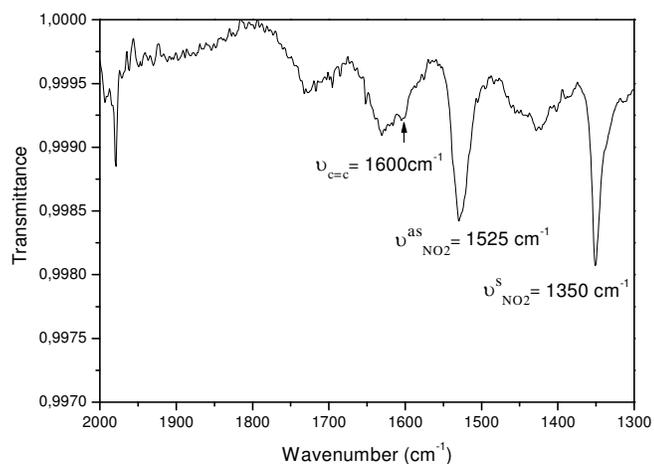
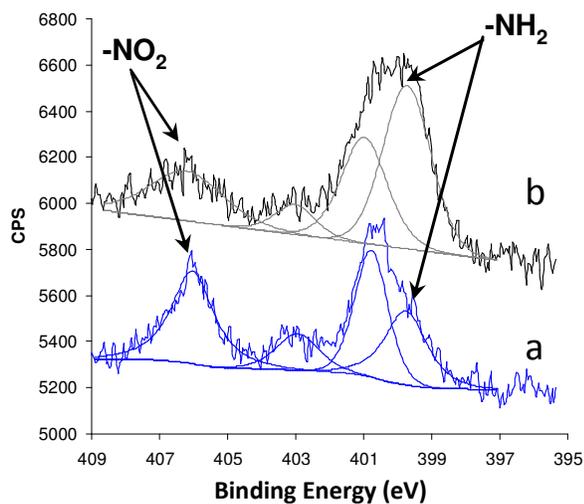


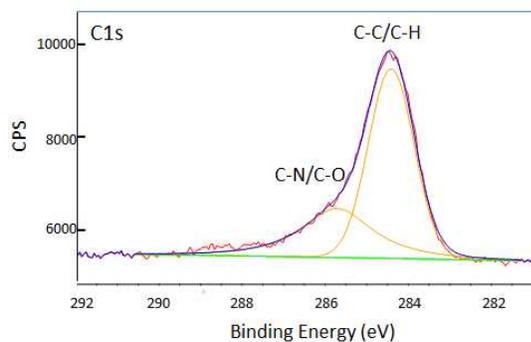
Supplementary Information



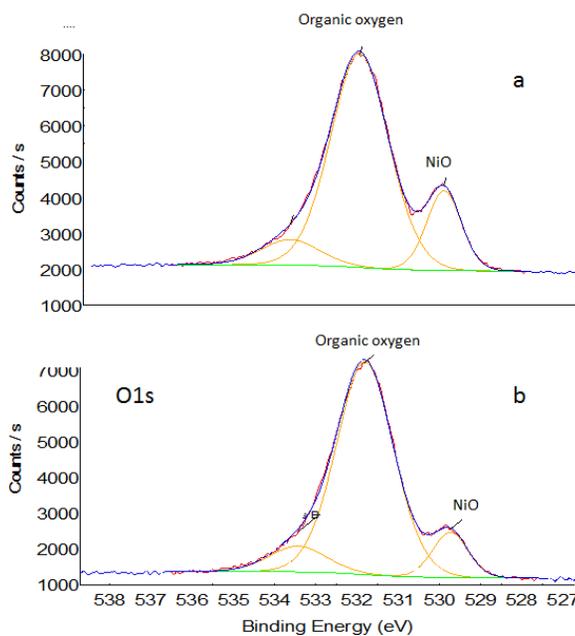
SI Figure 1 – IR-ATR spectrum of PNP layer spontaneously grafted on gold plates obtained by immersion in a 0.05 M NBDT water solution for 60 min.



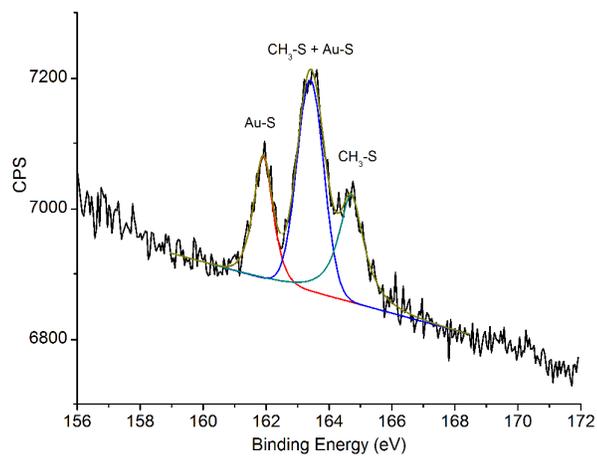
SI Figure 2- XPS N 1s core level spectra of PNP thin film registered after (a) 14 minutes of analysis (14 min. of X ray exposure) and (b) after 210 minutes.



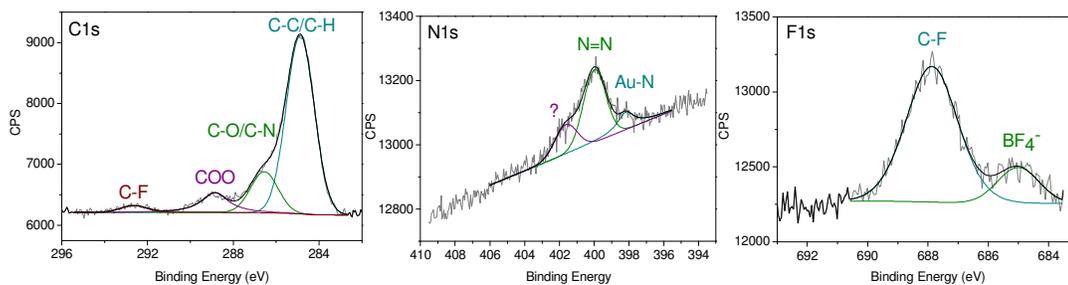
SI Figure 3 - XPS C1s core level spectrum of spontaneously grafted layers on gold plates obtained by immersion in a 0.05 M NBDT salt solution for 60 min after rinsing.



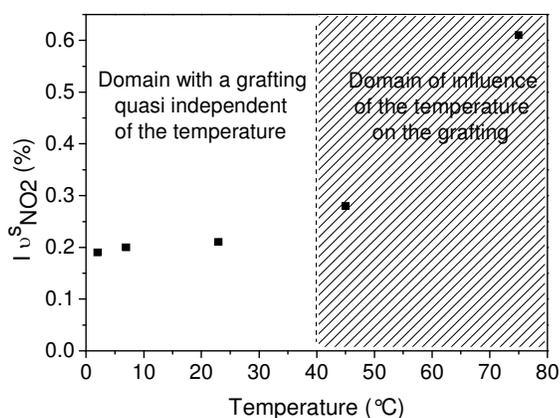
SI Figure 4 - XPS O1s core level spectra obtained on a) pristine Ni surface and b) MBDT (0.046M) in ACN spontaneously grafted on nickel plates after cyclic voltammetry (between the rest potential of the electrochemical cell to -2.2 V/SCE, at 10 mV/s scan rate).



SI Figure 5 – XPS S 2p core level spectrum of spontaneously grafted layers on gold plates obtained by immersion in a 0.046 M CH₃S-benzene diazonium salt for 1 h. The Au-S 2p_{1/2} and the S-C 2p_{3/2} signals are merged in the central peak.



SI Figure 6 – XPS C 1s, N 1s and F 1s core level spectra of spontaneously grafted layers on gold plates obtained by immersion in a 0.05 M F₃C-benzene diazonium salt solution for 60 min after rinsing and 30 s US in acetonitrile.



SI Figure 7 – Intensity of the $\nu_{\text{NO}_2}^s$ absorption band from the IR-ATR analysis of the spontaneous grafted films obtained after 1h immersion of gold plates in 0.046 M NBDT H₂O DI solutions as a function of the temperature.

SI Table 1 – Area Values of the Ni-C peak observed in the C 1s core level spectra of pristine or grafted by the 4-methoxybenzene diazonium salt (0.046 M) nickel substrate according to final potential (/SCE) reached during the cyclic voltammetry (10 mV/s scan rate) performed to remove the oxide.

Area of the carbide component (a.u)							
Lowest CV potenti	-1.7 V	-2 V	-2.2 V	-2.3 V	-2.4 V	-2.6 V	-2.9 V
Reference	-	-	-	118	137	139	192
OMe diazonium	-	-	164	157	142	147	193

SI Table 2 – Intensity of the $\nu_{\text{NO}_2}^s$ absorption band from the IR-ATR analysis of the spontaneous grafted films obtained after 1h immersion of gold plates in 0.046 M NBDT H₂O DI solutions at light exposure or in the dark at room temperature and 2°C.

	RT		2°C	
	Light	Dark	Light	Dark
$I \nu_{\text{NO}_2}^s$ (%)	0.21	0.12	0.19	0.12

SI Table 3 – Intensity of the $\nu_{\text{NO}_2}^s$ absorption band from the IR-ATR analysis of the spontaneous grafted films obtained after 1h immersion of gold plates in phosphate buffer solutions of 0.046 M NBDT.

pH	2.1	3.7	7.2
$I v_{\text{NO}_2}^s$ (%)	0.15	0.2	0.43

SI Table 4 – Intensity of the IR-ATR $v_{\text{NO}_2}^s$ absorption band of the spontaneous grafted films (1h immersion of gold plates in 0.046 M NBDT H₂O DI) with or without MNP spin-trap, in a nitrogen flow glove box.

	NBDT	NBDT + MNP
$I v_{\text{NO}_2}^s$ (%)	0.34	0.14