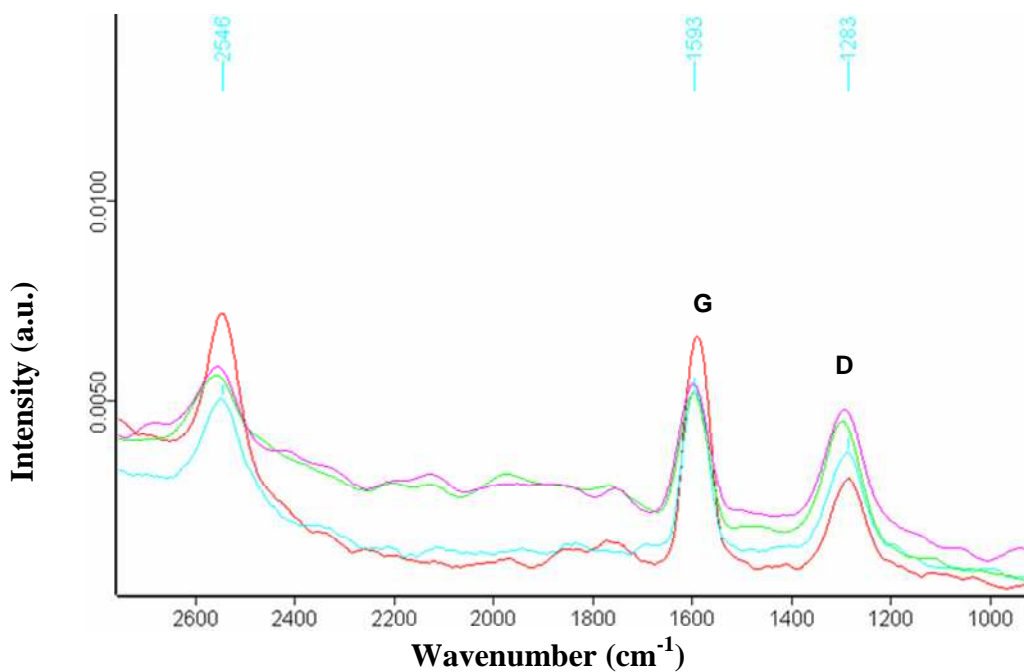


Templating effect of carbon nanomaterials on the synthesis of Pd nanoparticles by covalent grafting onto surface O-groups

Sophie Hermans,* Valérie Bruyr and Michel Devillers

Electronic Supplementary Information

S1 – Raman spectra



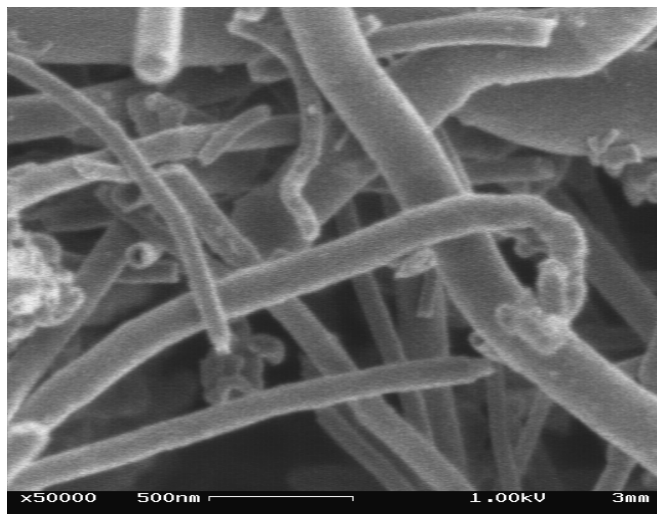
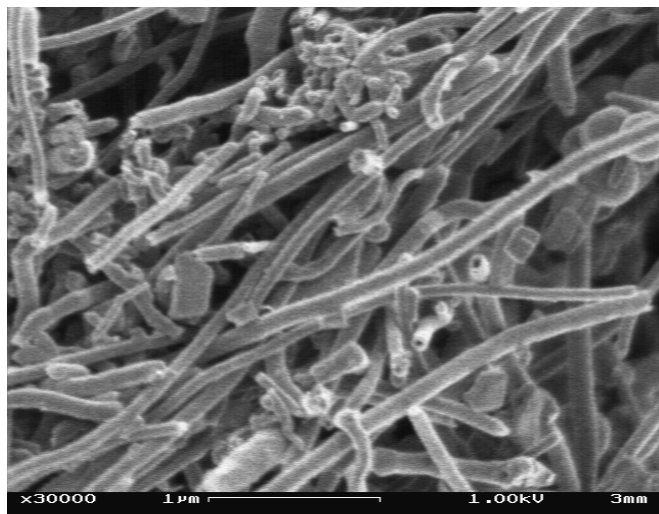
Color codes:

- thin-MWNT non modified,
- thin-MWNT treated 2 h under ultrasound at 60°C in HNO₃/H₂SO₄,
- thin-MWNT treated 1 h under reflux in HNO₃,
- thin-MWNT treated 2 h under reflux in HNO₃.

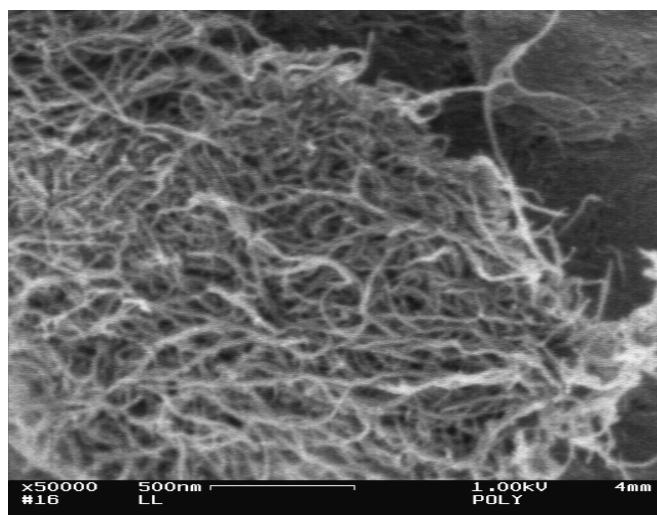
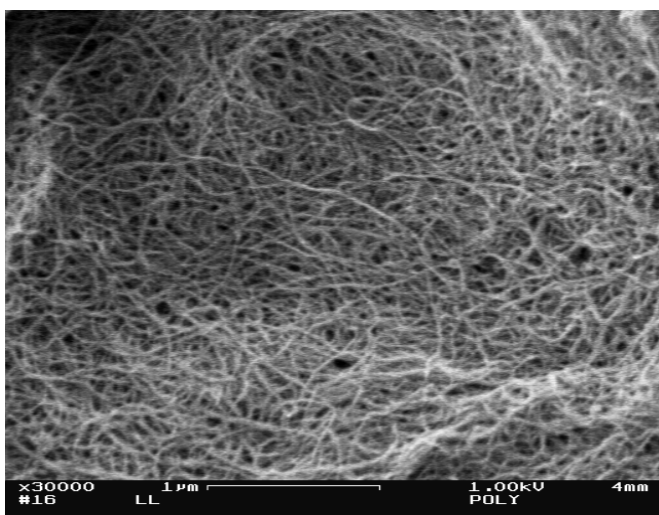
S2 – Thermogravimetric analyses of Pd complexes

Complex	Calculated weight loss (%)		Experimental weight loss	T _{dec} (°C)
	PdO residue	Pd residue		
[Pd(O ₂ CCF ₃) ₂ bipy]	75	78	54.8	270
[Pd(O ₂ CCH ₃) ₂ (Et ₂ NH) ₂]	67	71	71.4	170

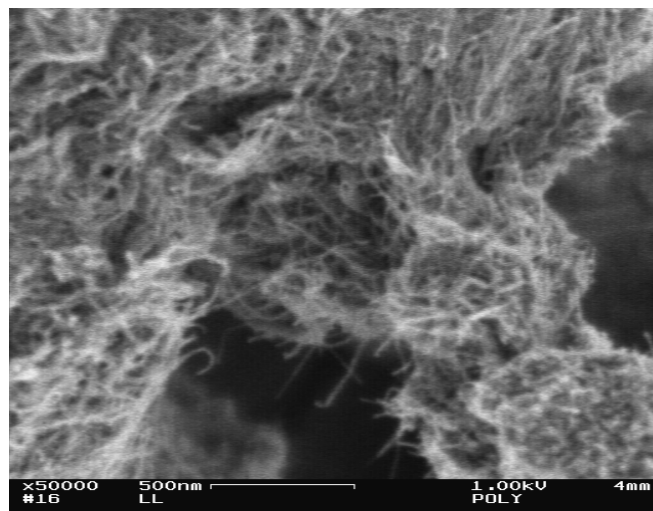
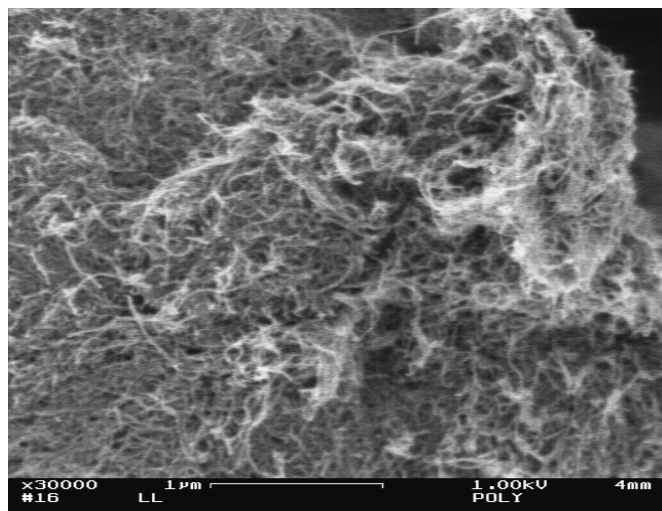
S3 – SEM characterization of oxidized nanofibers and nanotubes after covalent grafting of the $[\text{Pd}(\text{O}_2\text{CCF}_3)_2\text{bipy}]$ complex.



SEM images (magnification 30000x and 50000x) of $[\text{Pd}(\text{O}_2\text{CCF}_3)_2\text{bipy}]$ grafted on CNF-XT-ox

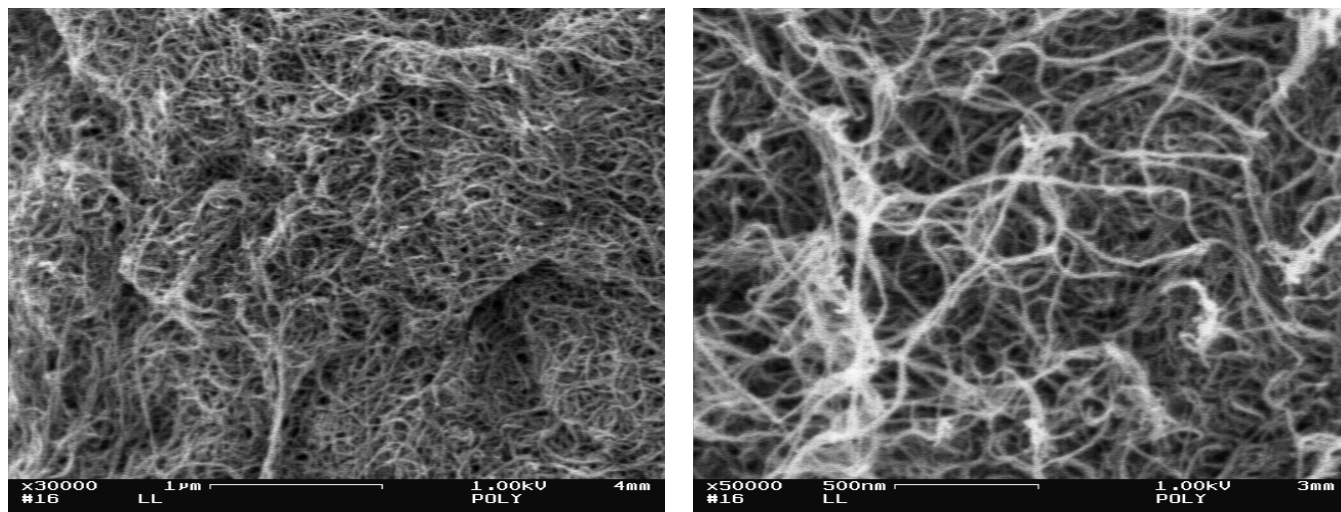


SEM images (magnification 30000x and 50000x) of $[\text{Pd}(\text{O}_2\text{CCF}_3)_2\text{bipy}]$ grafted on oxidized MWNTs

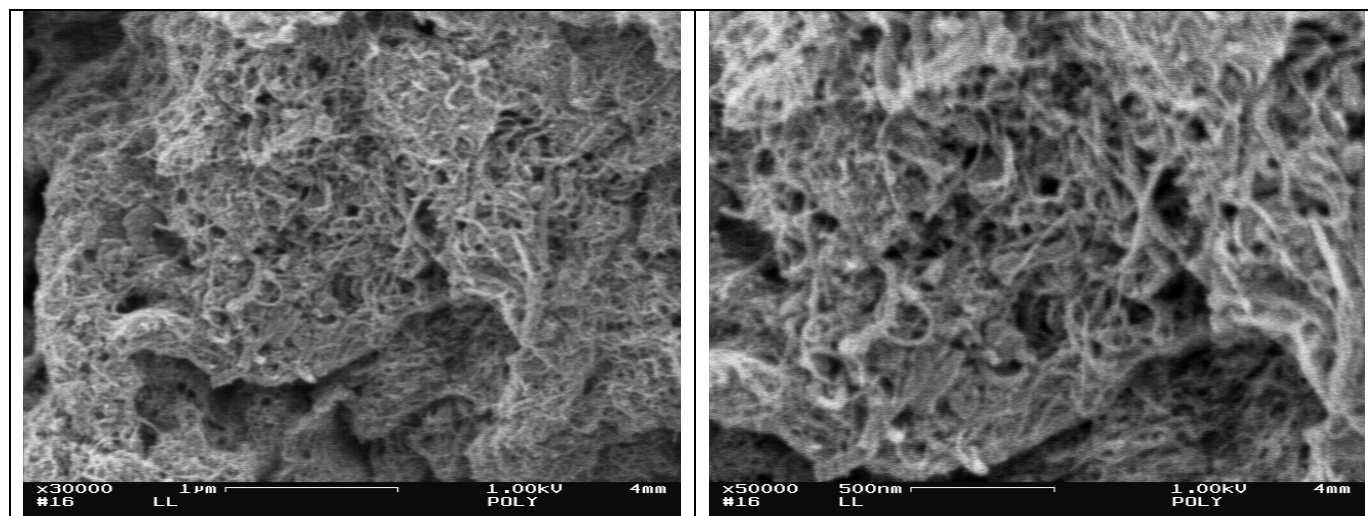


SEM images (magnification 30000x and 50000x) of $[\text{Pd}(\text{O}_2\text{CCF}_3)_2\text{bipy}]$ grafted on oxidized thin-MWNTs

**S4 – SEM characterization of oxidized nanotubes after covalent grafting of the
[Pd(O₂CCH₃)₂(Et₂NH)₂] complex and thermal treatment.**

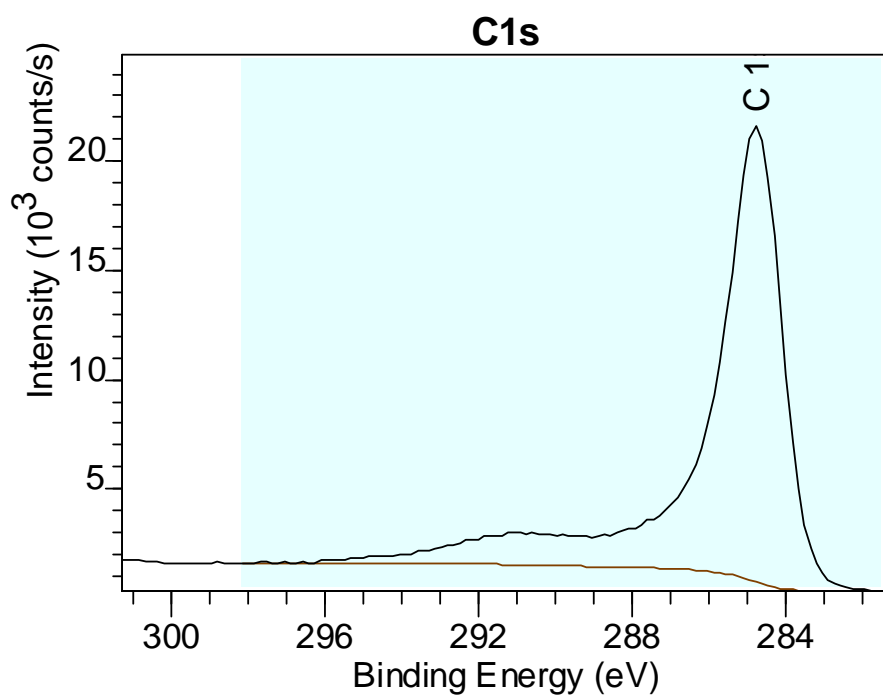


SEM images (magnification 30000x and 50000x) of [Pd(O₂CCH₃)₂(Et₂NH)₂] grafted on oxidized MWNTs and thermally treated

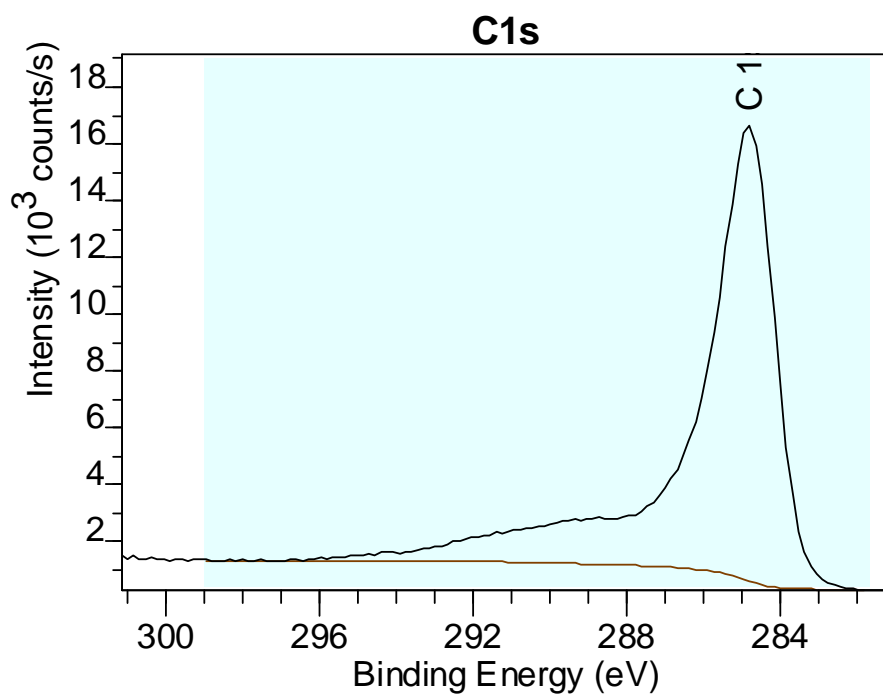


SEM images (magnification 30000x and 50000x) of [Pd(O₂CCH₃)₂(Et₂NH)₂] grafted on thin-MWNTs and thermally treated

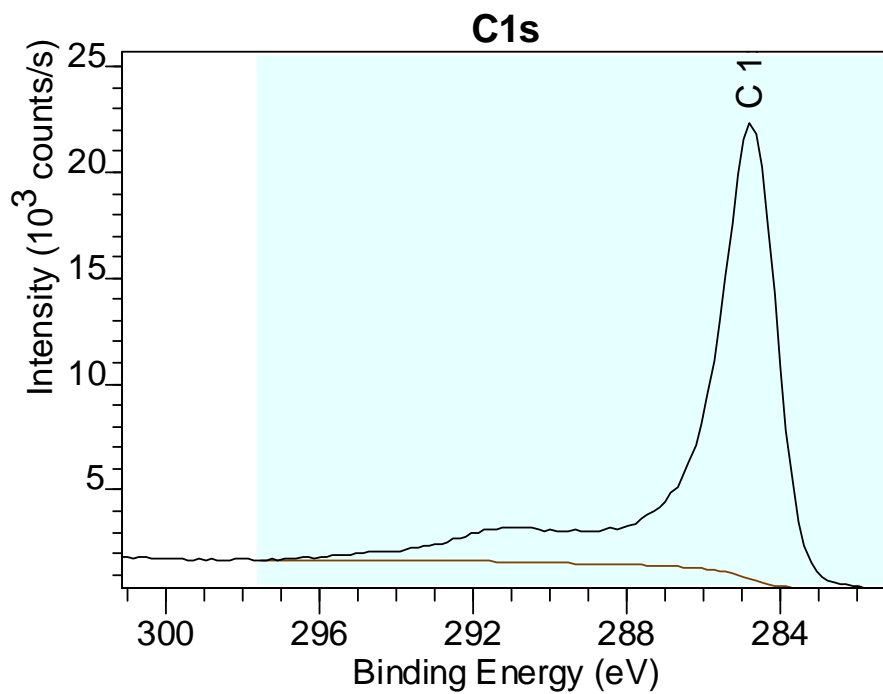
S5 – Representative XPS spectra in selected regions



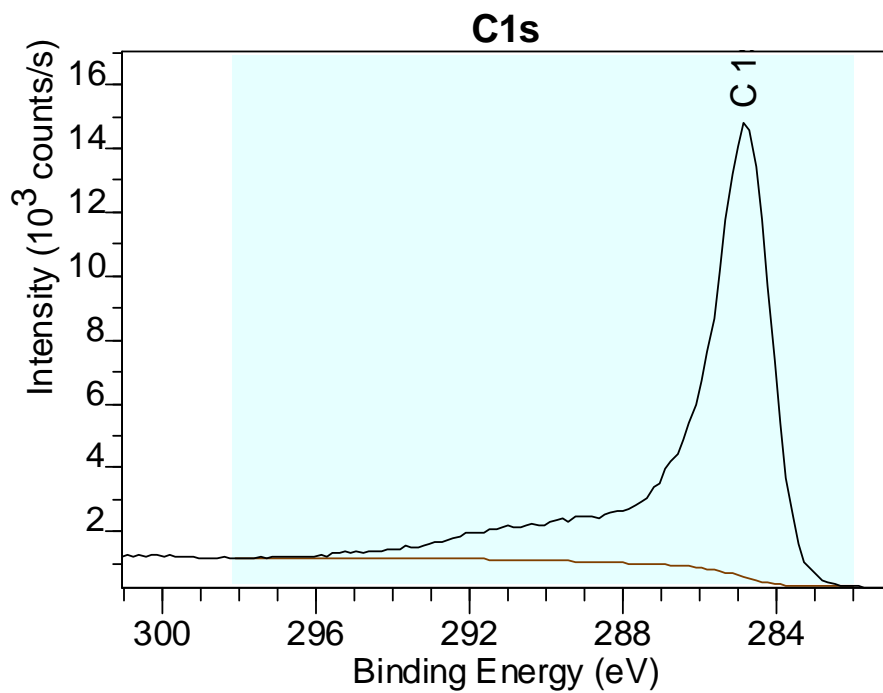
C1s XPS spectrum of as-received MWNTs.



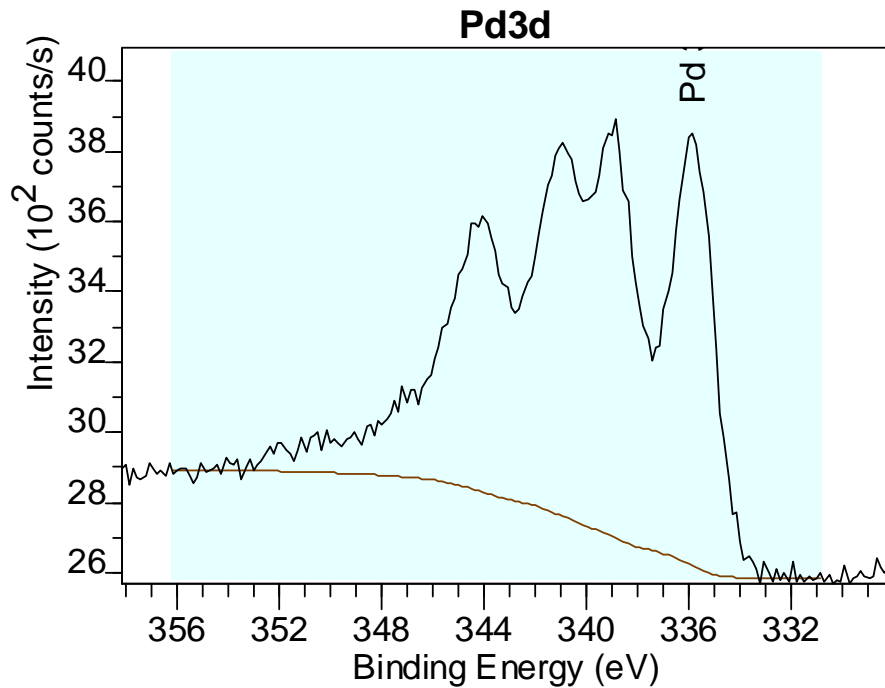
C1s XPS spectrum of oxidized MWNTs (2h refluxing HNO₃).



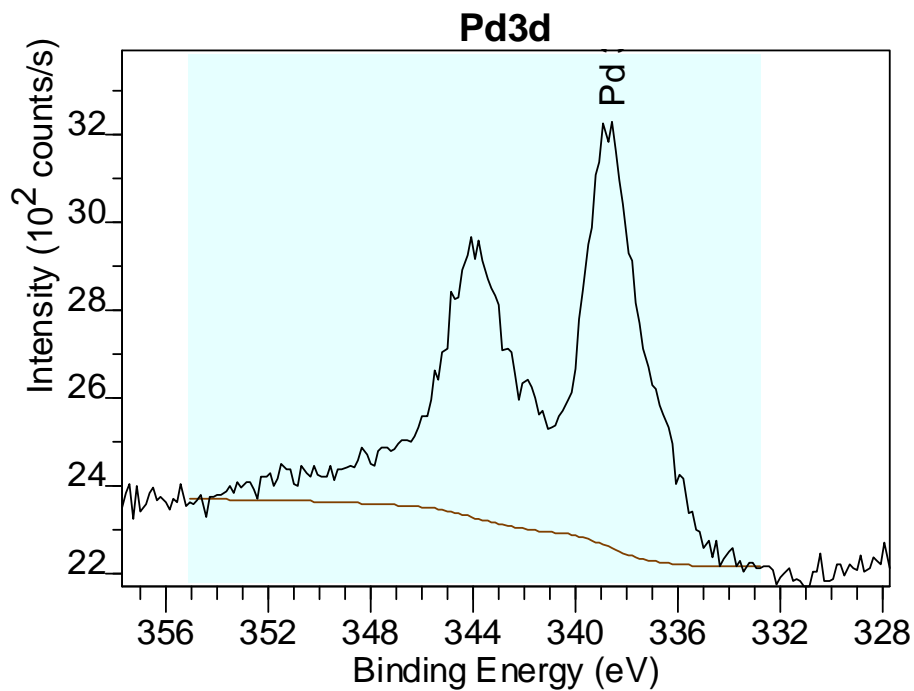
C1s XPS spectrum of as-received thin-MWNTs.



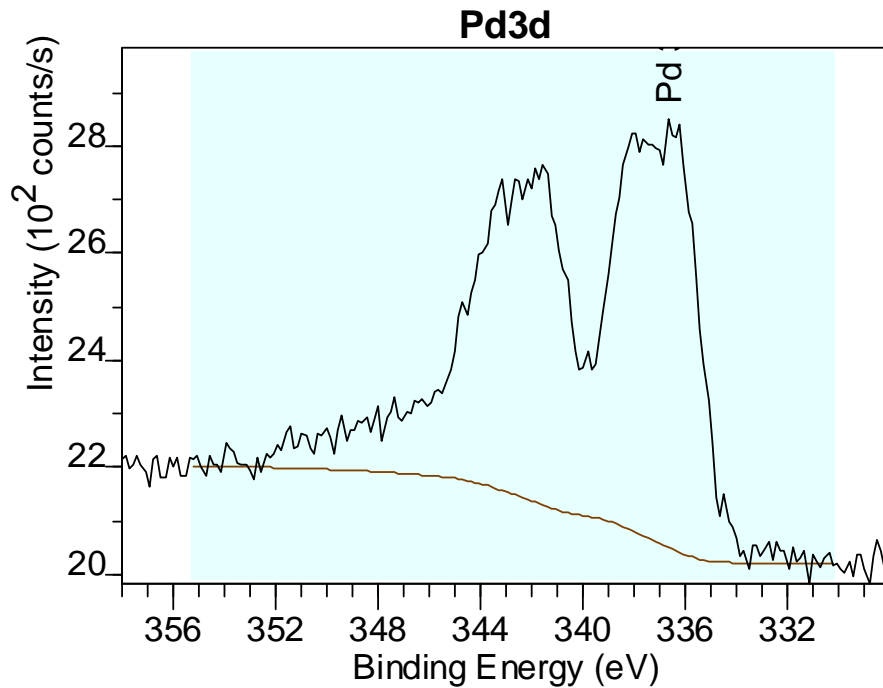
C1s XPS spectrum of oxidized thin-MWNTs (1h refluxing HNO_3).



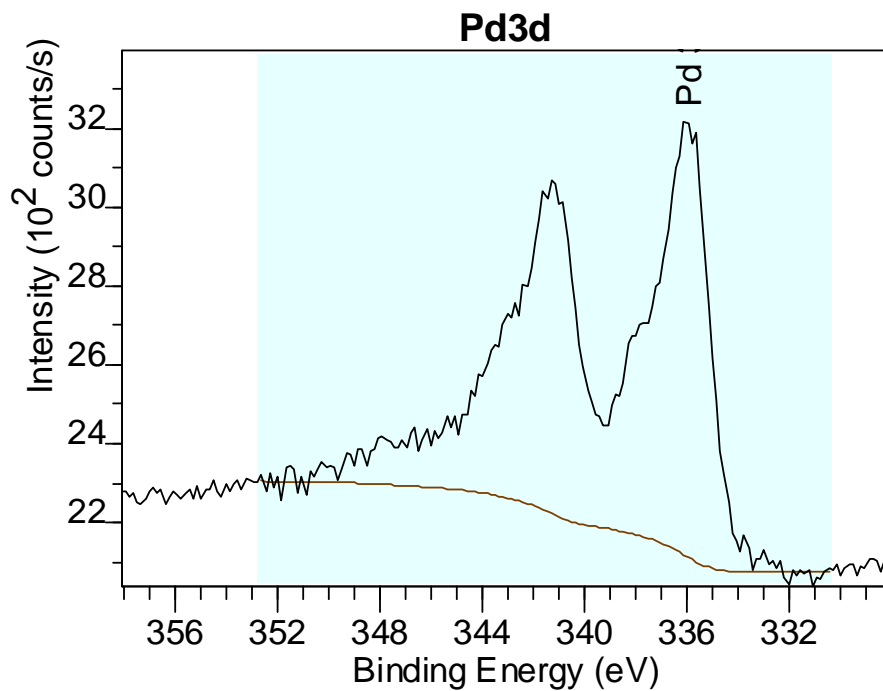
Pd3d XPS spectrum of [Pd(O₂CCF₃)₂bipy] incorporated on pristine thin-MWNTs.



Pd3d XPS spectrum of [Pd(O₂CCF₃)₂bipy] incorporated on oxidized thin-MWNTs (1h refluxing HNO₃).



Pd3d XPS spectrum of $[\text{Pd}(\text{O}_2\text{CCH}_3)_2(\text{Et}_2\text{NH})_2]$ incorporated on oxidized thin-MWNTs (1h refluxing HNO_3).



Pd3d XPS spectrum of $[\text{Pd}(\text{O}_2\text{CCH}_3)_2(\text{Et}_2\text{NH})_2]$ incorporated on oxidized thin-MWNTs after thermal treatment.