

## Robust Hydrophobic Gold, Glass and Polypropylene Surfaces Obtained Through a Nanometric Covalently Bound Organic Layer

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**General Information:** The <sup>1</sup>H NMR, <sup>13</sup>C NMR and 2D NMR were performed with a Varian-400 VNMRJ System. The chemical shifts are expressed in ppm and determined in comparison of the deuterated solvent used as internal reference. Most of <sup>1</sup>H NMR signals were attributed through 2D NMR analyses (COSY, HSQC). Abbreviation: s: singlet, d: doublet, t: triplet, m: massif, mult: multiplet.





Figure S1. AFM topography of glass surfaces, left 10 µm x 10 µm, right 30 µm x30 µm



**Figure S2**. Ellipsometric angles  $\psi$  (Psi) and  $\Delta$  (Delta) as a function of the wavelength at different incident angles, 65°, 70° and 75° for bare gold surface. Continuous lines represent the acquired data and the dotted black lines correspond to the Cauchy fit.



**Figure S3.** Ellipsometric angles  $\psi$  (Psi) and  $\Delta$  (Delta) as a function of the wavelength at different incident angles, 65°, 70° and 75° for a gold surface modified with calix[4]arene 1 through diazoate route in NaOH. Continuous lines represent the acquired data and the dotted black lines correspond to the Cauchy fit.



**Figure S4**.Ellipsometric angles  $\psi$  (Psi) and  $\Delta$  (Delta) as a function of the wavelength at different incident angles, 65°, 70° and 75° for a gold surface modified with calix[4]arene 1 through electrochemical route by CA. Continuous lines represent the acquired data and the dotted black lines correspond to the Cauchy fit.



**Figure S5.** Ellipsometric angles  $\psi$  (Psi) and  $\Delta$  (Delta) as a function of the wavelength at different incident angles, 65°, 70° and 75° for a gold surface modified with calix[4]arene 1 through electrochemical route by CV. Continuous lines represent the acquired data and the dotted black lines correspond to the Cauchy fit.



Figure S6. <sup>1</sup>H NMR (298K, 400MHz) spectrum of **3** in CDCl<sub>3</sub>. S = solvent and W = water



**Figure S7**.<sup>1</sup>H NMR (298K, 400MHz) spectrum of **4** in CDCl<sub>3</sub>. S = solvent and W = water



Figure S8. <sup>13</sup>C NMR (298K, 100MHz) spectrum of 4 in CDCl<sub>3</sub>. S = solvent



Figure S9. COSY NMR (298K, 400MHz) spectrum of 4 in CDCl<sub>3</sub>.

![](_page_6_Figure_2.jpeg)

Figure S10. HSQC NMR (298K, 400MHz) spectrum of 4 in CDCl<sub>3</sub>.

![](_page_7_Figure_0.jpeg)

Figure S11. HMBC NMR (298K, 400MHz) spectrum of 4 in CDCl<sub>3</sub>.

![](_page_7_Figure_2.jpeg)

Figure S12. <sup>1</sup>H NMR (298K, 400MHz) spectrum of 5 in CDCl<sub>3</sub>. S = solvent and W = water

![](_page_8_Figure_0.jpeg)

Figure S13. <sup>13</sup>C NMR (298K, 100MHz) spectrum of 5 in CDCl<sub>3</sub>. S = solvent

![](_page_8_Figure_2.jpeg)

Figure S14. COSY NMR (298K, 400MHz) spectrum of 5 in CDCl<sub>3</sub>.

![](_page_9_Figure_0.jpeg)

Figure S15. HSQC NMR (298K, 400MHz) spectrum of 5 in CDCl<sub>3</sub>.

![](_page_9_Figure_2.jpeg)

Figure S16. HMBC NMR (298K, 400MHz) spectrum of 5 in CDCl<sub>3</sub>.

![](_page_10_Figure_0.jpeg)

**Figure S17.** <sup>1</sup>H NMR (298K, 400MHz) spectrum of **6** in CDCl<sub>3</sub>. S = solvent, W = water and G = grease

![](_page_10_Figure_2.jpeg)

**Figure S18**. <sup>13</sup>C NMR (298K, 100MHz) spectrum of **6** in CDCl<sub>3</sub>. S = solvent and G = grease

![](_page_11_Figure_0.jpeg)

Figure S19. COSY NMR (298K, 400MHz) spectrum of 6 in CDCl<sub>3</sub>.

![](_page_11_Figure_2.jpeg)

Figure S20. HSQC NMR (298K, 400MHz) spectrum of 6 in CDCl<sub>3</sub>.

![](_page_12_Figure_0.jpeg)

Figure S21. HMBC NMR (298K, 400MHz) spectrum of 6 in CDCl<sub>3</sub>.

![](_page_12_Figure_2.jpeg)

Figure S22. <sup>1</sup>H NMR (298K, 400MHz) spectrum of 7 in CDCl<sub>3</sub>. S = solvent

![](_page_13_Figure_0.jpeg)

Figure S23. <sup>13</sup>C NMR (298K, 100MHz) spectrum of 7 in CDCl<sub>3</sub>. S = solvent

![](_page_13_Figure_2.jpeg)

Figure S24. COSY NMR (298K, 400MHz) spectrum of 7 in CDCl<sub>3</sub>.

![](_page_14_Figure_0.jpeg)

Figure S25. HSQC NMR (298K, 400MHz) spectrum of 7 in CDCl<sub>3</sub>.

![](_page_14_Figure_2.jpeg)

Figure S26. HMBC NMR (298K, 400MHz) spectrum of 7 in CDCl<sub>3</sub>.

![](_page_15_Figure_0.jpeg)

Figure S27. <sup>1</sup>H NMR (298K, 400MHz) spectrum of 1 in CD<sub>3</sub>CN. S = solvent, W = water.

![](_page_15_Figure_2.jpeg)

Figure S28. <sup>13</sup>C NMR (298K, 100MHz) spectrum of 1 in CD<sub>3</sub>CN. S = solvent.

![](_page_16_Figure_0.jpeg)

Figure S29. COSY NMR (298K, 400MHz) spectrum of 1 in CD<sub>3</sub>CN.

![](_page_16_Figure_2.jpeg)

Figure S30. HSQC NMR (298K, 400MHz) spectrum of 1 in CD<sub>3</sub>CN.

![](_page_17_Figure_0.jpeg)

Figure S31. HMBC NMR (298K, 400MHz) spectrum of 1 in CD<sub>3</sub>CN.