Preparation of reactive surfaces by electrografting.

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Electronic supplementary information

Figure 1: Coating of the conducting substrates by PNSA
a) XPS spectra of the electrografted PNSA: (A) nitrogen (B) oxygen (C) carbon

b) AFM micrograph (tapping mode) of Cu electrode modified by PNSA.

Table: Quantification of the reconstructed XPS spectrum for the carbon area (spectrum C)

Figure 2: Electroactivity of PNSA-$FcNH_2$, in ACN containing TEAP (0.05M) film grafted on a Pt-QCM electrode (A) Cyclic voltammogram at 100 mV/s; (B) simultaneous change in frequency; (C) change in frequency for neat Pt

Figure 3 : Binding of biotin onto PNSA

a) PNSA grafted on ITO-glass after spraying with DMACA; (I) non-grafted area (II) modified area with PNSA-biotin

b) UV-Vis spectrum of (A) ITO-glass modified with PNSA-biotin; (B) after spraying with DMACA

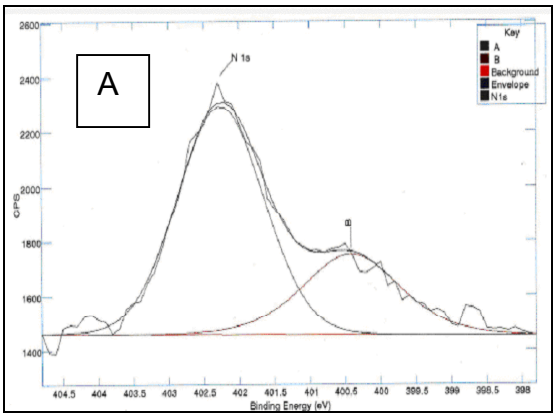
Figure 4 : Binding of the glucose-oxidase (Gox) onto PNSA:

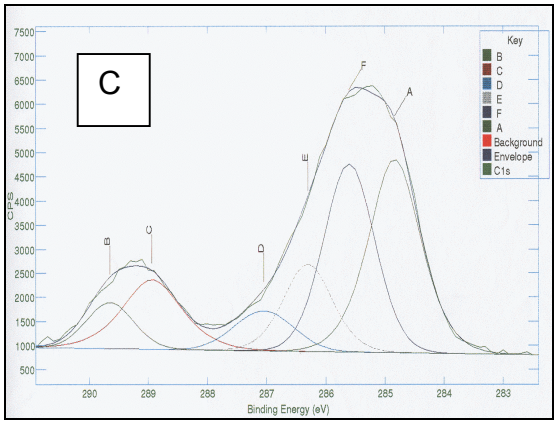
a) PNSA grafted on ITO-glass after Bradford test: (I) PNSA-Gox grafted area (II) non-grafted area

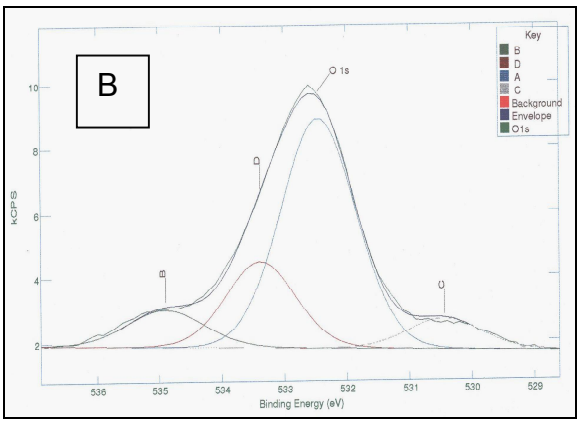
b) ΔI measured at E=0.6V from voltammograms recorded at 5mV/s for C-PNSA-Gox dipped in a ferrocene carboxylic acid containing (10^{-3}M) phosphate buffer upon addition of glucose.

Figure 5. Infrared reflection-absorption spectrum of poly(ethyleneimine) grafted onto the poly(N-succinimidyl acrylate) modified Inox 316L with the characteristic bands at 3234 cm^{-1} for NH-stretching, 1651 cm^{-1} for amide I; and 1547 cm^{-1} for amide II proving the grafting efficiency.

a)







Binding energy	Expected number of atoms	Experimental number of atoms	Atomic %
285eV: ^{1}C	1	5.1	20.3
285.6eV: ^{2}C	1	4.7	18.7
286.3eV: ^{3}C	2	2.1	8.4
288.7eV: ^{4}C	2	2	8
289.6eV: ^{5}C	1	1	4
287eV: ?	-	1.1	4.4

b)

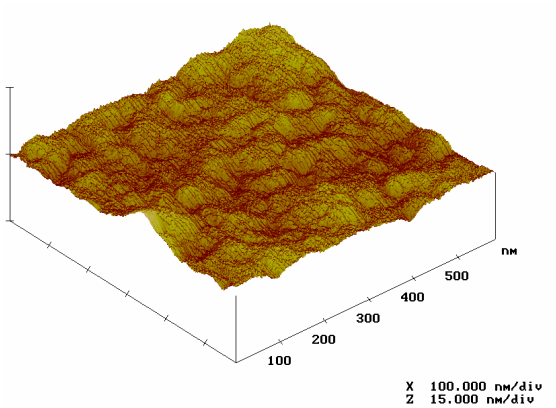


Figure 1

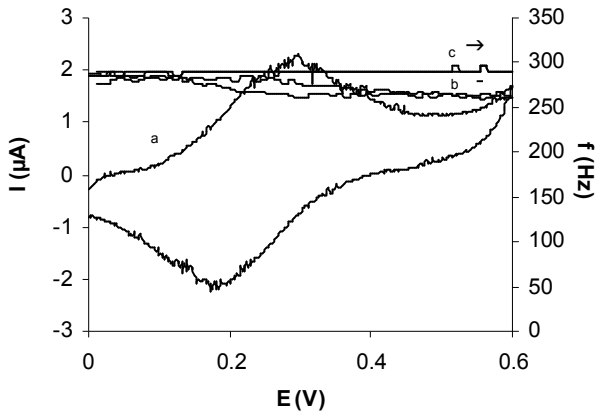
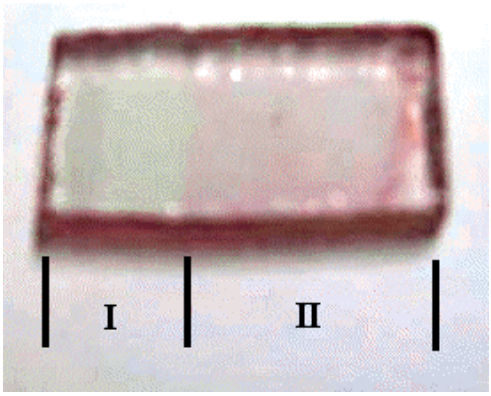


Figure 2

a)



b)

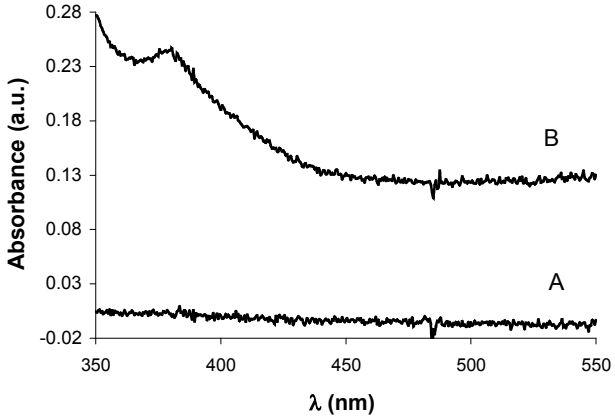
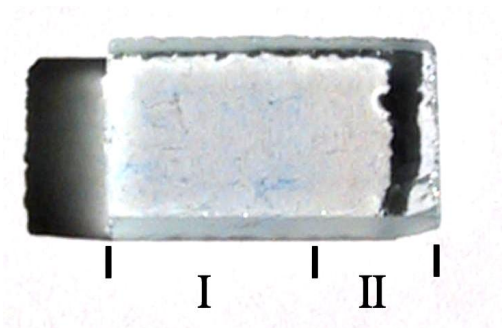


Figure 3

a)



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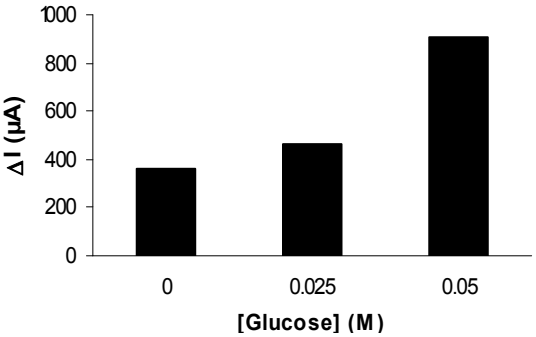

Figure 4

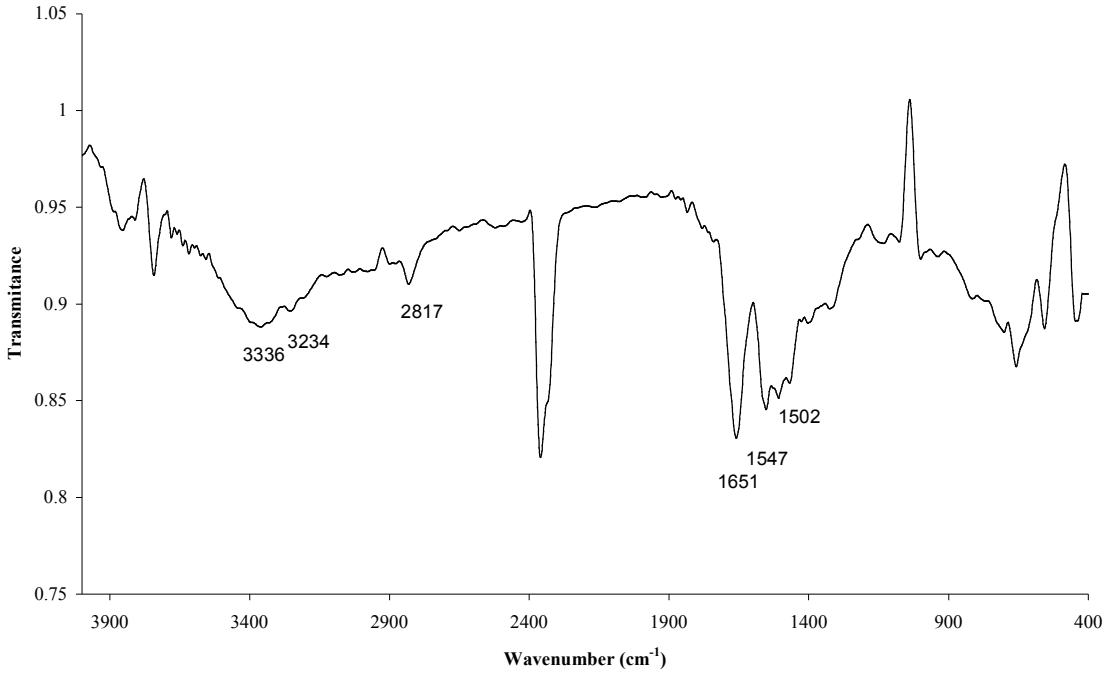
1.05
1
0.95
0.9
0.85
0.8
0.75
Transmitance
3336
3234
2817
1651
1547
1502
3900
3400
2900
2400
1900
1400
900
400
Wavenumber (cm-1)

Figure 5