

Seed mediated growth of silver nanoplates on glass: exploiting bimodal antibacterial effect by NearIR photo-thermal action and Ag^+ release

Electronic Supplementary Information

Fig S1 Representative UV-Vis Spectra of two SURF-PEI-SEEDS samples

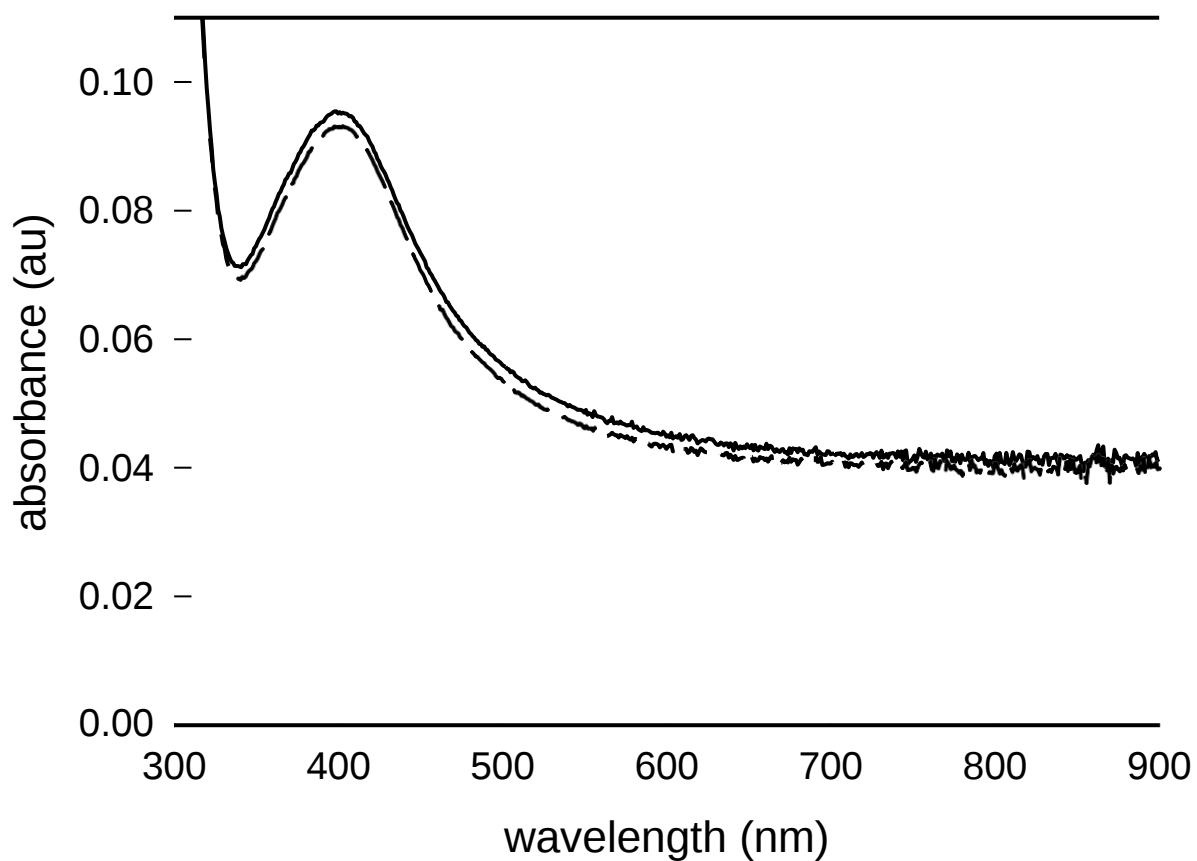


Fig. S2 SEM image of SURF-PE-SEEDS sample. Mean dimensions of the grafted silver spherical nanoparticles may appear slightly larger than those previously reported (7 ± 4 nm) because of the thickness (2.5 nm) of Pd/Pt metallization performed on the sample to register the SEM image (see experimental part on main article)

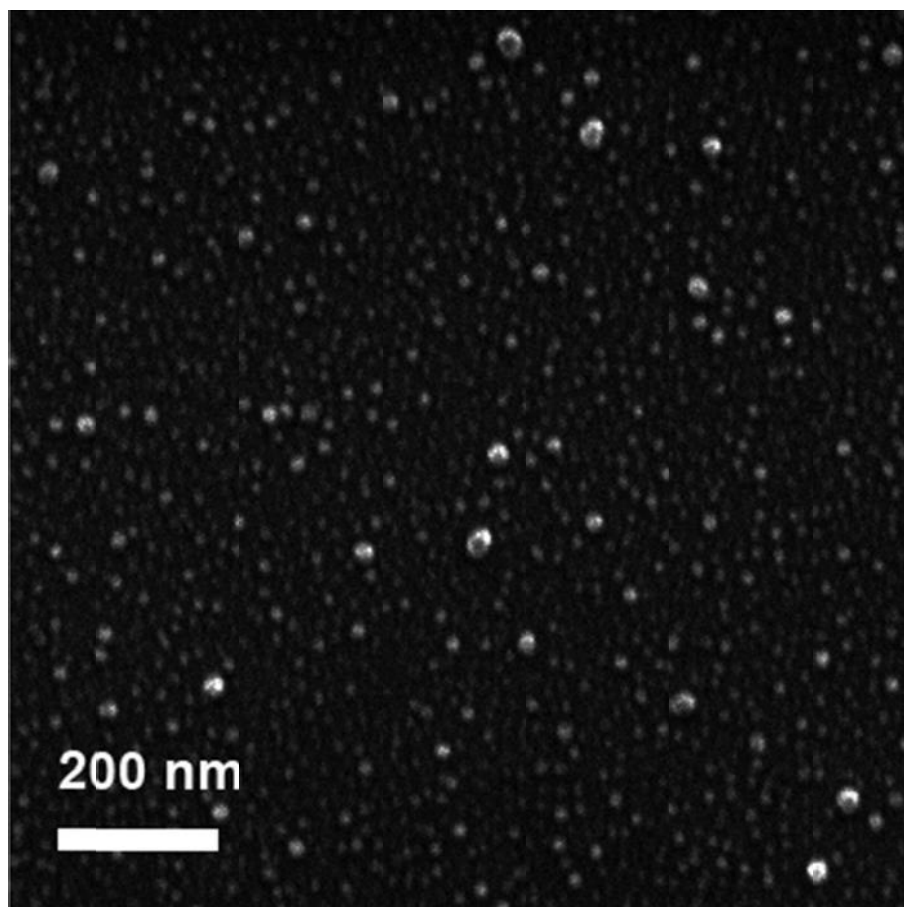


Fig. S3 UV-Vis-NIR spectra of four SURF-PEI-PLATES samples obtained from the same growth vessel (2 hours immersion).

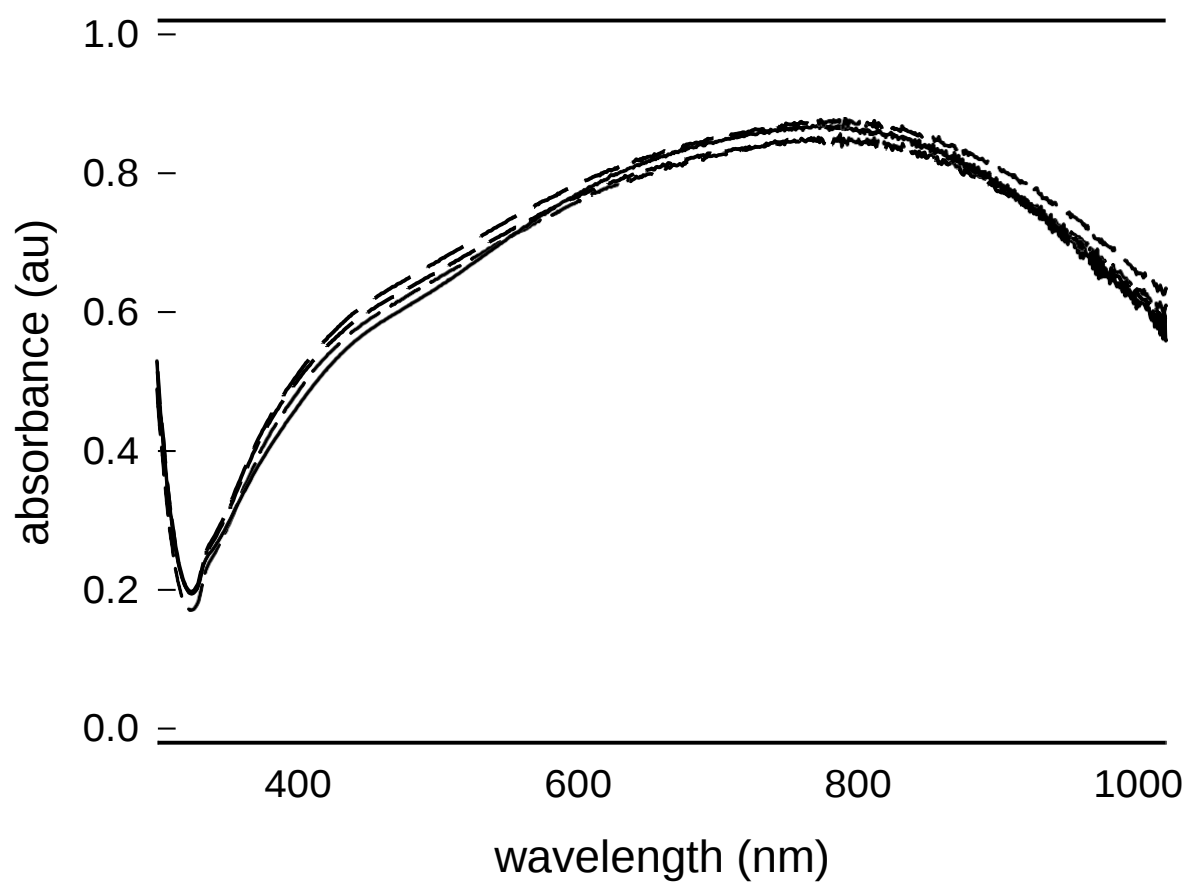


Fig. S4 UV-Vis-NIR spectra of four SURF-PEI-PLATES samples obtained from four different growth vessels (2 hours immersion).

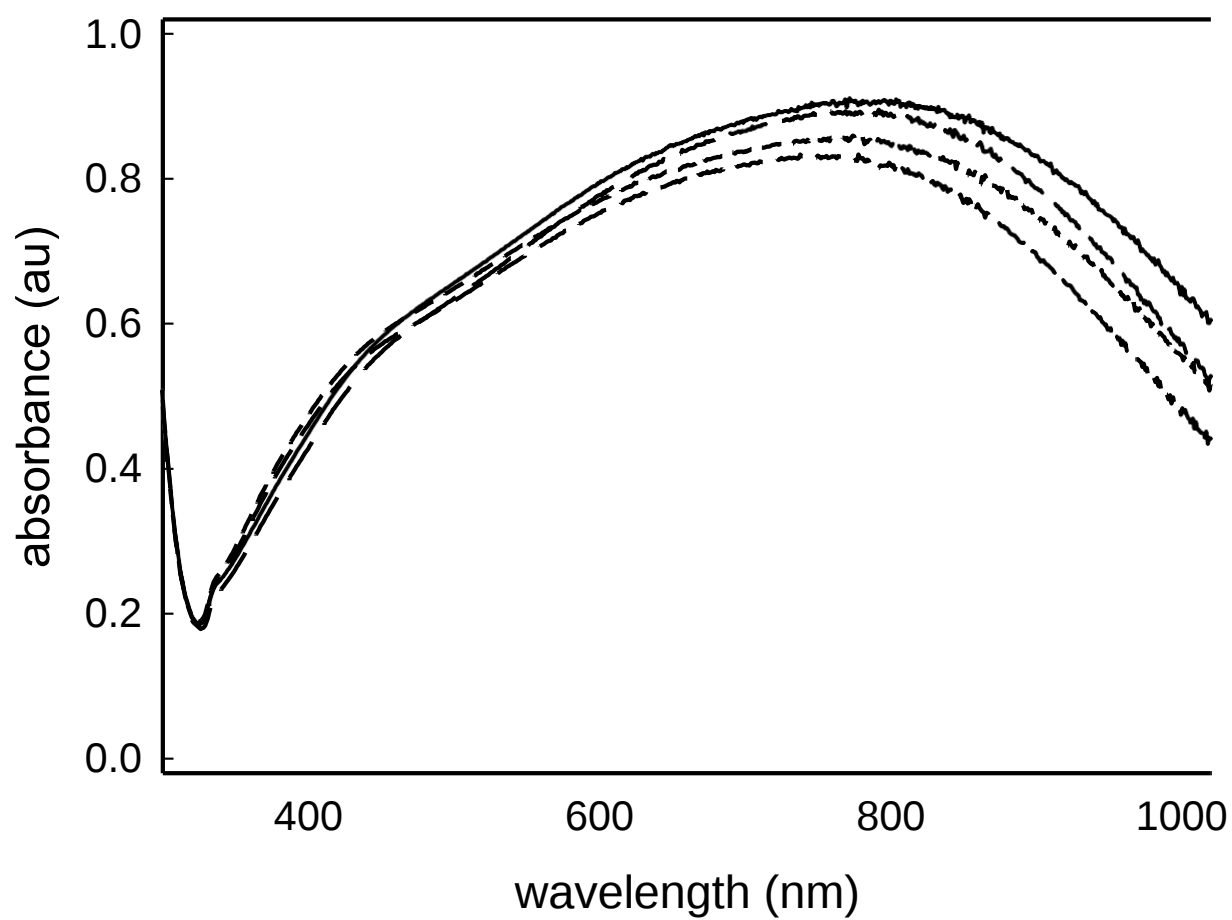


Fig. S5 SEM images for SURF-PEI-PLATES samples obtained after different immersion times of SURF-PEI-SEEDS samples in the growth solution : a) 15 min; b) 30 min; c) 2 h

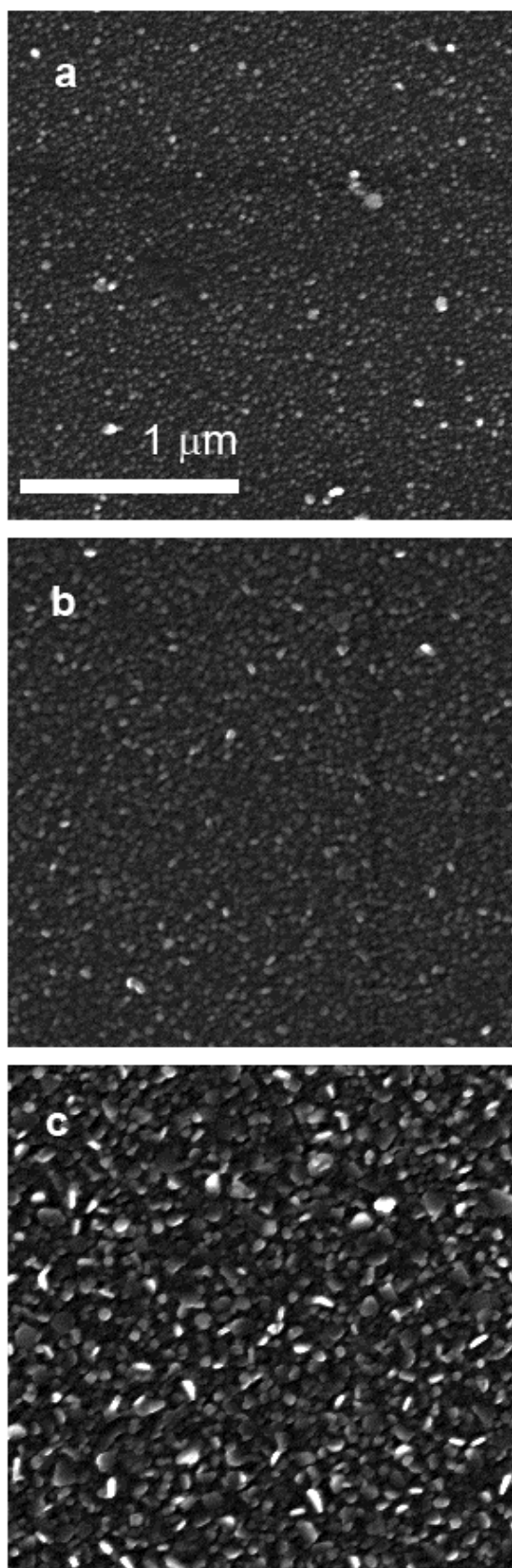
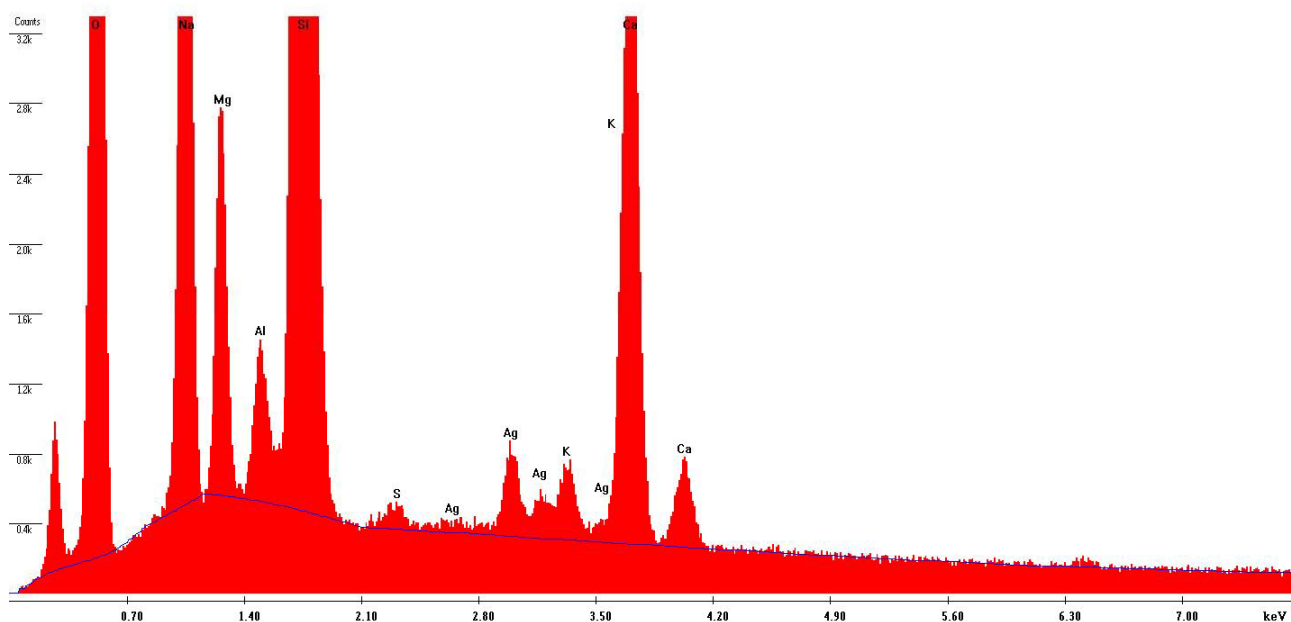
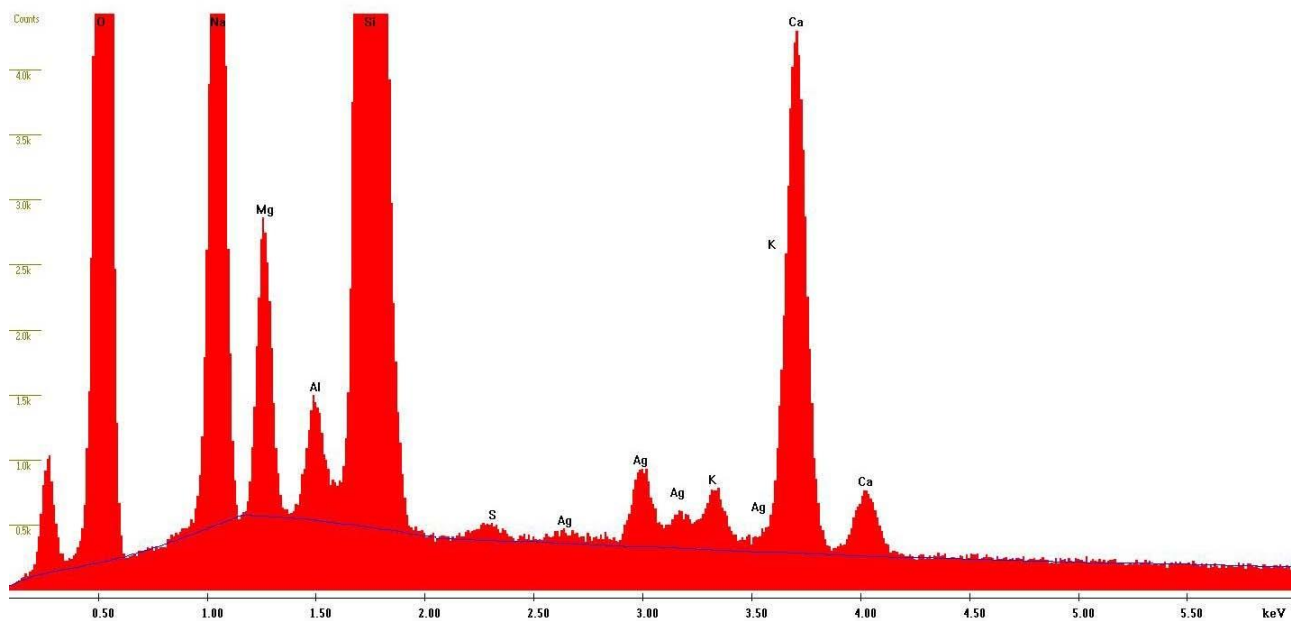


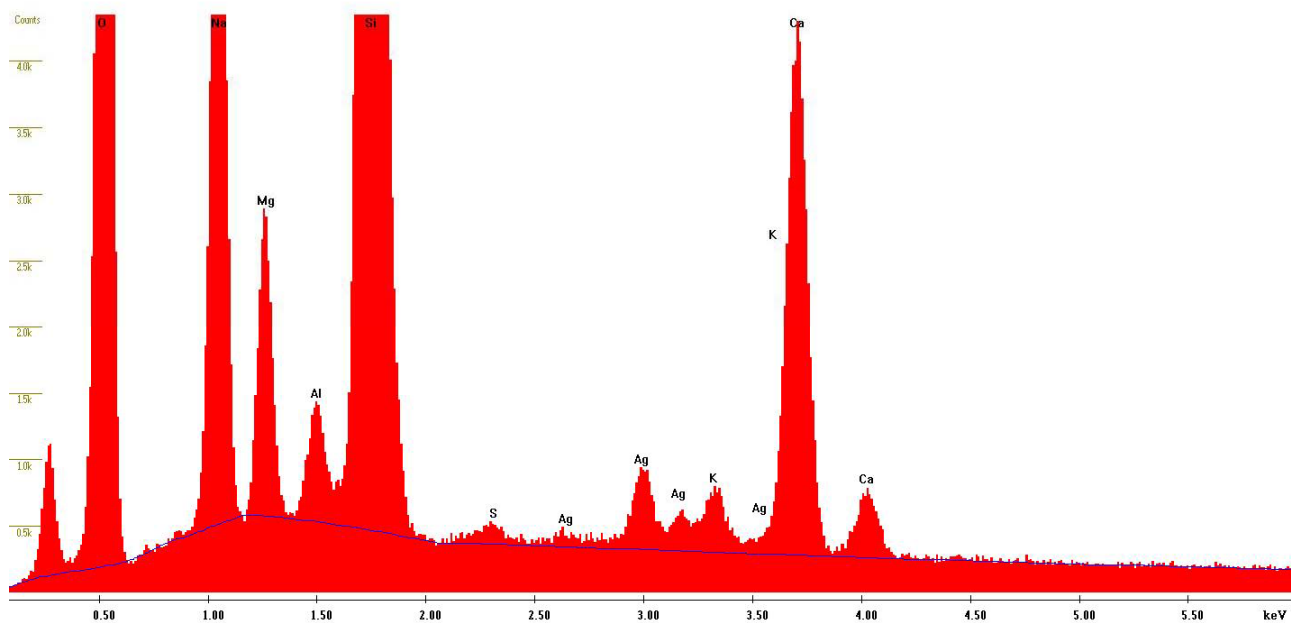
Fig. S6 EDX data obtained for a sample of SURF-PEI-PLATES. Beyond the glass substrate components, the evidence of Ag L spectral line is consistent with the preparation procedure. We notice that EDX analysis in different points of the sample surface shows chemical homogeneity of Ag films (within $\pm 5\%$), the intensity of any spectral line in EDX analysis being proportional to element abundance.



Element	Wt %	At %	K-Ratio	Z	A	F
O K	33.5400	47.5100	0.0877	1.0363	0.2520	1.0006
NaK	10.1200	9.9800	0.0466	0.9698	0.4725	1.0052
MgK	2.6600	2.4800	0.0142	0.9941	0.5322	1.0093
AlK	0.9900	0.8300	6.3000e-3	0.9649	0.6490	1.0172
SiK	41.9500	33.8500	0.3166	0.9930	0.7589	1.0013
S K	0.2500	0.1800	1.6000e-3	0.9793	0.6627	1.0032
AgL	2.1400	0.4500	0.0161	0.7927	0.9423	1.0057
K K	0.7300	0.4200	6.1000e-3	0.9426	0.8750	1.0098
CaK	7.6200	4.3100	0.0663	0.9648	0.9021	1.0000



Element	Wt %	At %	K-Ratio	Z	A	F
O K	33.0200	47.0400	0.0855	1.0371	0.2494	1.0006
NaK	10.0600	9.9700	0.0463	0.9706	0.4718	1.0052
MgK	2.6500	2.4900	0.0142	0.9949	0.5321	1.0093
AlK	1.0000	0.8500	6.4000e-3	0.9656	0.6489	1.0173
SiK	42.1600	34.2100	0.3182	0.9938	0.7585	1.0014
S K	0.2200	0.1600	1.4000e-3	0.9803	0.6615	1.0033
AgL	2.5500	0.5400	0.0191	0.7934	0.9415	1.0056
K K	0.7400	0.4300	6.1000e-3	0.9434	0.8744	1.0097
CaK	7.6000	4.3200	0.0660	0.9656	0.8999	1.0000



Element	Wt %	At %	K-Ratio	Z	A	F
O K	33.0000	47.0500	0.0852	1.0373	0.2488	1.0006
NaK	10.0500	9.9700	0.0462	0.9707	0.4710	1.0052
MgK	2.6600	2.4900	0.0142	0.9951	0.5315	1.0093
AlK	0.9700	0.8200	6.2000e-3	0.9658	0.6483	1.0172
SiK	42.0300	34.1400	0.3172	0.9939	0.7583	1.0014
S K	0.2700	0.1900	1.7000e-3	0.9805	0.6621	1.0034
AgL	2.6300	0.5600	0.0198	0.7935	0.9417	1.0056
K K	0.7700	0.4500	6.4000e-3	0.9436	0.8745	1.0097
CaK	7.6200	4.3400	0.0662	0.9658	0.8995	1.0000

Fig. S7 XRD patterns obtained for a blank glass (black line) and for a SURF-PEI PLATES sample (blue line), evidencing the presence of (111) diffraction peak.

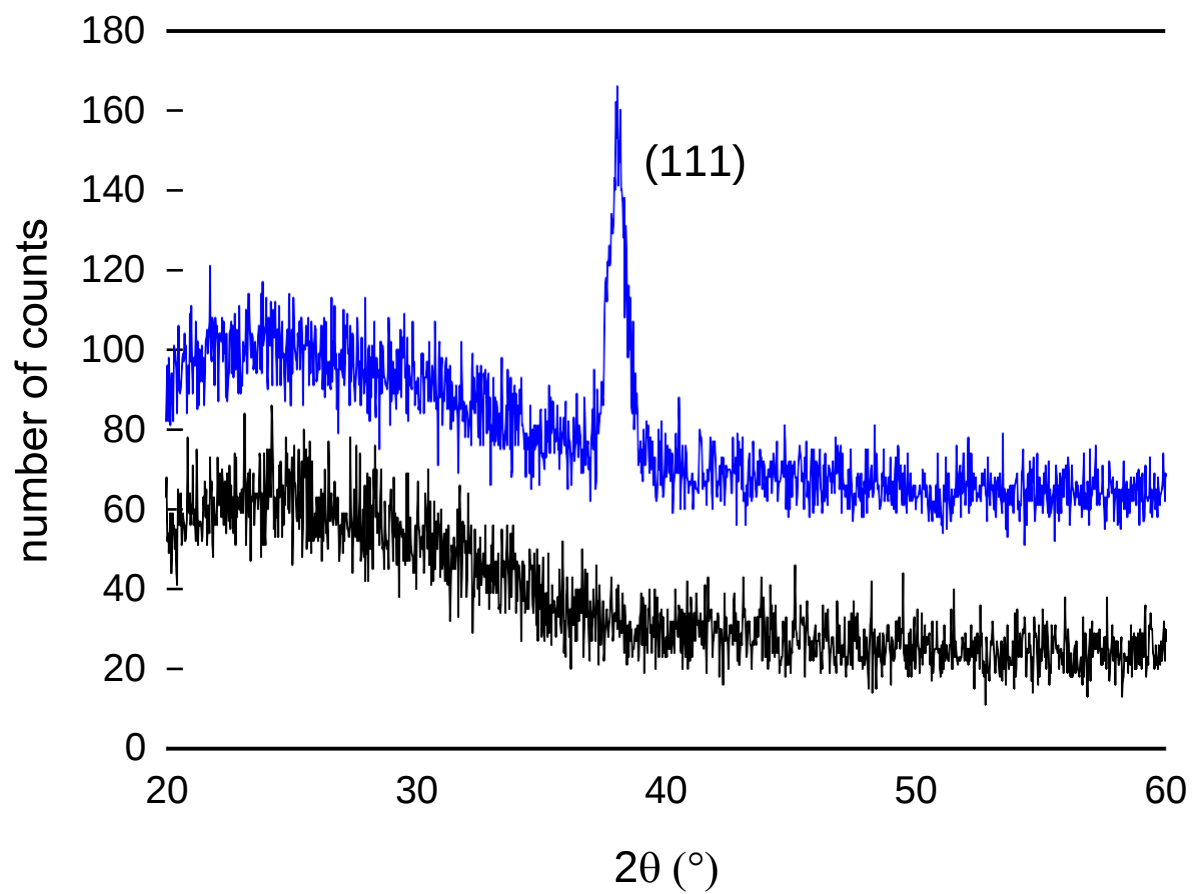


Fig. S8 SEM images for SURF-PE-PLATES samples a) as prepared ; b) after 5 hours of immersion in water; c) after 24 hours of immersion in water; d) after 240 hours of immersion in water.

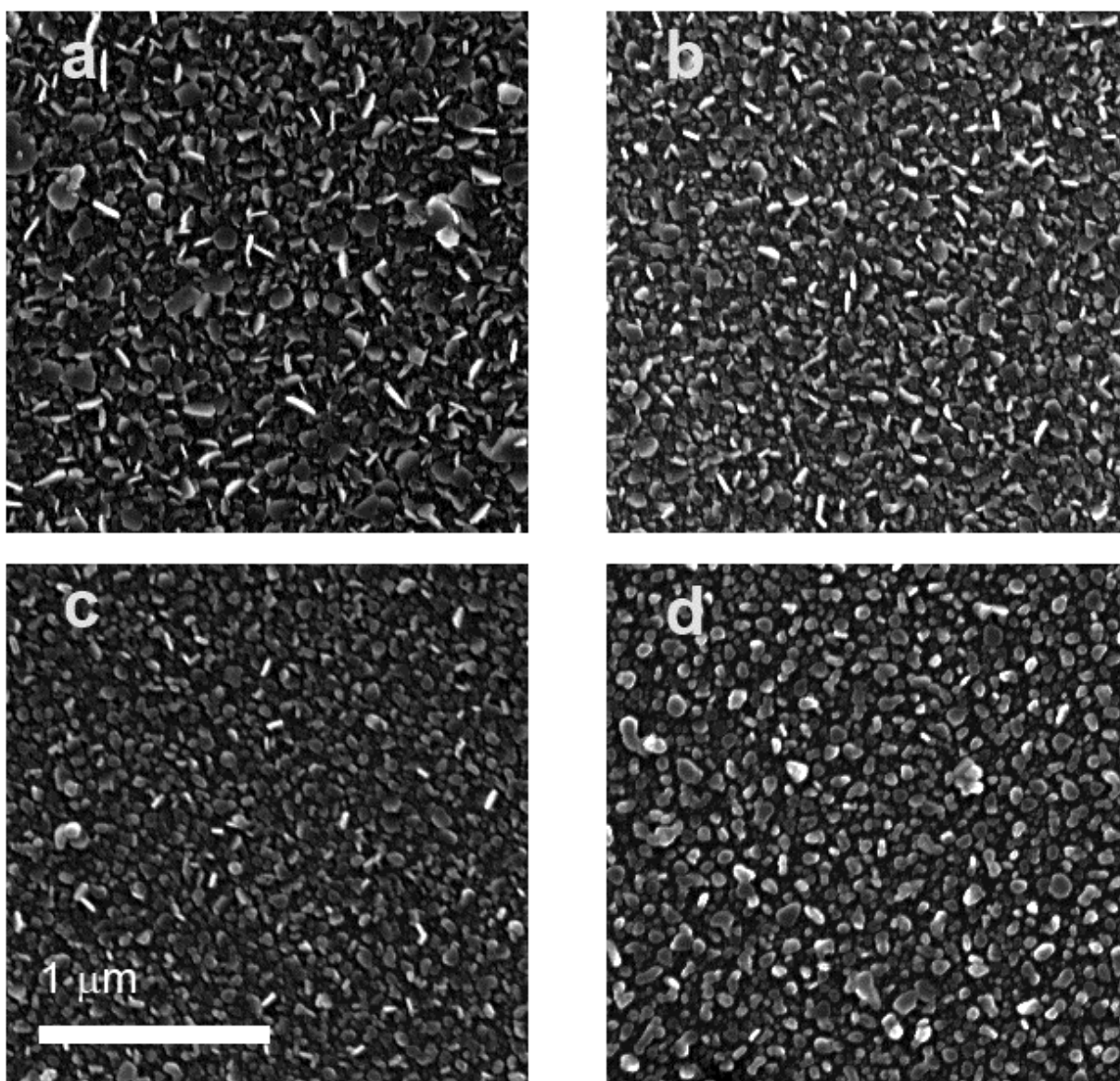


Fig. S9 Photographs of: (left) a freshly prepared SURF-PEI-PLATES sample after two hours growth; (right) a SURF-PEI PLATES sample after 240 hours of immersion in water

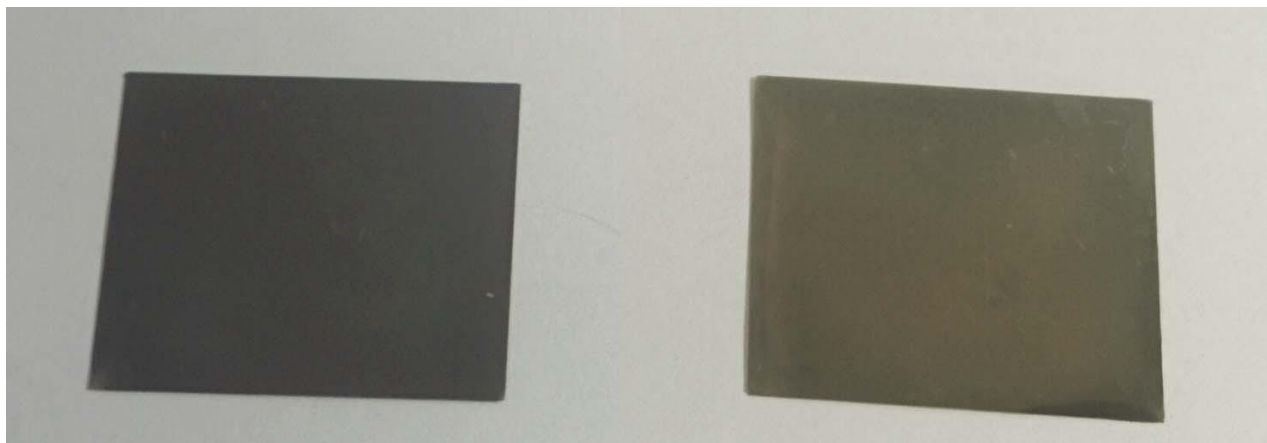


Fig. S10 UV-Vis-NIR spectra of the same zone of the same SURF-PEI-PLATES sample before (full line) and after (dashed line) 20 min of Laser irradiation at 808 nm, irradiance 0.26 W/cm²

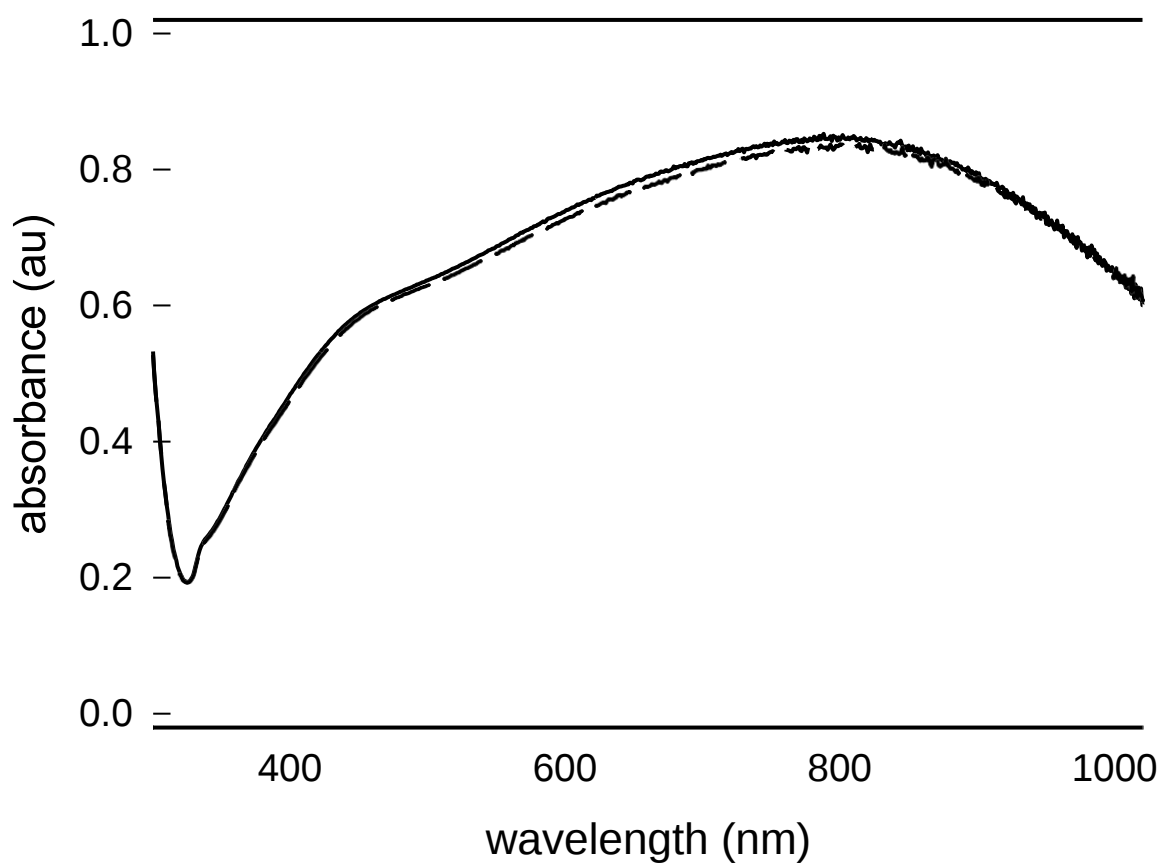


Fig. S11 Temperature versus time thermograms obtained under Laser irradiation at 808 nm, 0.26 W/cm² for a SURF-PEI-PLATES sample after its immersion for 24 hours in water

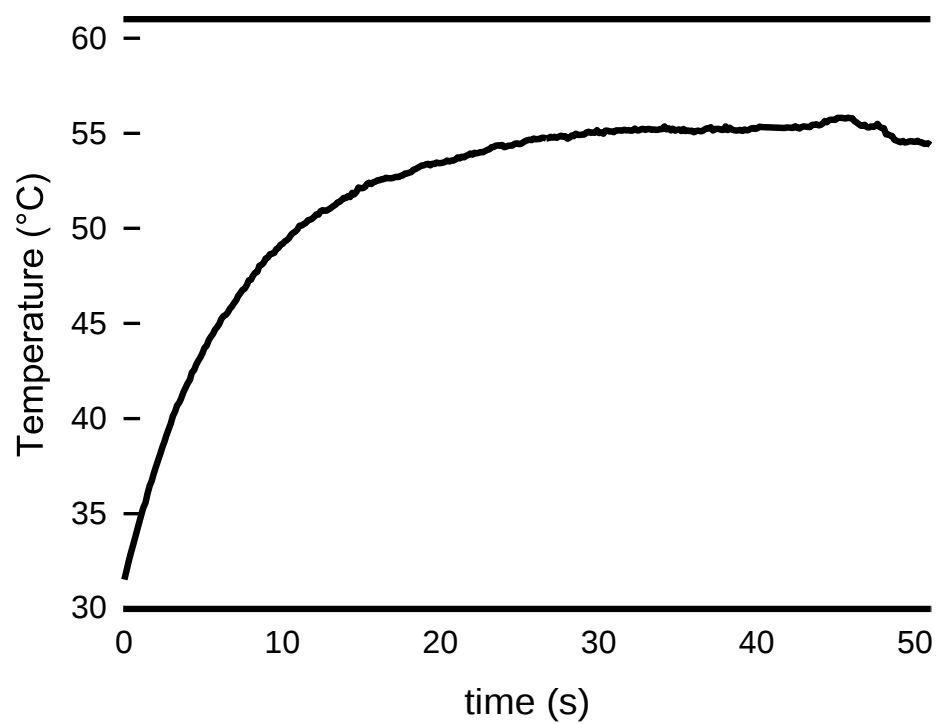


Fig. S12 Transmission curves for a sample of the glass slides used for functionalization (black line) and for a SURF-PEI-SAMPLE (blue line).

