Supporting Information

Charge Transfer Interactions in Self-Assembled Single Walled Carbon Nanotubes/Dawson-Wells Polyoxometalate Hybrids

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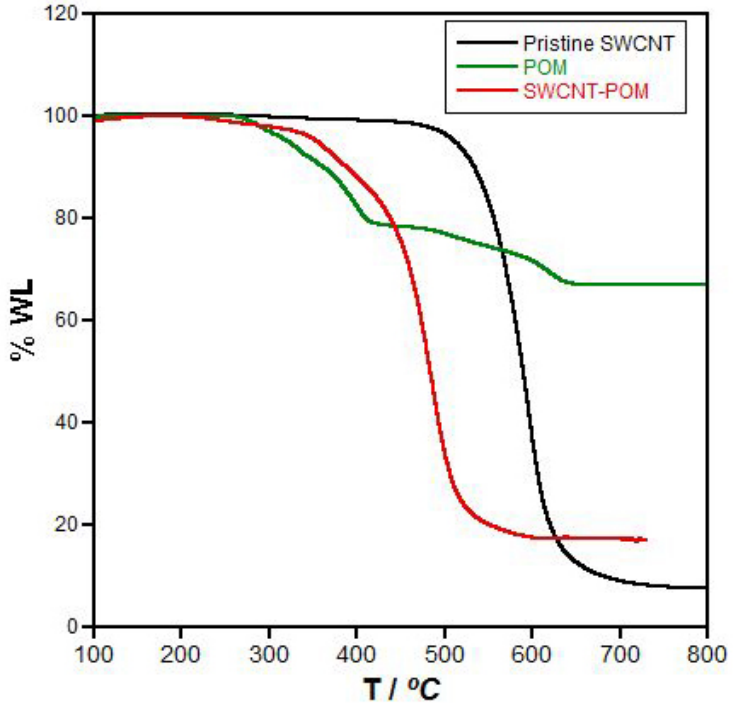
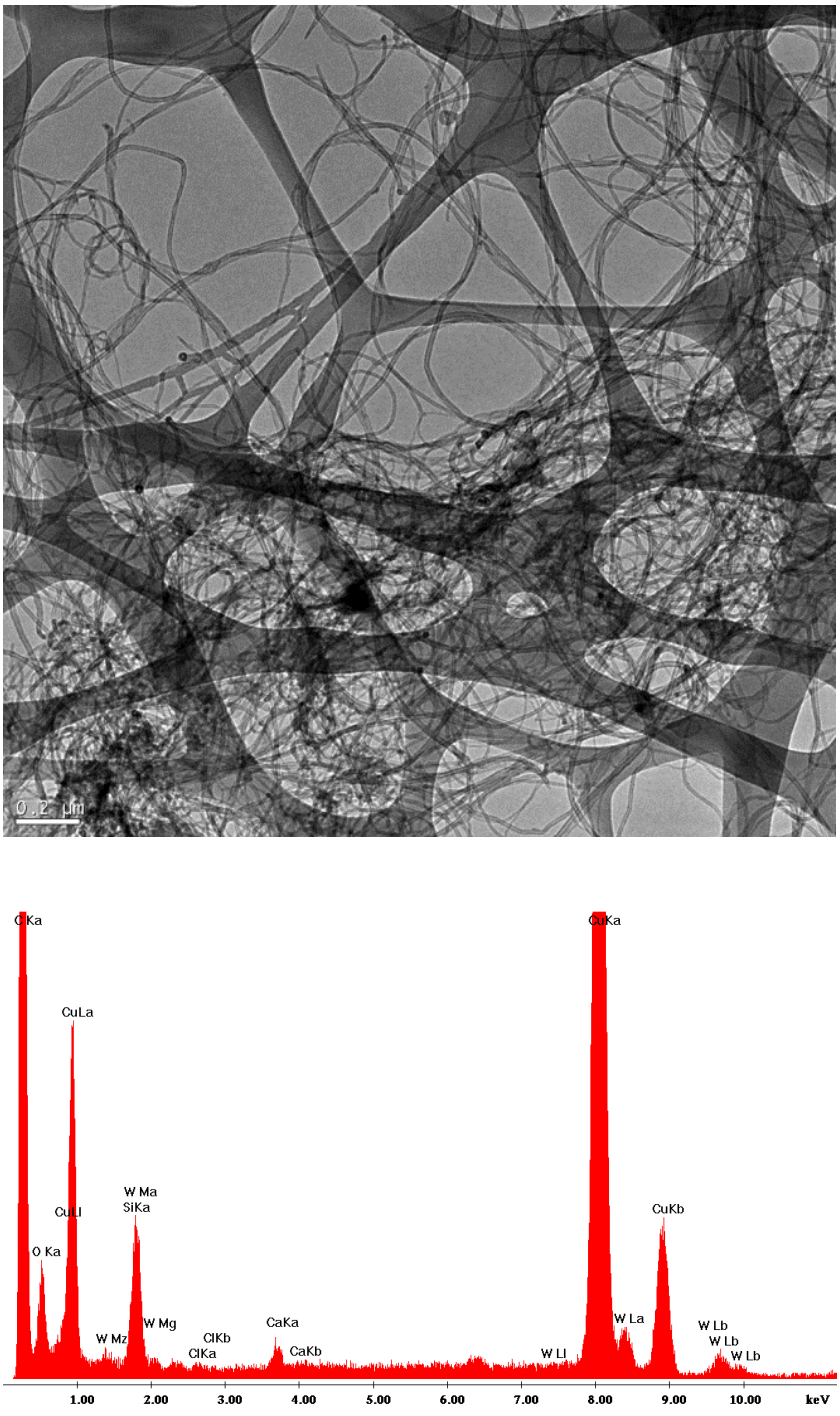
The molar weight (M_r) of POM-Pyr is 6123.22 g mol^{-1}. Based on the weight loss (WL) of SWCNT-POM (10%) the functionalization degree can be estimated to be (%WL(C)/M_r(C))/(%WL(POM-pyr))/M_r(POM-pyr)) = (0.9/12)/(0.1/6123.22)= 4592, that means, approximately 1 POM per 4600 carbon atoms.[1]

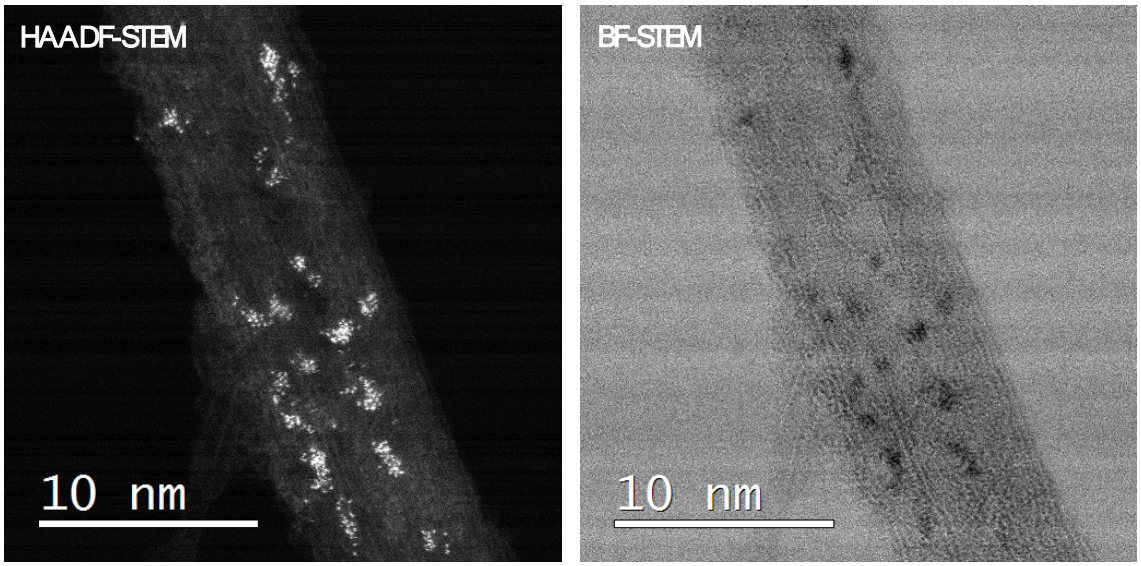


SI 1. Thermogravimetric analysis under ambient conditions of pristine SWCNTs (black spectrum), POM (green spectrum), and SWCNT-POM (red spectrum).

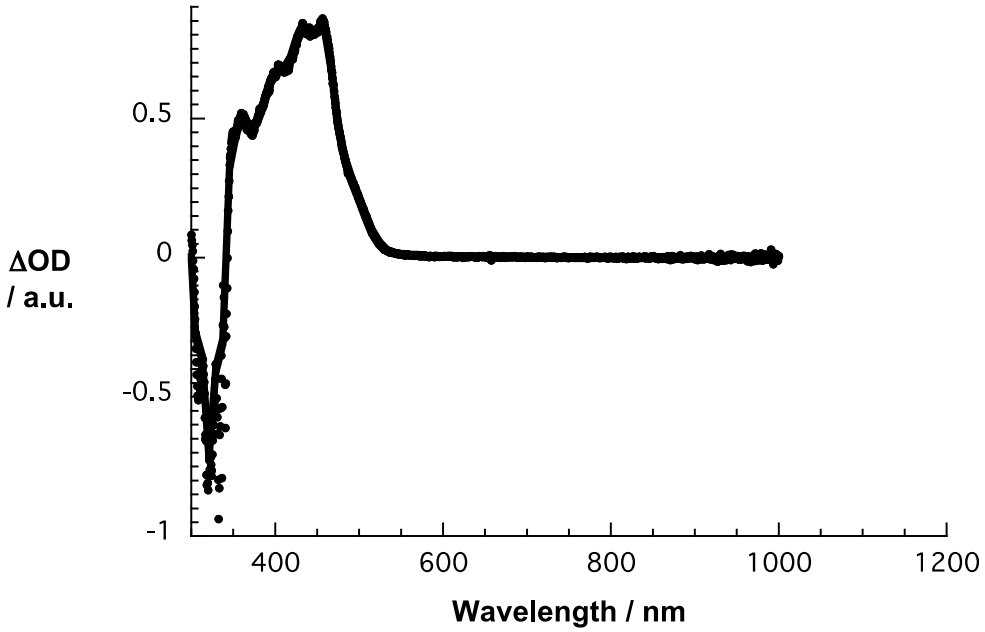
[1] X. Zhang, L. Hou, A. Cnossen, A.C. Coleman, O. Ivashenko, P. Rudolf, B.J. van Wees, W.R. Browne, B.L. Feringa, *Chem. Eur. J.*, 2011, **17**, 8957.

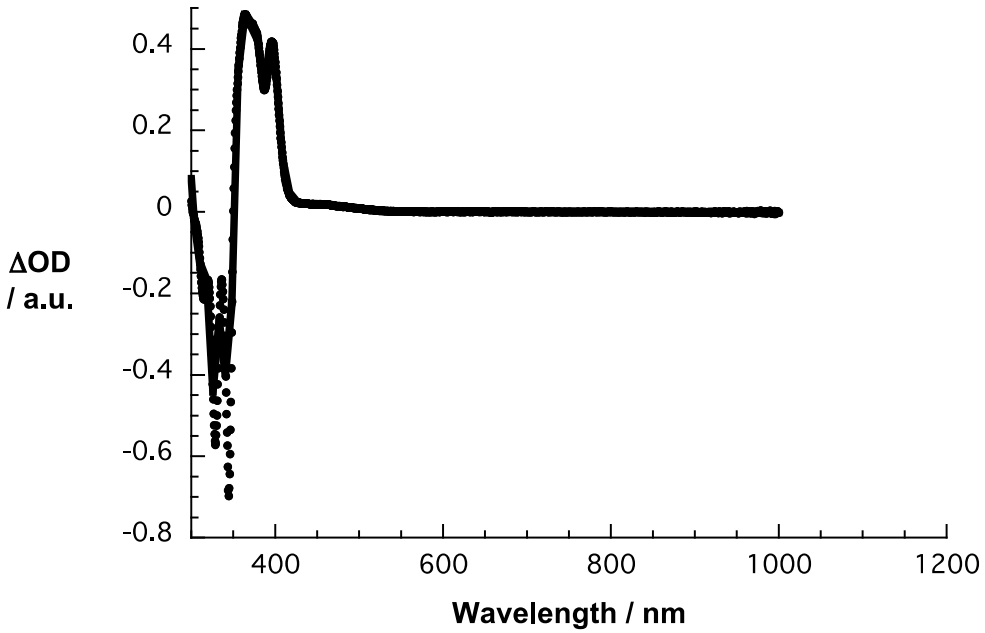


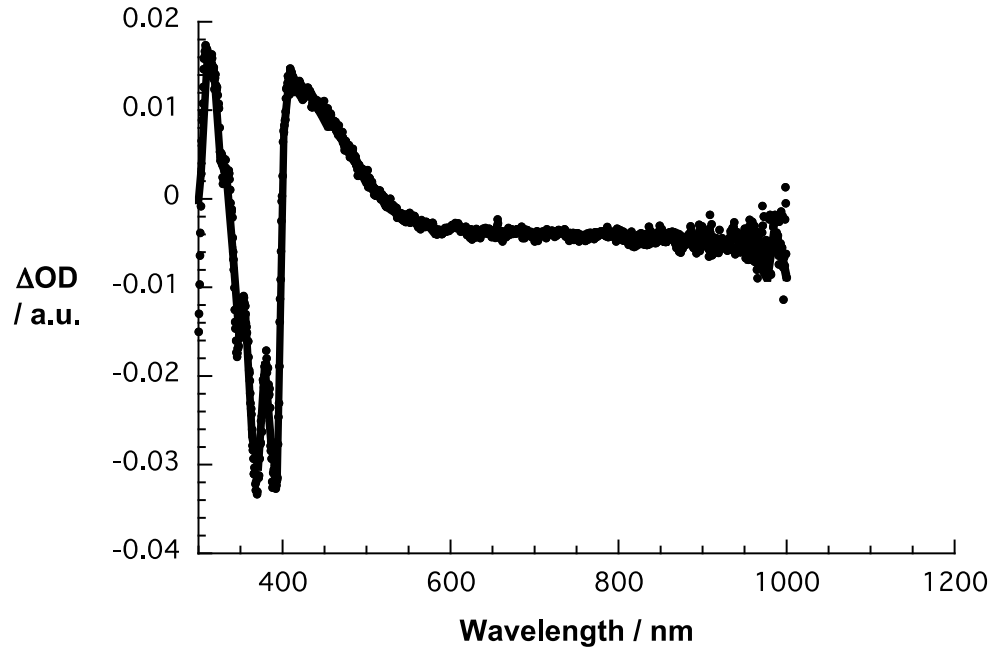
SI 2. HRTEM (upper part) image of **SWCNT-POM**. Local area EDS (lower part) showing the presence of Si and W from the POM. Copper signal is due to the grid from the support.



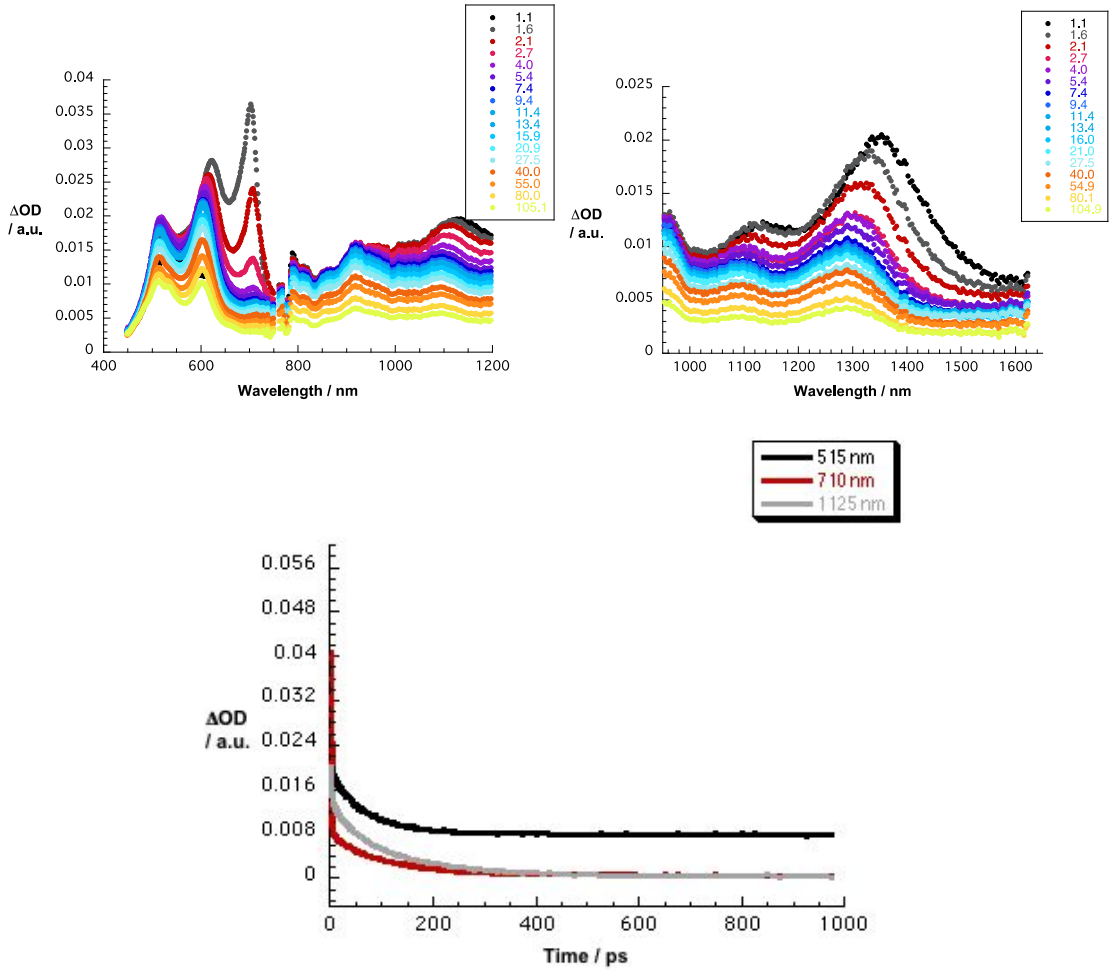
SI 3. HAADF-STEM (left part) and BF-STEM (right) images showing the presence of POMs (bright spots) immobilized onto the sidewalls of SWCNTs.


ΔOD
/ a.u.
0.5
0
-0.5
-1
400
600
800
1000
1200
Wavelength / nm

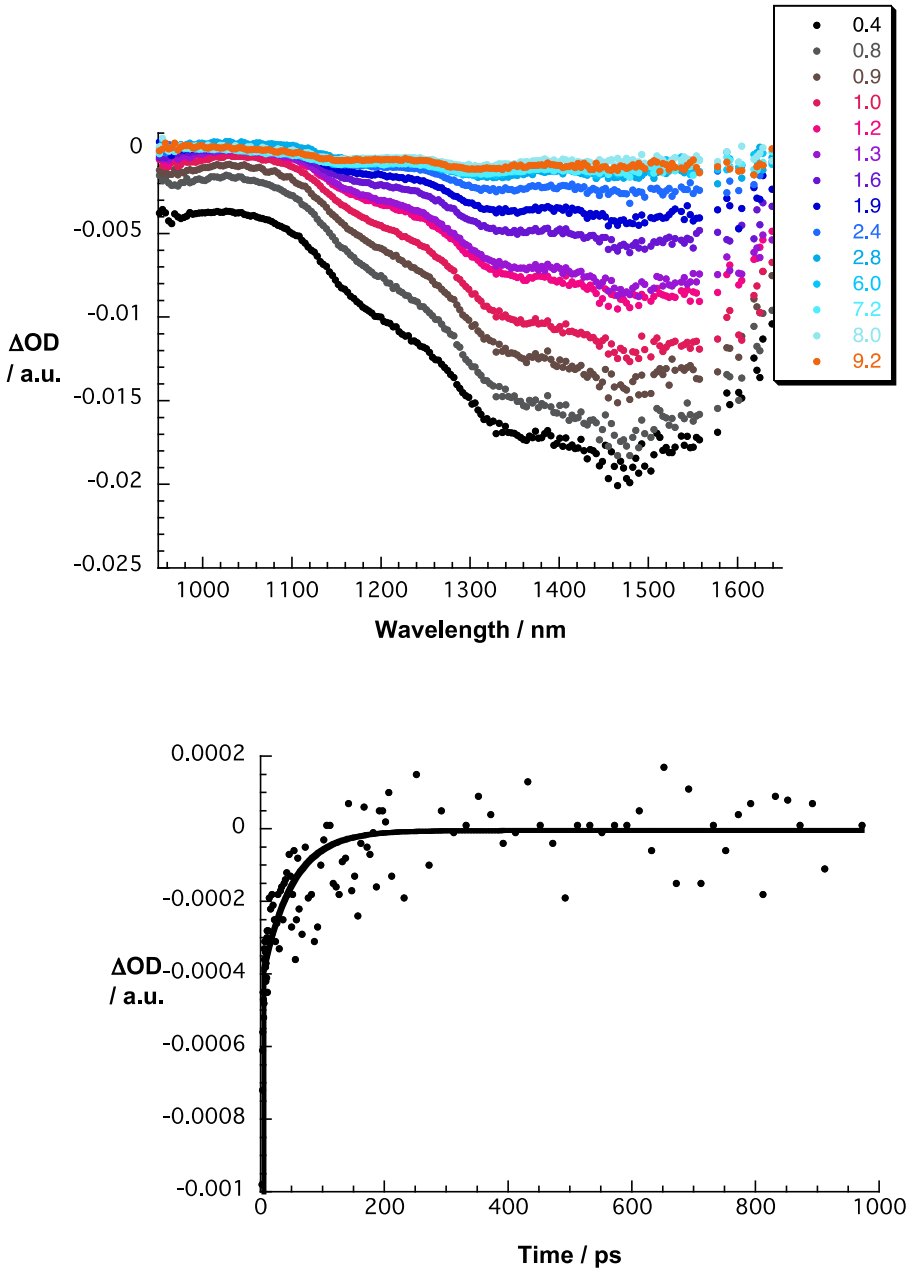

ΔOD
/ a.u.
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
400
600
800
1000
1200
Wavelength / nm



SI 4: Differential absorption spectra (visible and near-infrared) obtained upon electrochemical oxidation of pyrene (upper part), pyrene-1-methanol (central part), and **POM-pyr** (lower part) in DMF with an applied potential of +0.9 V vs. $Ag/AgNO_3$ as reference electrode.



SI 5. Differential absorption spectra obtained upon femtosecond pump probe experiments (387 nm) of **POM-pyr** in DMF with time delays between 1.1 and 104.9 ps at room temperature in the visible and near-infrared (left hand side of upper part) and in the extended near-infrared (right hand side of upper part). Time absorption profiles (lower part) of the spectra shown in the upper part at 515 (black spectrum), 710 (red spectrum), and 1125 nm (grey spectrum) monitoring the excited state decay.



SI 6. Differential absorption spectra (upper part) obtained upon femtosecond pump probe experiments (387 nm) of SWCNT/SDBS in D_2O with time delays of 0.4 and 9.2 ps at room temperature in the extended near-infrared. Time absorption profile (lower part) of the spectra shown in the upper part at 1160 nm monitoring the excited state decay.