Electronic Supplementary Material (ESI) for Nanoscale.

Supplementary Information

RMS Roughness-Independent Tuning of Surface Wettability by Tailoring Silver Nanoparticles with Fluorocarbon Plasma Polymer

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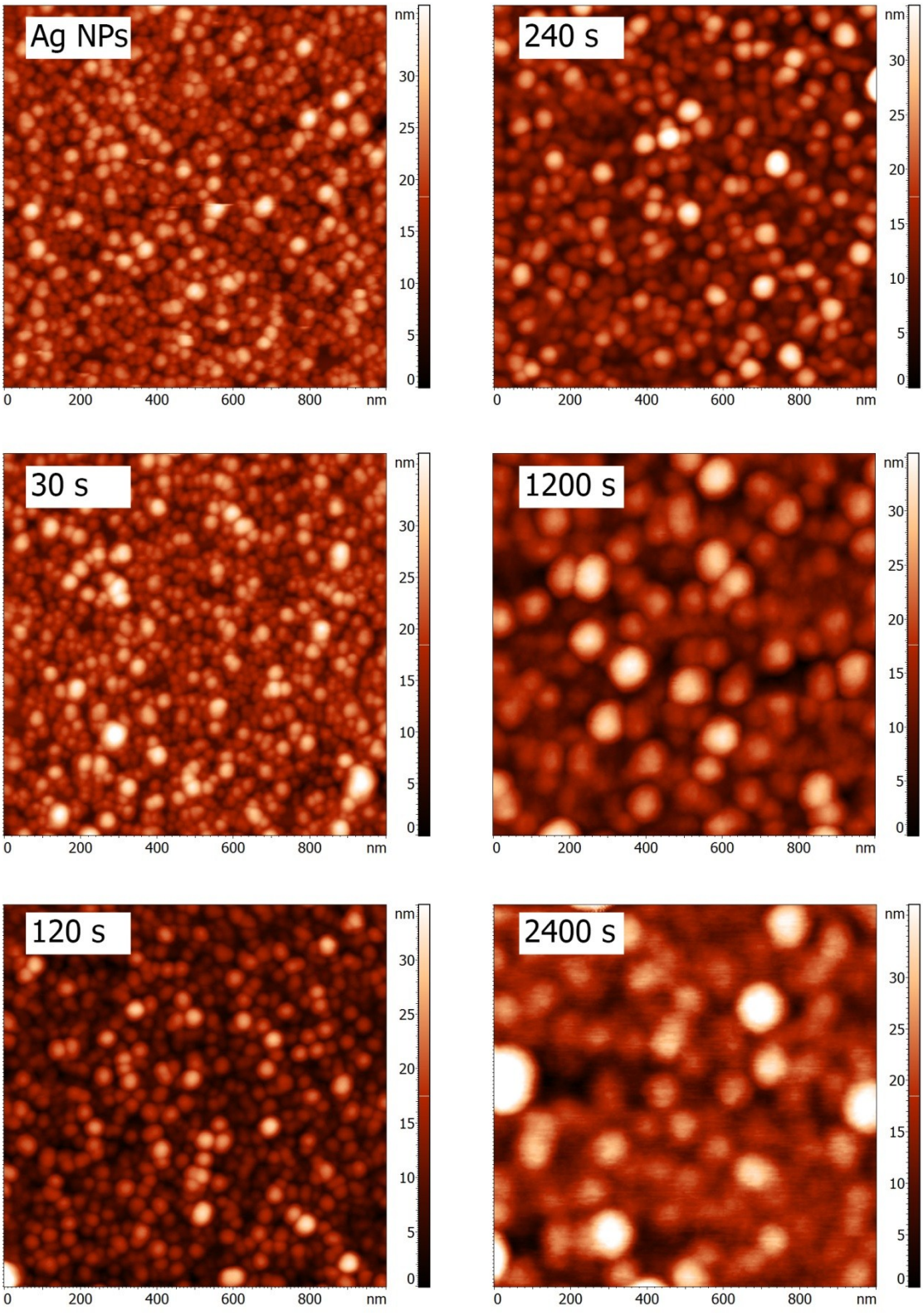

Figure S1. AFM top view images of the Ag NPs over-coated with pPTFE films for different periods of time (scan size 1 μm).

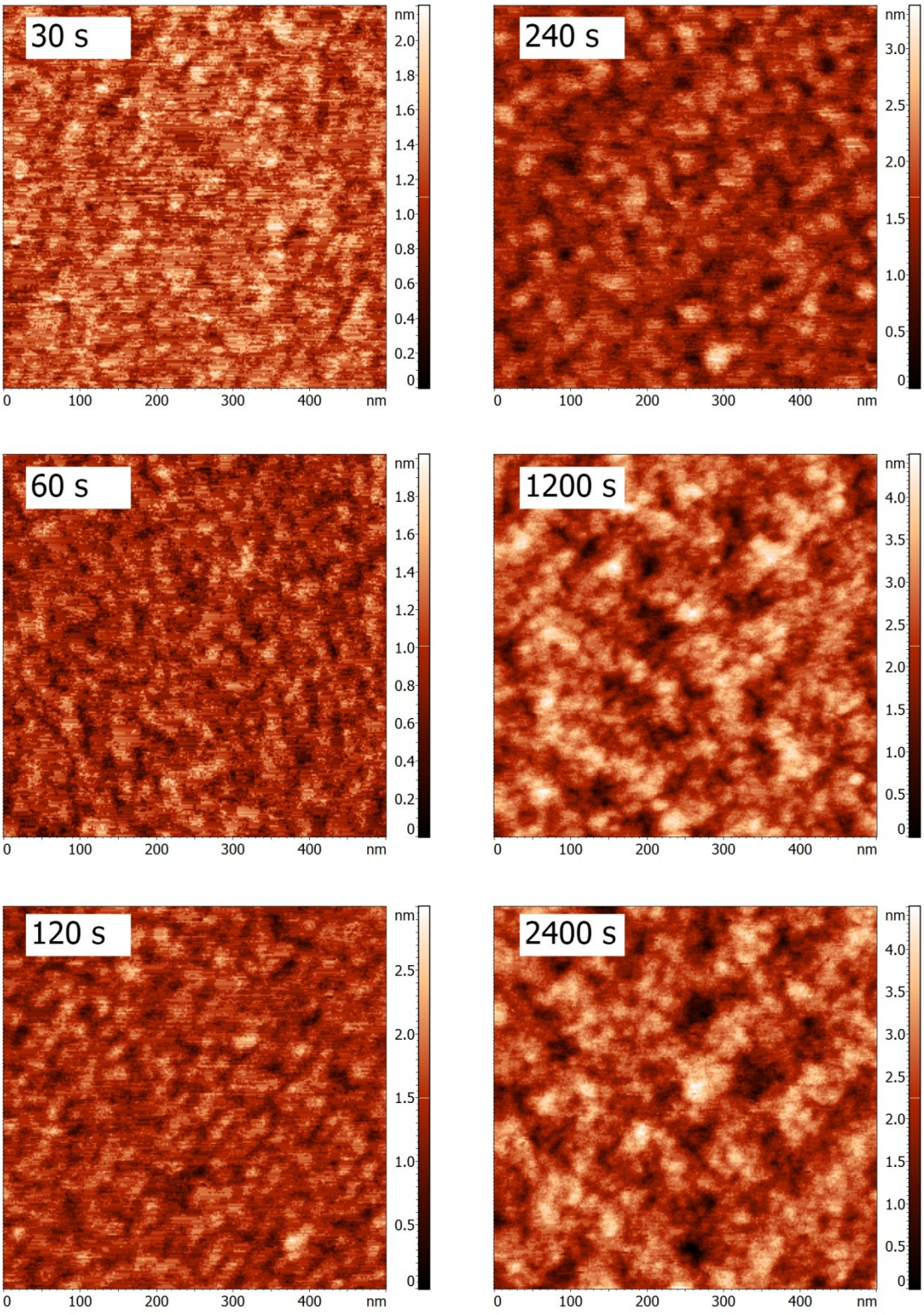

Figure S2. AFM top view images of the pPTFE films deposited on blank Si for different periods of time (scan size 500 nm).

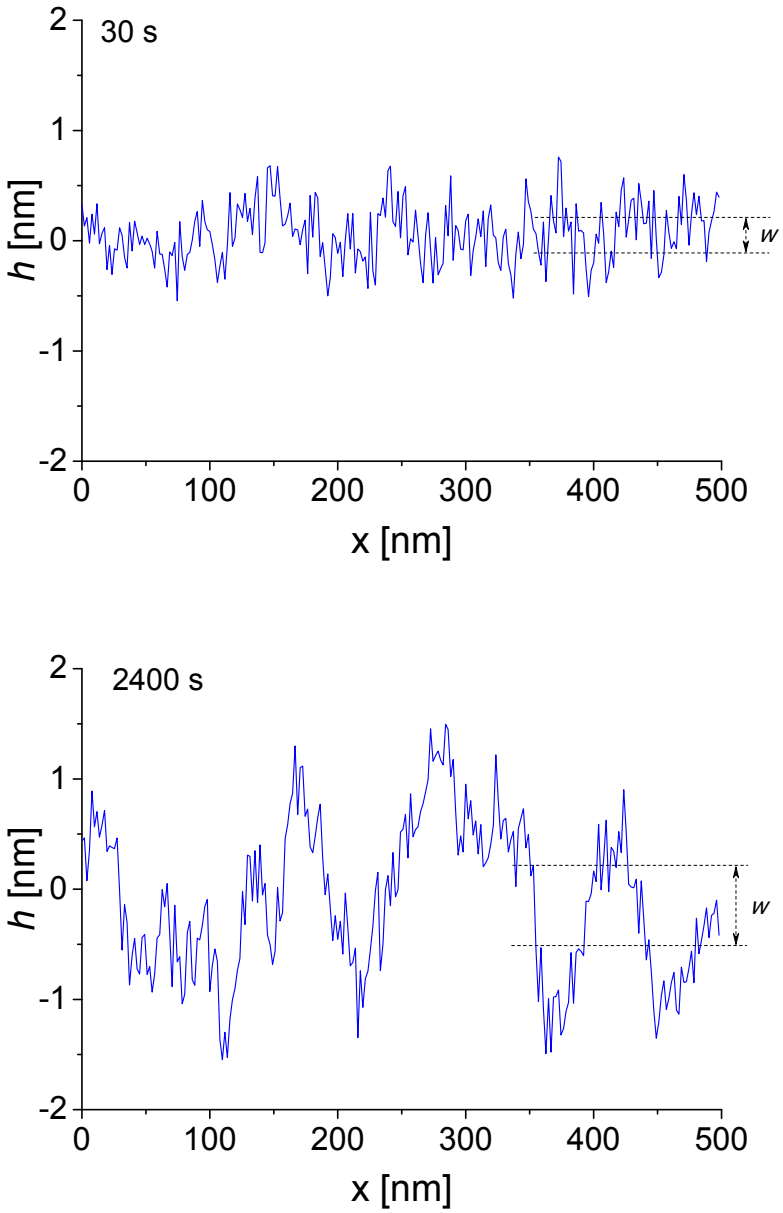

Figure S3. The horizontal cross-sections taken at arbitrary positions of the AFM images of the pPTFE films deposited on blank Si for 30 s and 2400 s (corresponding top view images are shown in Fig. S2).

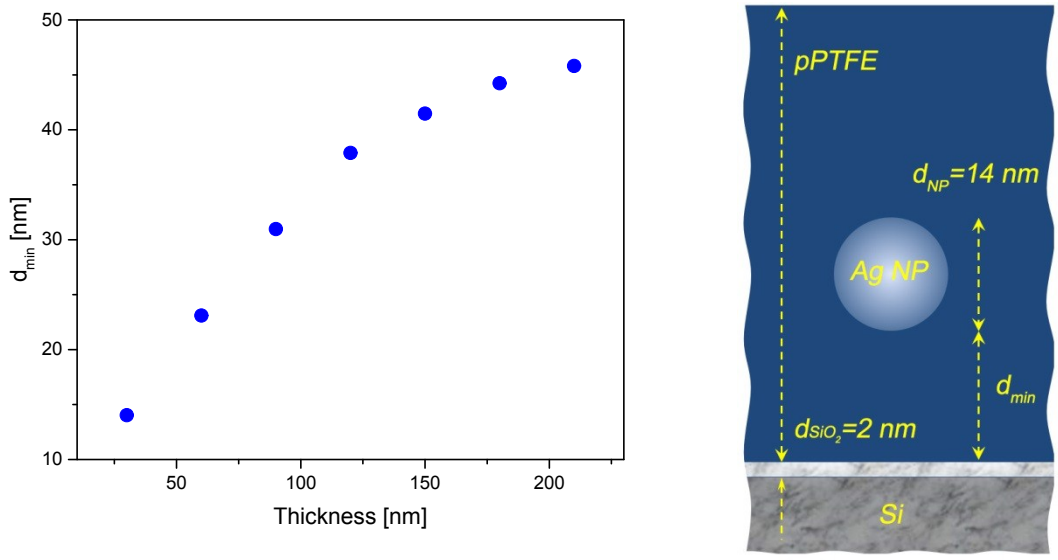

Figure S4. The dependence of the most probable height d_{min} that the NPs move to above the surface when overcoated by the polymeric layer of different thickness. The values are calculated in accordance with[S1] by the minimization of the free energy for the system consisting of a semi-infinite Si substrate with a 2 nm thick native SiO_2 layer, a 14 nm Ag NP and a pPTFE film with different thickness. In the case of pPTFE, the Hamaker constant was calculated with the parameters valid for conventional PTFE.

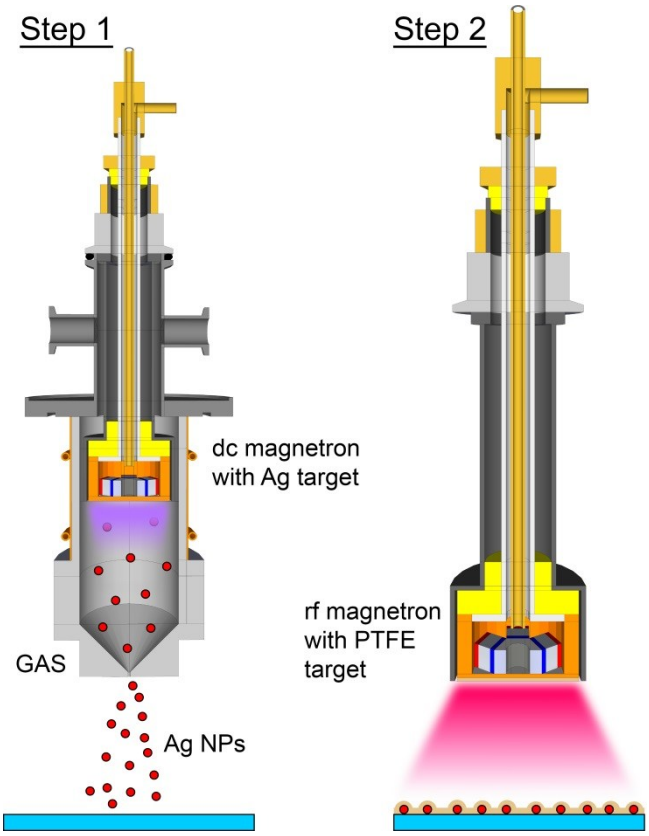

Figure S5. Scheme of the experimental approach. Step 1: Production of Ag NPs in the GAS by dc magnetron sputtering of silver and deposition of a layer of the NPs onto solid support. Step 2: Overcoating of the Ag NP layer with thin films of PTFE rf magnetron sputtered plasma polymer.

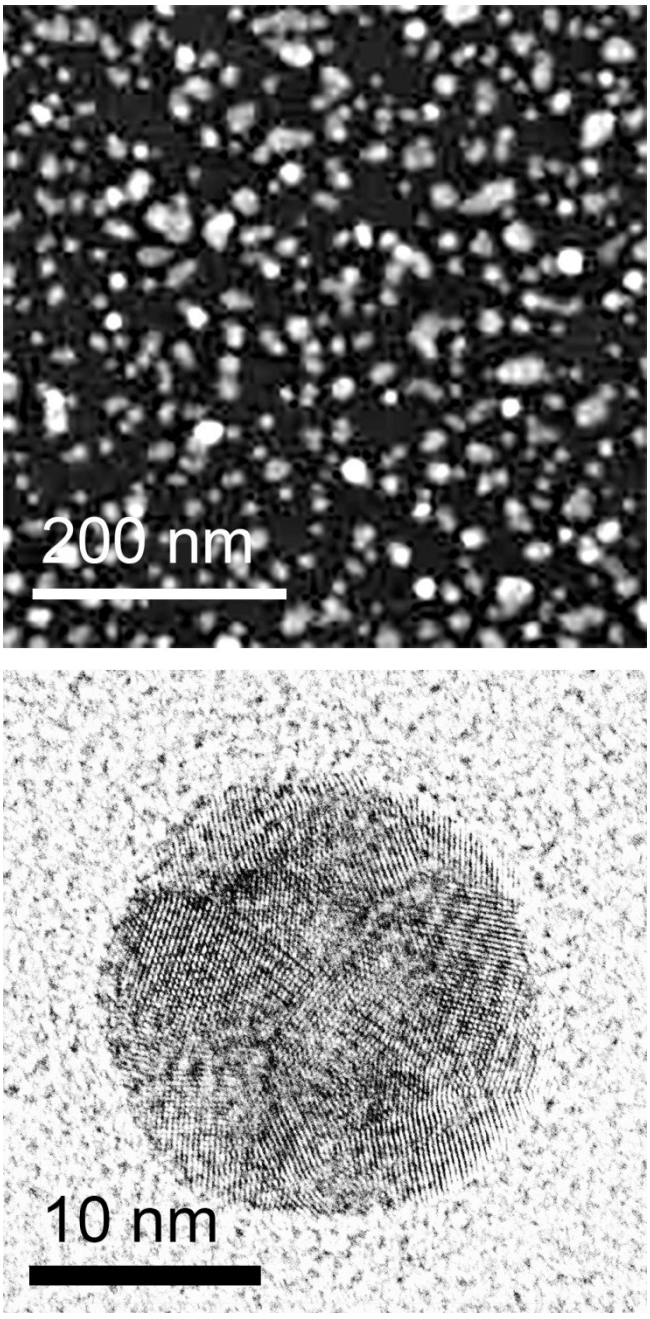

Figure S6. SEM (top) and TEM (bottom) images of Ag NPs produced by GAS and studied in this work.

References

S1 G. Amarandei, I. Clancy, C. O'Dwyer, A. Arshak and D. Corcoran, *ACS Appl. Mater. Interfaces*, 2014, **6**, 20758–20767.