Supplementary Material (ESI) for New Journal of Chemistry

Electronic Supporting Information

Insights into the mechanism of the gas phase purification of HiPco SWNTs through a comprehensive multi-technique study

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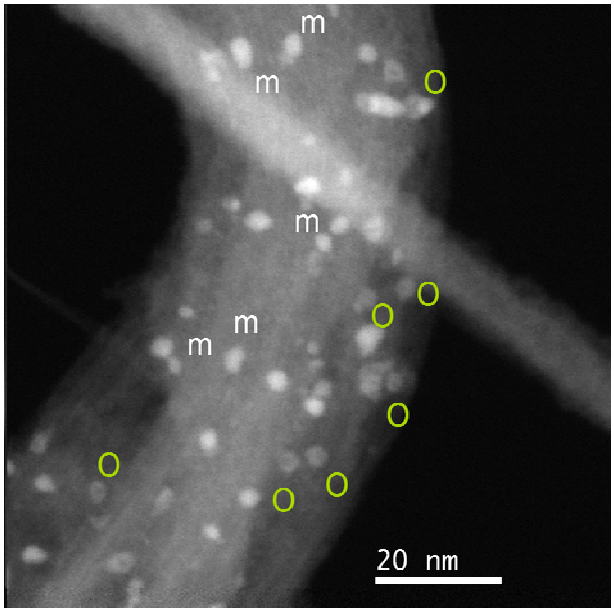


Figure S1. HAADF-STEM image of a bundle of nanotubes from sample **3** bearing catalyst particles whose oxidation states have been determined from the local EELS spectra. M and O labels indicate metallic or carbide phase and oxidized phase respectively.

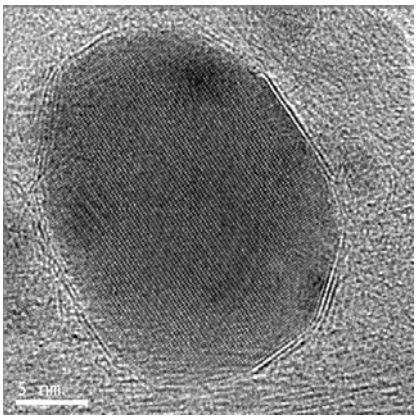


Figure S2. TEM image at high magnification of a 20 nm large catalyst article from sample **3** (scale bar: 5 nm).

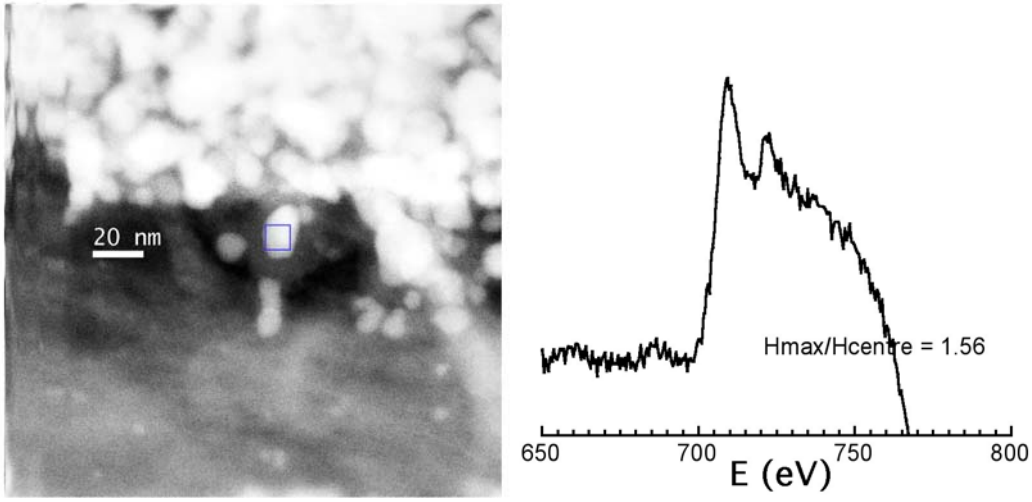


Figure S3. HAADF-STEM image at intermediate magnification of a bunch of catalyst particles (scale bar: 20 nm) and corresponding EELS spectrum recorded in the area encompassed by the blue inset

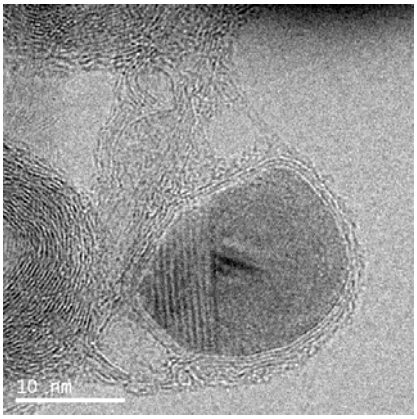


Figure S4. High magnification TEM image of a particle belonging to a bunch in sample **8**, that displays weakly curved vertices (scale bar: 10 nm).

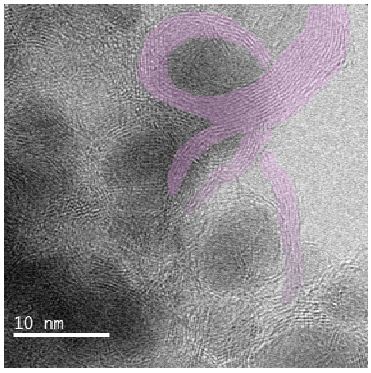
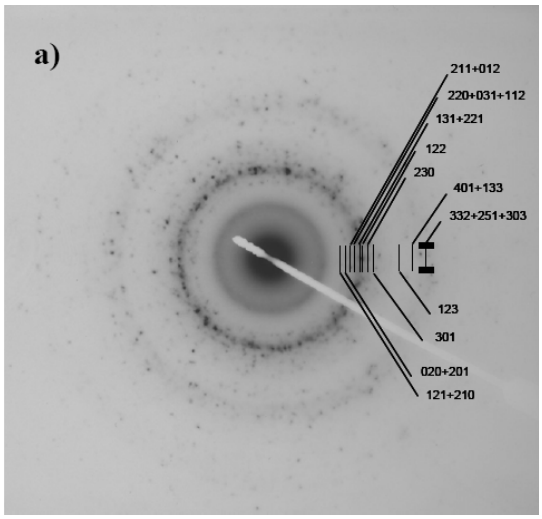
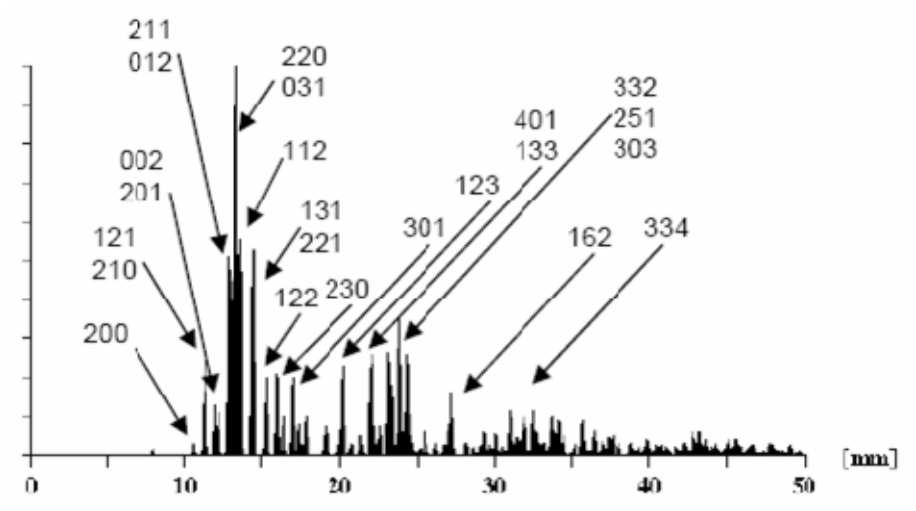


Figure S5. High magnification TEM image of a bunch of particles embedded in graphitic ribbon (pink shadows) in sample **8** (scale bar: 10 nm).



a)



b)

Figure S6. 2D electron diffraction pattern of a bunch of a 100 nm aggregate of particles in sample **8** (a) and the corresponding diffractogram (b).

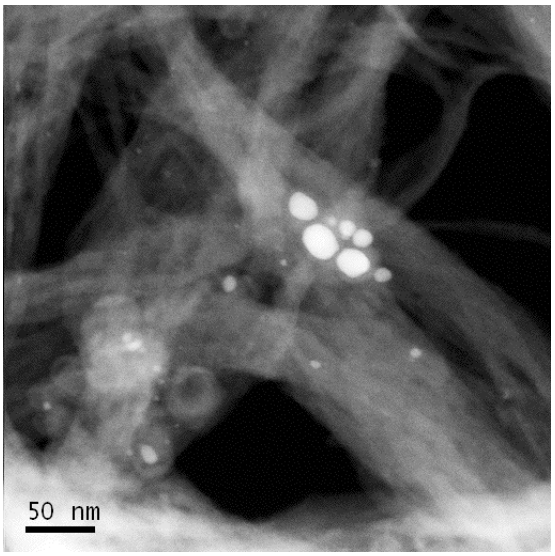
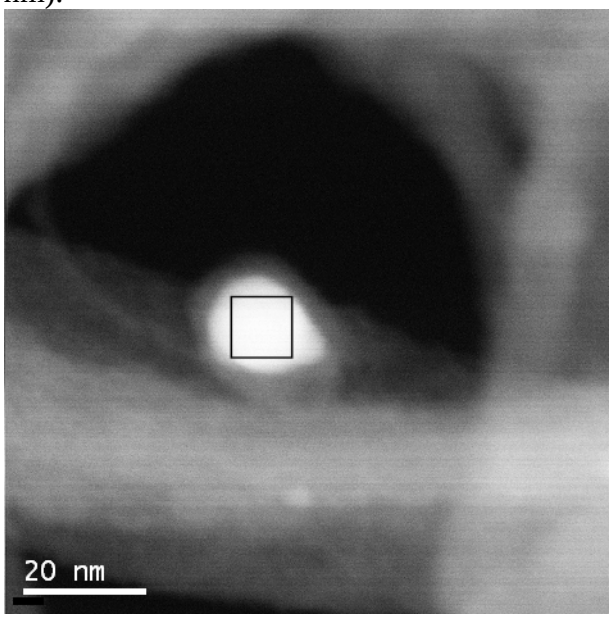


Figure S7. HAADF-STEM image at intermediate magnification of sample **10** (scale bar: 50 nm).



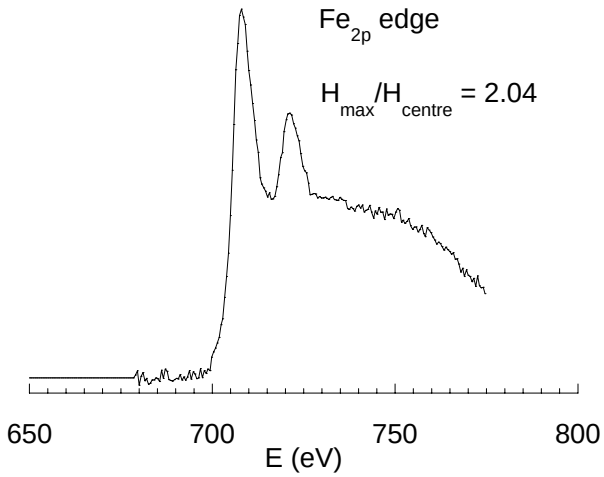
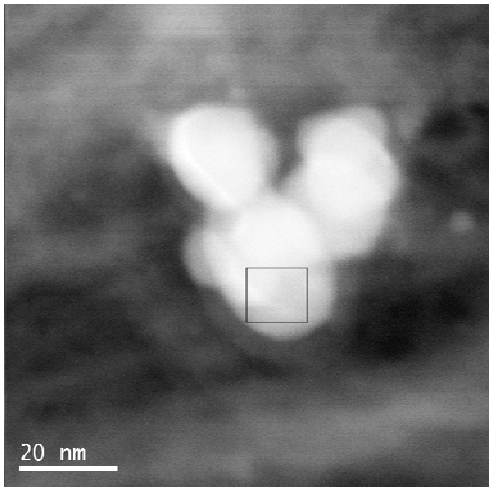


Figure S8. HAADF-STEM image at high magnification of an isolated particle in sample **10** and the corresponding EELS spectrum.



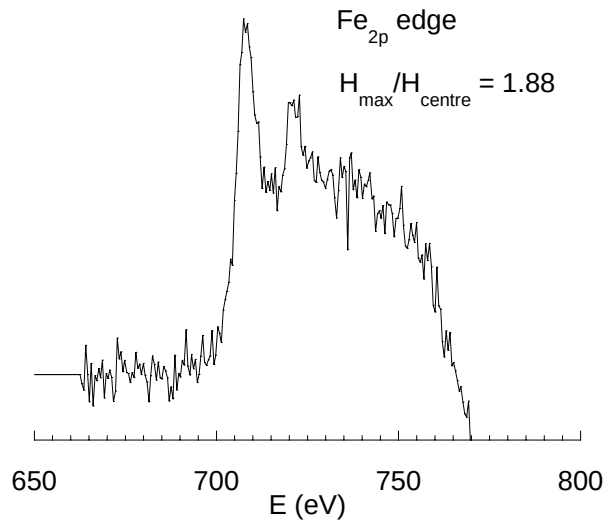
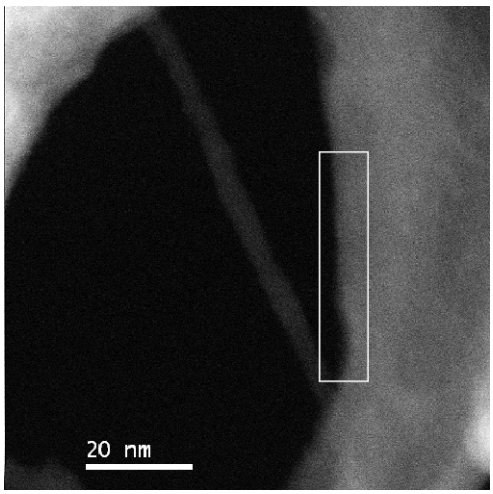


Figure S9. HAADF-STEM image at high magnification of a particle belonging to a bunch in sample **10** and the corresponding EELS spectrum.



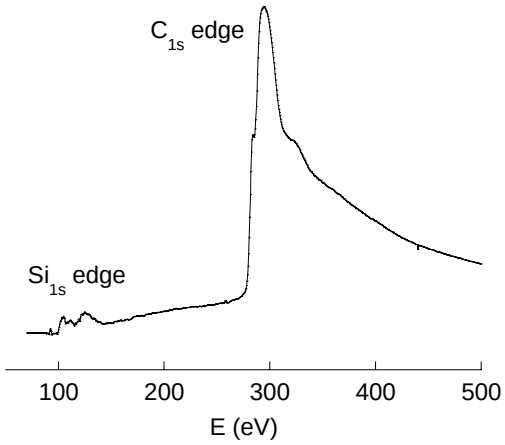


Figure S10. HADF-STEM imaage of sample **15** at intermediate magnification and corresponding EELS spectrum in the C_{1S} edge area.

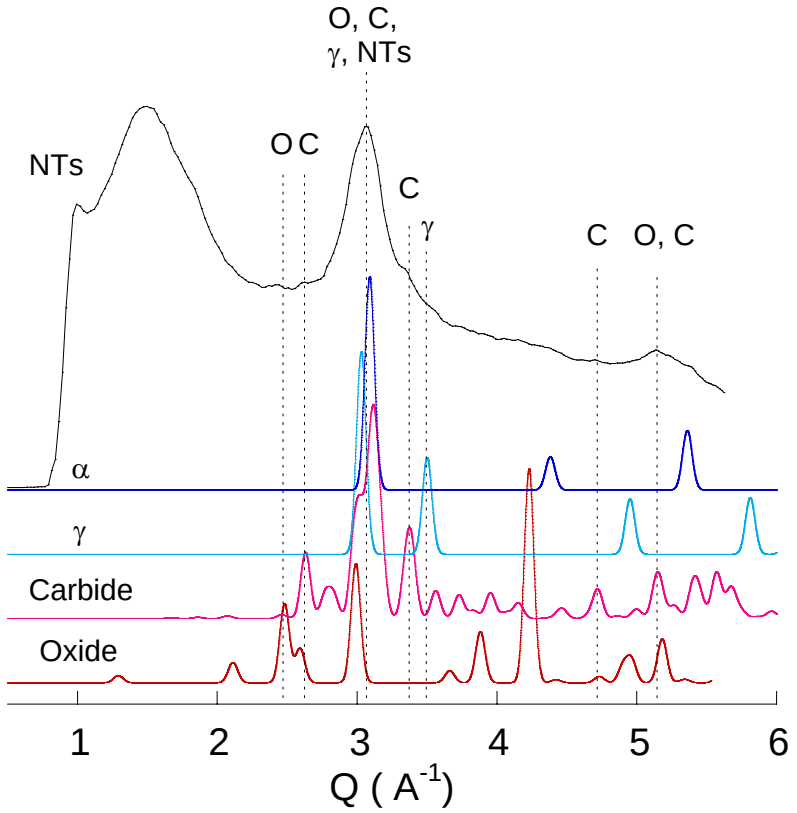


Figure S11. XRD diagram of the pristine nanotubes disposed in a glass capillary. O, C, γ and NTs indicate peaks corresponding to magnetite (or hematite), iron carbide, γ-iron and nanotubes respectively.

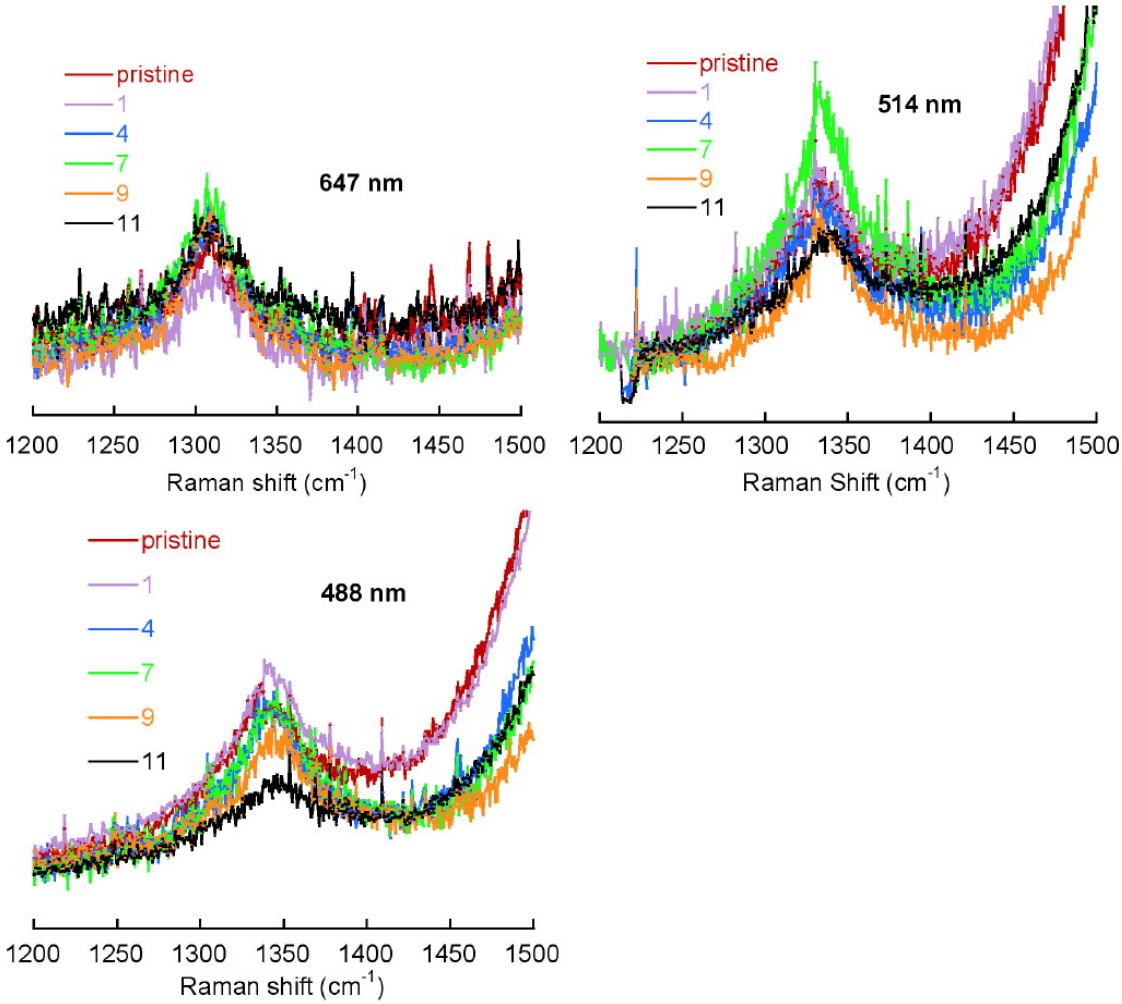


Figure S12. Raman spectra of pristine and **1**, **4**, **7**, **9** and **11** nanotubes in the D-mode area at 647, 514 and 488 nm. The spectra have been normalized thanks to the height of the G^+ mode.

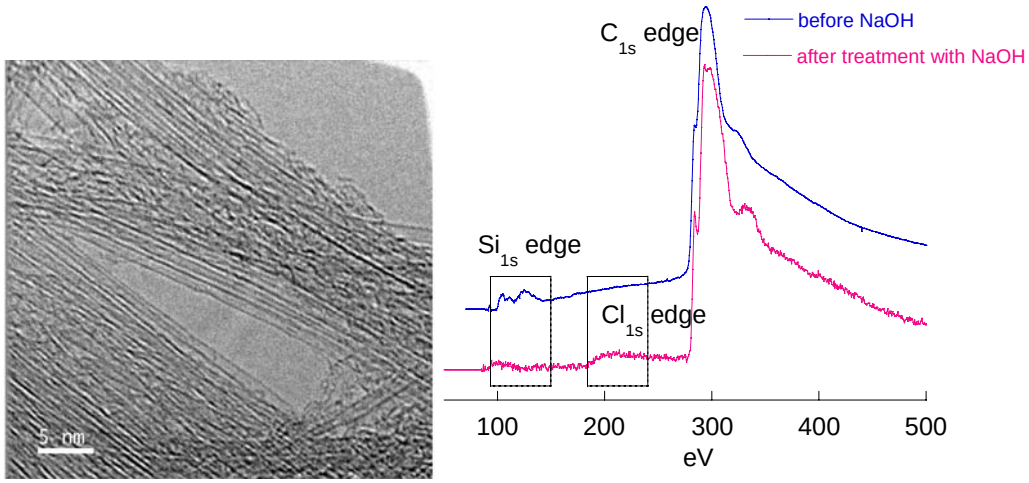


Figure S13. HRTEM image of the purified NTs after reflux in NaOH (scale bar: 5 nm) and corresponding EELS spectra, evidencing the elimination of the silicon pollution. The Cl_{1s} edge comes from the dichlorobenzene used to prepare the microgrids.