Platinum nanoparticles on electrospun titania nanofibers as hydrogen sensing material working at room temperature

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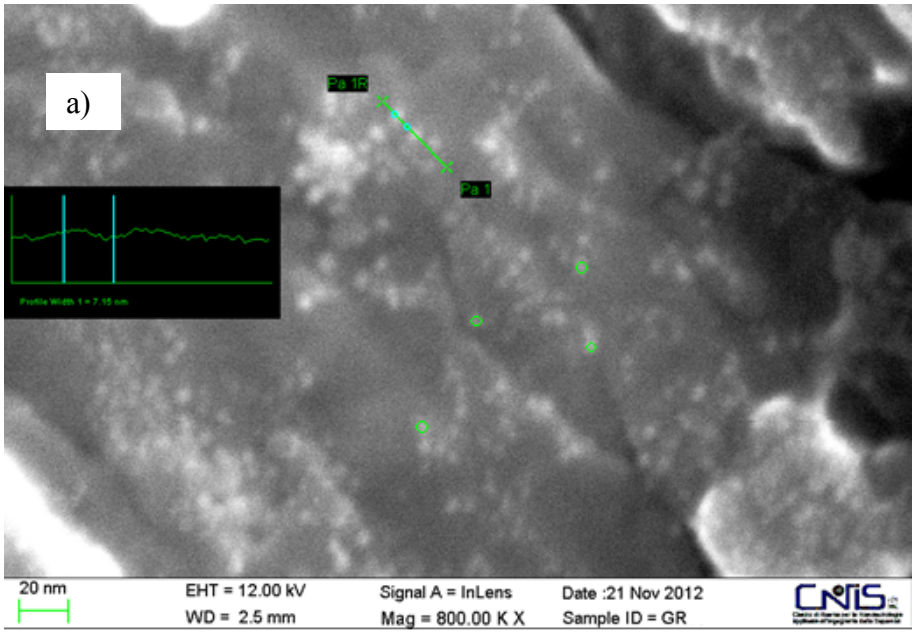
ESI 1.

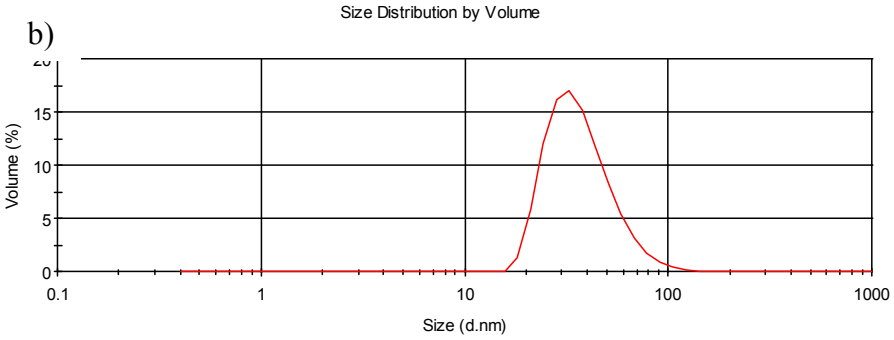
Table with experimental details for Pt-3MPS synthesis (molar ratio Pt/$NaBH_4$ =1/10).

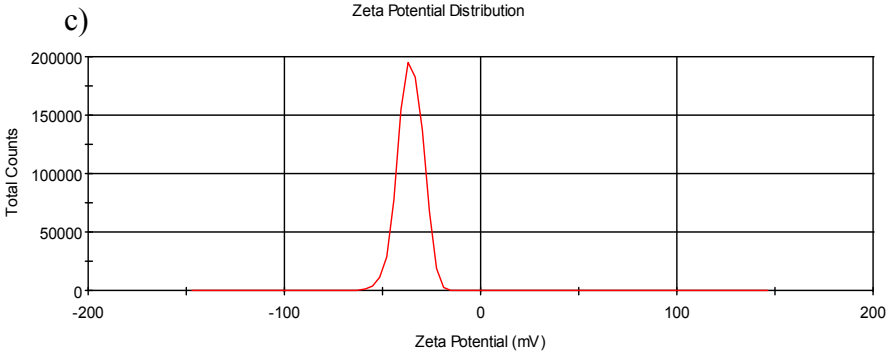
Sample ID	Pt/3MPS (mol/mol)	3MPS g (mol)
Pt-3MPS-1	1/1	0.0855 ($4.8 \cdot 10^{-4}$)
Pt-3MPS-2	1/0.65	0.0571 ($3.2 \cdot 10^{-4}$)
Pt-3MPS-3	1/0.50	0.0427 ($2.4 \cdot 10^{-4}$)
Pt-3MPS-4	1/0.25	0.0214 ($1.2 \cdot 10^{-4}$)

ESI 2.

a) FESEM (diameter 10 ± 5 nm), b) DLS (average diameter 23 ± 5 nm) and c) ζ-potential measures (-35 mV) of Pt-3MPS-4, reported as example.

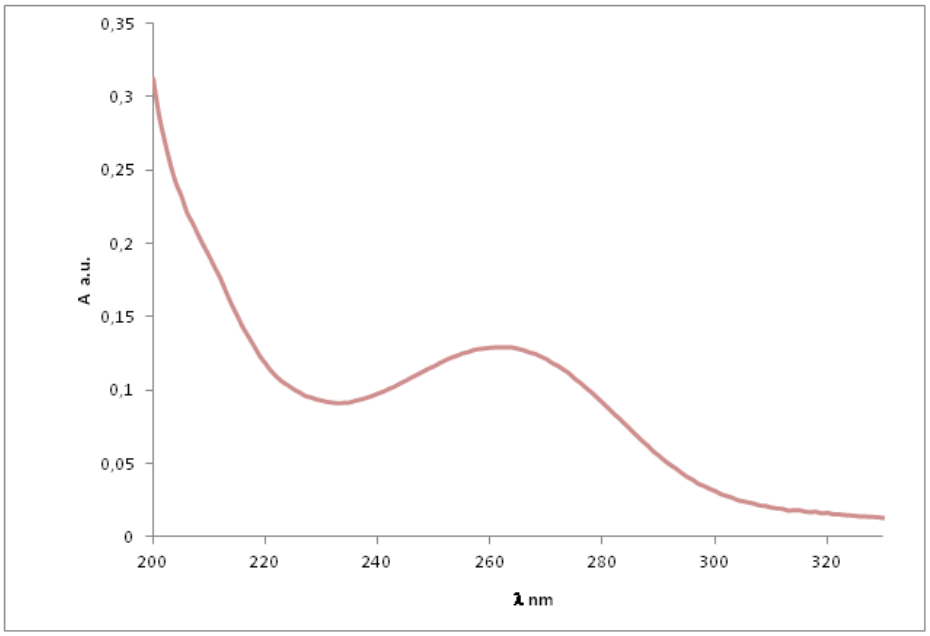






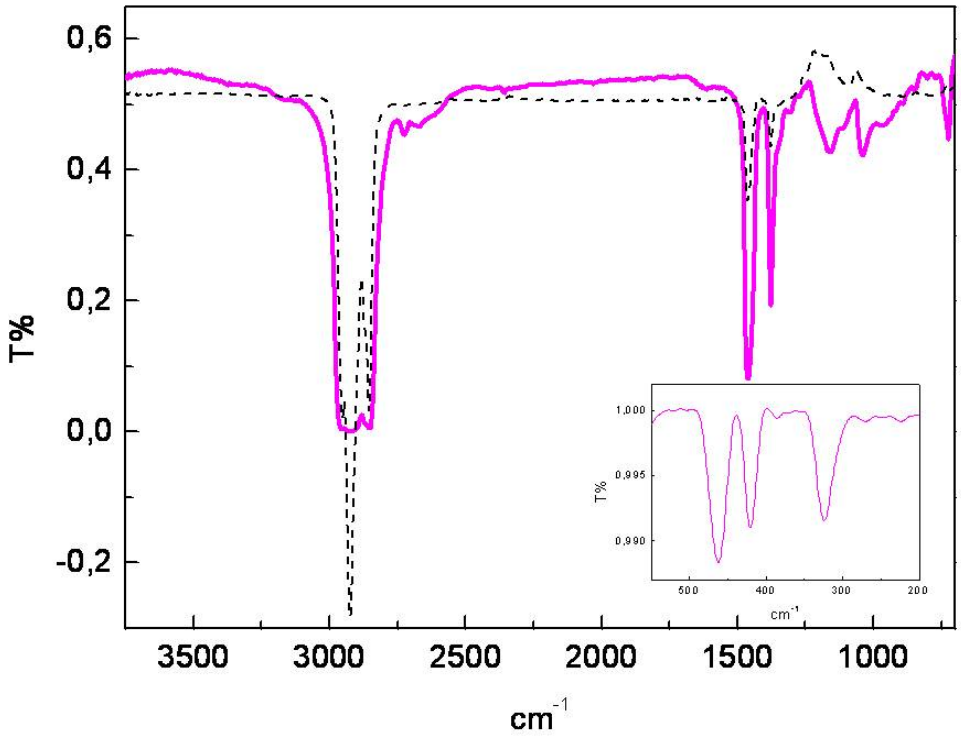
ESI 3.

UV-Vis spectra of Pt-3MPS-4 in water suspension, with maximum of absorbance at 265 nm.



ESI 4.

FTIR of PtNPs-4 (inset FIR)



ESI 5.

Table SX. Binding energy (BE), full width half maximum and atomic ratio/percent values of samples D1 and D2. The proposed signal assignments are reported in the last row.

SAMPLE	**Signal**	**C1s**			**S2p$_{3/2}$**		**Pt4f$_{7/2}$**		**Ti2p$_{3/2}$**	**O1s**		**Na1s**
Pt-3MPs4	BE (eV) (FWHM (eV))	285.00 (1.64)	286.76 (1.64)	288.67 (1.64)	161.98 (2.42)	165.20 (2.42)	71.09 (1.54)	72.48 (1.54)	-		531.96 (1.80)	1071.59 (2.02)
	Atomic Ratio Atomic %	8.8 (77.8)	1.5 (12.2)	1 (10.0)	1 (23.9)	1.48 (76.1)	4.0 (80)	1 (20)	-	-		
TiO_2-NF	BE (eV) (FWHM (eV))	-	-	-	-	-	-	-	458.55 (1.81)	530.20 (1.82)		
	Atomic Ratio Atomic %	-	-	-	-	-	-	-	1 (100)	1 (100)		
D1	BE (eV) (FWHM (eV))	285.00 (1.73)	286.65 (1.73)	289.25 (1.73)	161.83 (1.63)	165.39 (1.63)	71.26 (1.52)	72.53 (1.52)	459.43 (1.66)	529.87 (1.87)	531.22 (1.87)	1071.12 (1.82)
	Atomic Ratio Atomic %	3 (63.2)	0.7 (15.1)	1 (21.7)	1 (19.0)	4.3 (81.0)	6.2 (86.1)	1 (13.9)	1 (100)	3.3 (76.9)	1 (23.1)	1 (100)
D2	BE (eV) (FWHM (eV))	285.00 (1.89)	286.85 (1.89)	289.45 (1.89)	161.14 (1.63)	166.15 (1.63)	71.16 (1.50)	72.57 (1.50)	459.51 (1.78)	529.85 (1.88)	531.56 (1.88)	1071.43 (1.77)
	Atomic Ratio Atomic %	20.95 (71.2)	4.13 (15.8)	1 (13.0)	1 (55.5)	0.8 (44.5)	3.8 (78.8)	1 (21.2)	1 (100)	4.0 (80.1)	1 (19.9)	1 (100)
assignments		C-C	C-S	*C=O, COO^-	S-Pt	$-SO_3^-$	Pt(0)	Pt(δ^+)	TiO_2	TiO_2	$-SO_3^-$	Na^+

*contaminants on sample surface.
The statistical error on semiquantitative analysis (atomic ratios) is 0.05.